

## GREEN RIVER REGION TABLE OF CONTENTS

### **Antelope**

Sublette.....	1
Uinta-Cedar Mountain.....	19
South Rock Springs.....	29
Bitter Creek.....	43
Carter Lease.....	55
Baggs.....	67

### **Mule Deer**

Uinta.....	79
South Rock Springs.....	91
Baggs.....	109

### **Elk**

Uinta.....	123
South Rock Springs.....	131
Sierra Madre.....	143
Steamboat.....	157
West Green River.....	173
Petition.....	185

### **Moose**

Uinta.....	195
Lincoln.....	203



## 2014 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2014 - 5/31/2015

HERD: PR401 - SUBLETTE

HUNT AREAS: 85-93, 96, 107

PREPARED BY: PATRICK BURKE

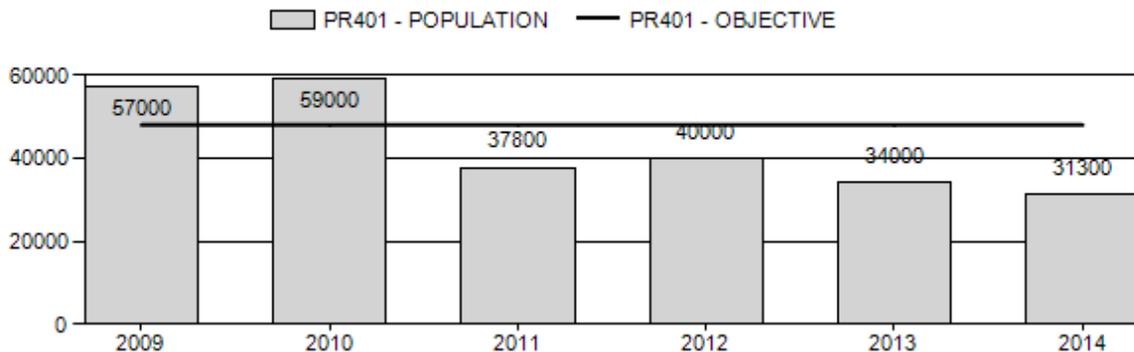
	<u>2009 - 2013</u> <u>Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	45,560	31,300	32,000
Harvest:	5,086	3,262	2,920
Hunters:	5,246	3,603	3,200
Hunter Success:	97%	91%	91 %
Active Licenses:	5,887	4,069	3,200
Active License Success:	86%	80%	91 %
Recreation Days:	18,236	13,646	12,000
Days Per Animal:	3.6	4.2	4.1
Males per 100 Females	55	52	
Juveniles per 100 Females	61	74	

Population Objective ( $\pm 20\%$ ) : 48000 (38400 - 57600)  
 Management Strategy: Recreational  
 Percent population is above (+) or below (-) objective: -34.8%  
 Number of years population has been + or - objective in recent trend: 4  
 Model Date: 01/23/2015

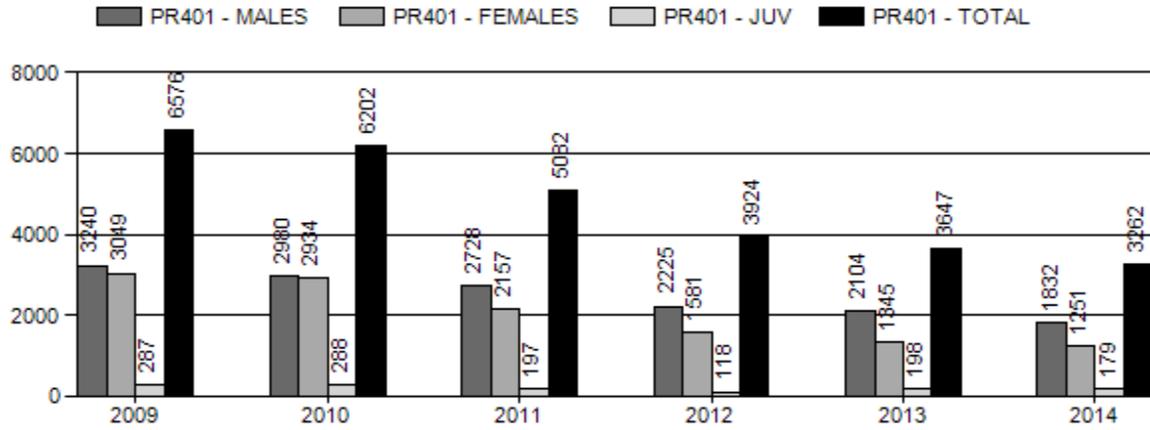
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	8%	8%
Males $\geq 1$ year old:	25%	25%
Juveniles (< 1 year old):	1%	1%
Total:	8%	8%
Proposed change in post-season population:	0%	0%

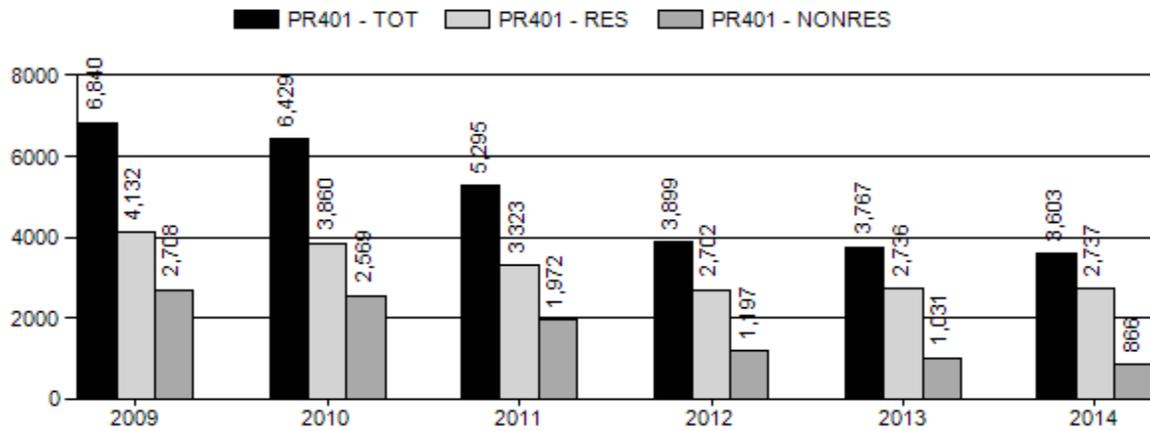
## Population Size - Postseason



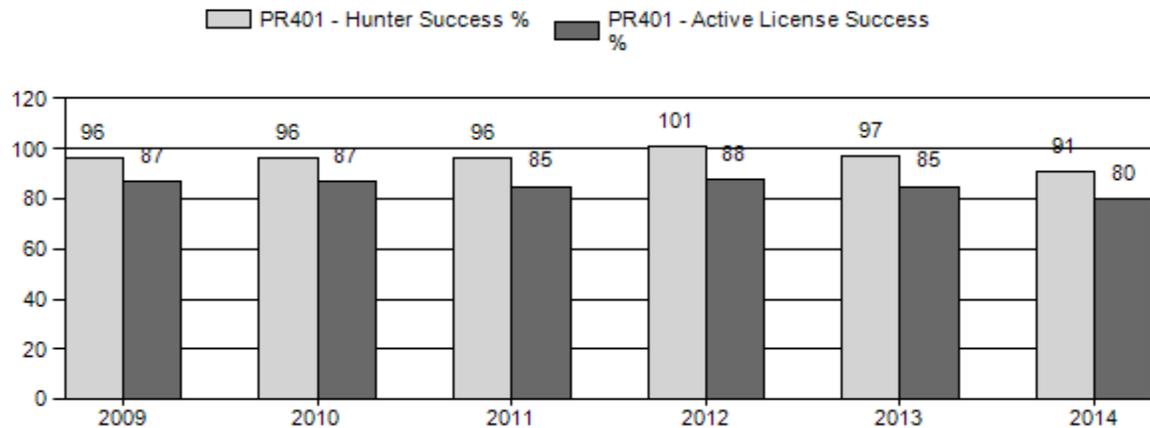
# Harvest



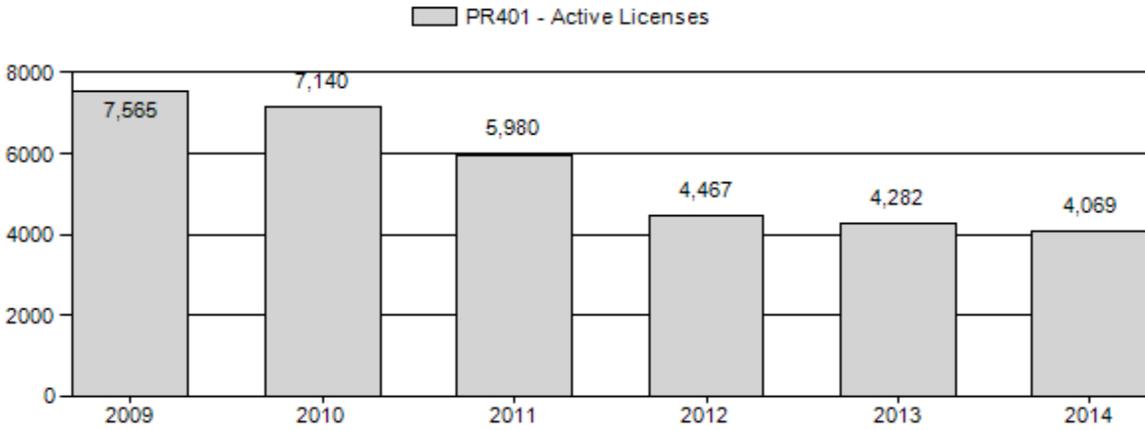
# Number of Hunters



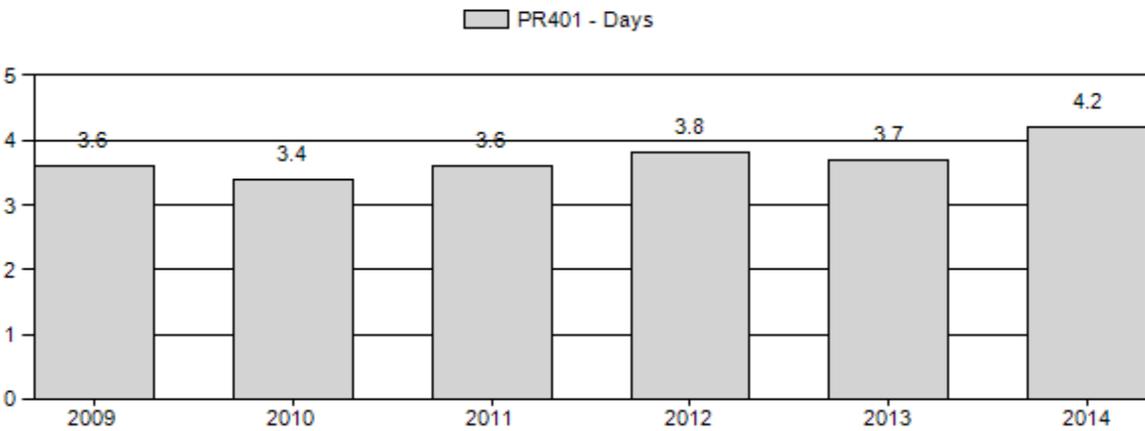
# Harvest Success



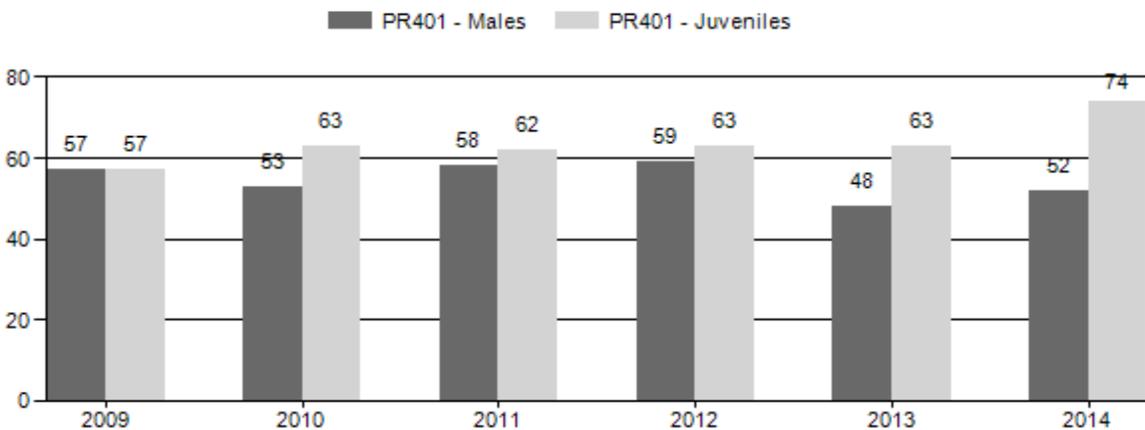
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



**2009 - 2014 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
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	45,000	646	1,967	2,613	27%	4,439	45%	2,800	28%	9,852	1,986	15	44	59	± 2	63	± 2	40
2013	38,000	517	1,848	2,365	23%	4,975	48%	3,123	30%	10,463	2,065	10	37	48	± 2	63	± 2	43
2014	35,000	786	1,687	2,473	23%	4,791	44%	3,529	33%	10,793	2,614	16	35	52	± 2	74	± 2	49

**2015 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
		Nov. 1	Nov. 15		Unused Area 89 Type 6 licenses valid in that in that portion of Area 89 south of Middle Piney Creek, east of U.S. Hwy 189, and south of Wyoming Hwy 351
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	150	Limited quota; any antelope valid in that portion of Area 90 west of U.S. Highway 191
	6	Sept. 10	Oct. 31	175	Limited quota; doe or fawn antelope valid in that portion of Area 90 east of U.S. Highway 191
	7	Sept. 10	Oct. 31	25	Limited quota; doe or fawn antelope valid in that portion of Area 90 west of U.S. Highway 191

	8	Aug. 15	Sept. 9	25	Limited quota; doe or fawn antelope valid on private land in that portion of Area 90 east of U.S. Highway 191
91	1	Sept. 10	Oct. 31	375	Limited quota; any antelope
	6	Sept. 10	Oct. 31	200	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, 96	1	Sept. 10	Oct. 31	150	Limited quota; any antelope
	7	Sept. 10	Oct. 31	25	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	25	Limited quota; any antelope; also valid in Area 92
	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; also valid in that portion of Area 92 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

Hunt Area	Type	Quota change from 2014
89	7	-25
90	2	-25
	6	-25
	7	-50
	8	+25
91	1	-25
	6	-25
92	7	-25
96	1	-25
<b>Herd Unit Total</b>	<b>1</b>	<b>-50</b>
	<b>2</b>	<b>-25</b>
	<b>6</b>	<b>-50</b>
	<b>7</b>	<b>-100</b>
	<b>8</b>	<b>+25</b>

**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 2014 post-season modeled population estimate for the Sublette herd is approximately 31,000 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, 2013, and to a lesser extent the summer of 2014 were very dry with little summer precipitation, especially in the southern, lower elevation portions of this herd unit. These dry years appear to have had little effect on this herd as fawn ratios have been remarkably stable during this time period. 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. The summer of 2014 saw substantially better moisture in the northern, portions of the herd unit. This improvement in climatic conditions did result in increased observed fawn to doe ratios in the herd unit in 2014. The below average precipitation levels do seem to still be having an impact in the southern portions of the herd.

### **Habitat**

No habitat transects targeting pronghorn range were conducted in the Sublette herd unit during the period covered by this report. However, the dry summers over the last few years have had an impact on the overall habitat conditions in the southern portion of the herd. Some large sage-brush die-offs have been documented in the herd unit that could have an impact on pronghorn living in these areas. While the exact cause of die-offs has not been determined, it has been speculated that the dry conditions during the summer of 2013 and then the very wet conditions in the fall of 2013 may have drown sage-brush living in low-laying areas.

## **Field Data**

Pre-season ground classifications conducted in August of 2014 resulted in observed ratios of 74 fawns per 100 does as well as 52 total and 14 yearling bucks per 100 does for the herd unit. A total of 10,793 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 and 10,463 classified in 2013.

## **Harvest Data**

The 2014 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 herd being estimated below objective and to increased numbers of licenses issued when the herd was above objective in the late 2000's. Days per animal harvested did increase slightly in 2014 to 4.2 days per animal harvested compared to average days per harvest values for the herd in the mid 3 days per harvest. The overall active license success rate in 2014 was 80%, which is generally in line, but at the lower end of success rates for the herd in recent years.

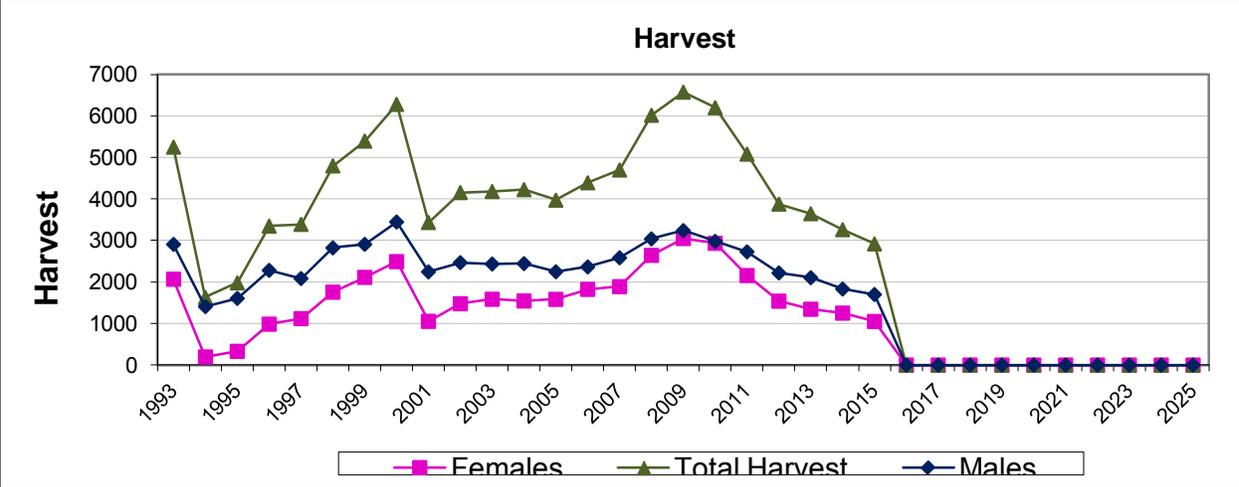
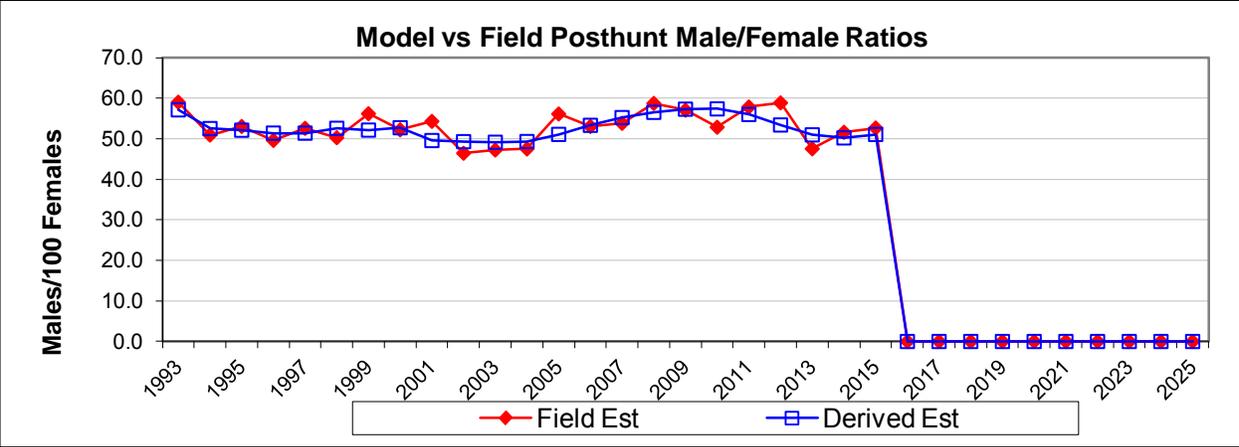
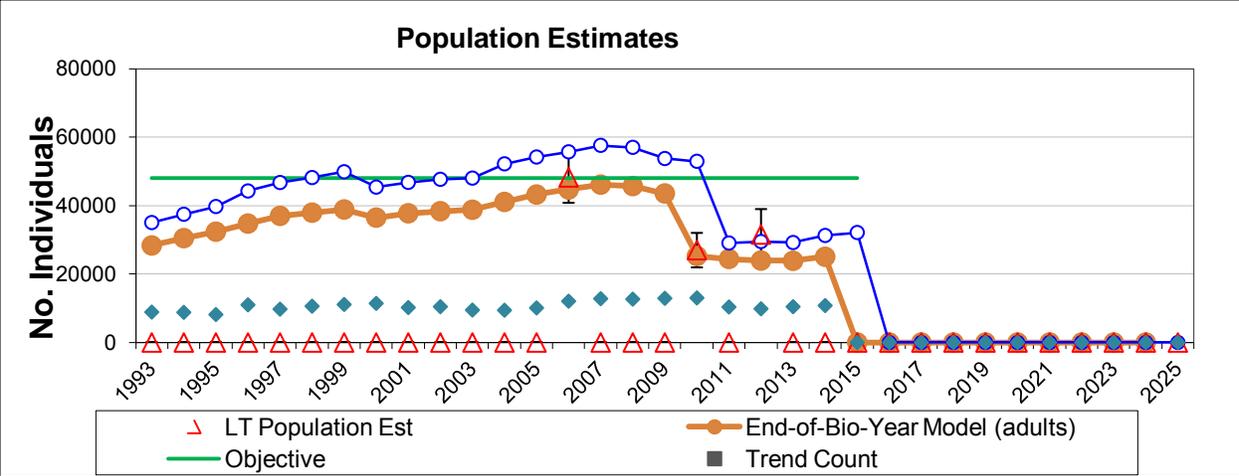
## **Population**

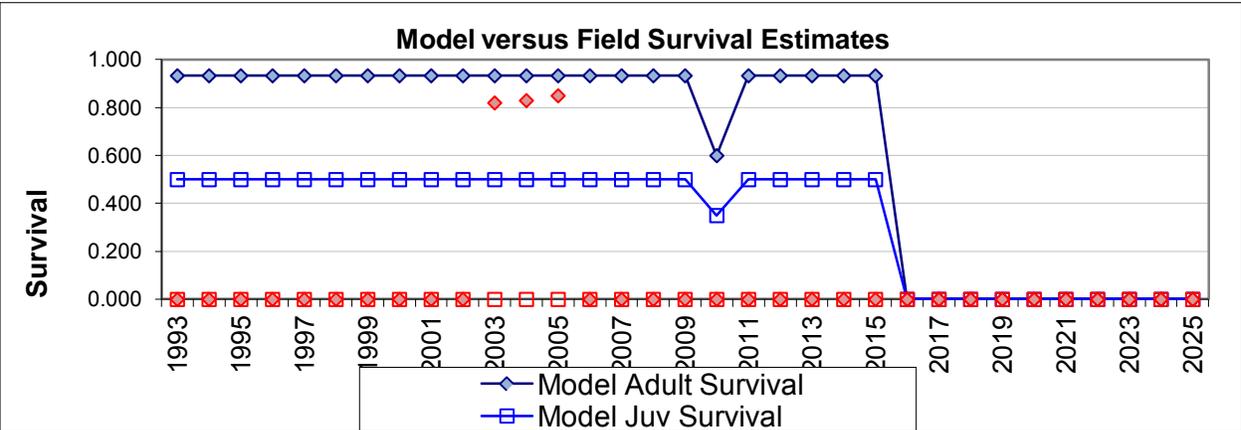
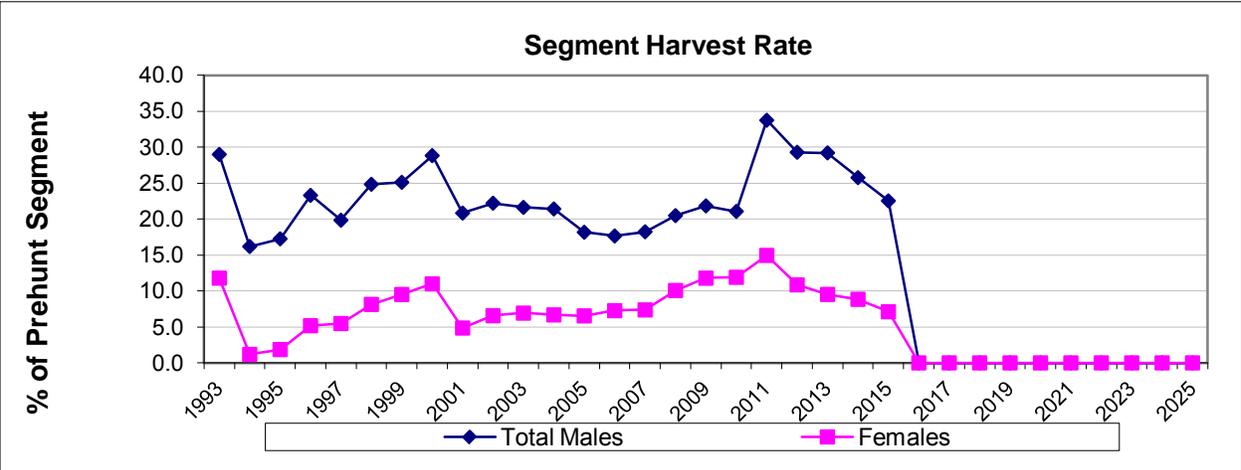
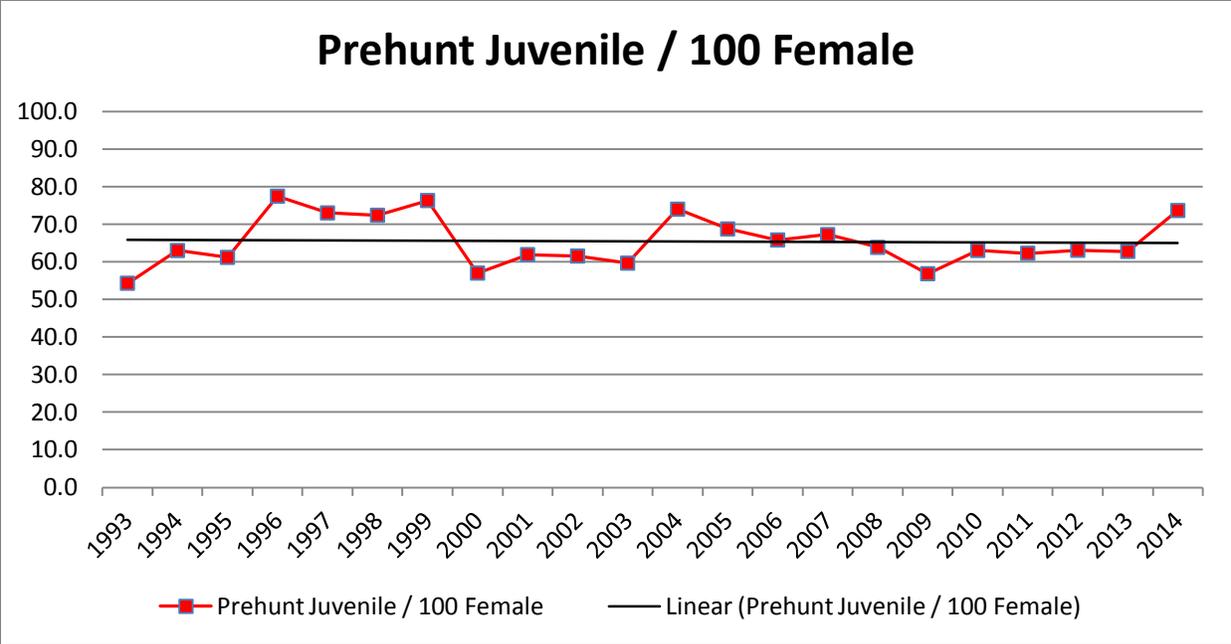
The model for the Sublette herd does a reasonable job of tracking observed ratios and line-transect estimates for this large and geographically spread out pronghorn herd. Use of the semi-constant survival model was necessary to allow the modeled population estimates to match the line-transect estimates 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 match observations made by both field personnel and the general public.

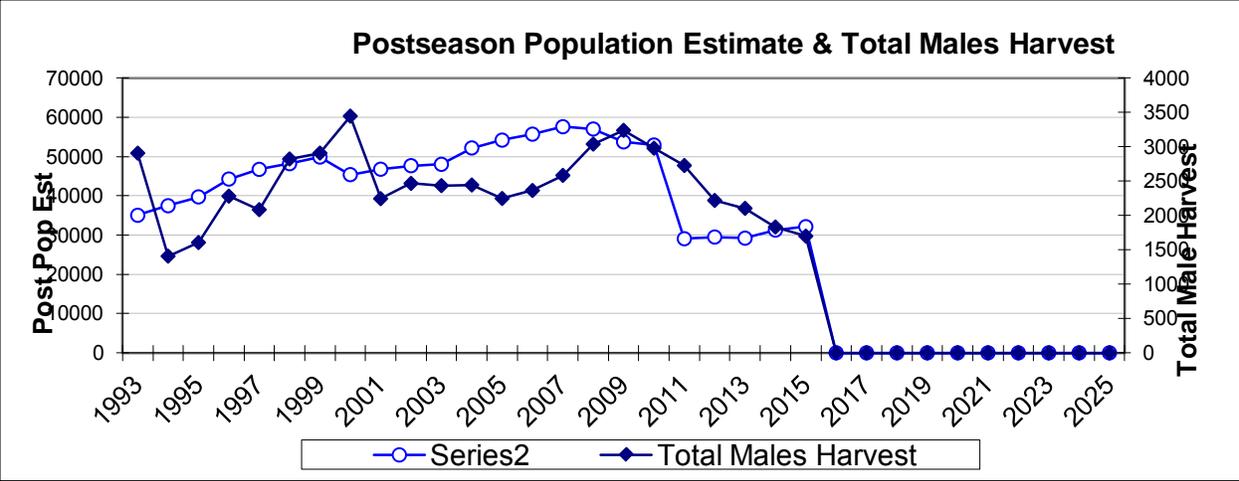
A line-transect survey was flown in the Sublette herd in June of 2013 to obtain an end of bio-year estimate for the 2012 bio-year. That survey was designed and analyzed using a stratified design to account for low, medium, and high density areas of the herd unit. The resulting end of bio-year population 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 2015 season proposal is similar to previous seasons, but does include proposed changes in 5 of the hunt areas in the herd unit. Reductions in one or more license types are being proposed in HAs 89, 90, 91, 92, and 96; and the creation of a new license type is proposed in HA90. These are being proposed due to concerns over lower pronghorn numbers in the middle and southern portions of the herd. The 2015 season proposal also includes allowing hunters to hunt in both HA92 and 96 if they draw a license in either one of those hunt areas. This change is being proposed due to extremely low pronghorn numbers in HA96. It is hoped that if hunters are able to choose between harvesting a pronghorn in either HA92 or 96 that most will choose HA92, where pronghorn are more numerous, than HA96, which has much lower pronghorn numbers.







<b>INPUT</b>	
Species:	Pronghorn
Biologist:	Patrick Burke
Herd Unit & No.:	Sublette PR401
Model date:	01/23/15

Clear form

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	120	134	<input checked="" type="checkbox"/> SCJ,SCA Model	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	56	164	<input type="checkbox"/> TSJ,CA 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	10486	11034	19308	40829	10184	7635	17034	35053	9767	18591	28357			48000	
1994	11480	9571	18219	39271	11454	8023	18004	37481	10451	20050	30501			48000	
1995	12022	10242	19649	41914	11974	8476	19285	39734	10995	21386	32382			48000	
1996	16236	10776	20959	47970	16146	8265	19875	44286	11798	22953	34751			48000	
1997	16425	11562	22494	50481	16219	9269	21264	46752	12758	24256	37014			48000	
1998	17208	12503	23771	53481	16966	9397	21839	48202	13006	24937	37943			48000	
1999	18651	12746	24438	55835	18239	9546	22114	49899	13424	25454	38877			48000	
2000	14221	13155	24944	52321	13844	9363	22203	45411	12096	24398	36494			48000	
2001	14808	11855	23910	50572	14657	9385	22752	46794	12472	25293	37765			48000	
2002	15255	12223	24787	52264	15021	9509	23162	47693	12646	25724	38370			48000	
2003	15039	12393	25210	52641	14862	9714	23466	48042	12817	25979	38796			48000	
2004	18842	12561	25460	56863	18579	9872	23761	52213	13893	27190	41083			48000	
2005	18320	13615	26646	58581	18162	11143	24905	54210	15039	28197	43235			48000	
2006	18190	14738	27633	60560	17964	12137	25626	55728	15909	28798	44707	48244	7423	48000	
2007	18977	15591	28222	62790	18727	12749	26144	57620	16664	29475	46139			48000	
2008	18443	16331	28885	63660	18074	12987	25978	57039	16659	29063	45722			48000	
2009	16190	16326	28482	60998	15874	12762	25128	53764	15883	27676	43558			48000	
2010	17096	15565	27122	59783	16779	12287	23895	52961	9076	16203	25279	26991	5038	48000	
2011	9892	8894	15879	34666	9675	5894	13506	29075	8505	15921	24426			48000	
2012	9842	8335	15603	33779	9709	5894	13910	29512	8088	15862	23950	31550	7438	48000	
2013	9758	7926	15545	33229	9540	5611	14066	29218	7982	15892	23874			48000	
2014	11472	7823	15574	34869	11275	5808	14198	31280	8357	16358	24715			48000	
2015	10661	8190	16031	34881	10468	6210	14656	31334						48000	
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	0.50			0.93		
1994	0.50			0.93		
1995	0.50			0.93		
1996	0.50			0.93		
1997	0.50			0.93		
1998	0.50			0.93		
1999	0.50			0.93		
2000	0.50			0.93		
2001	0.50			0.93		
2002	0.50			0.93		
2003	0.50			0.93	0.82	0.04
2004	0.50			0.93	0.83	0.04
2005	0.50			0.93	0.85	0.04
2006	0.50			0.93		
2007	0.50			0.93		
2008	0.50			0.93		
2009	0.50			0.93		
2010	0.35			0.60		
2011	0.50			0.93		
2012	0.50			0.93		
2013	0.50			0.93		
2014	0.50			0.93		
2015	0.50			0.93		
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

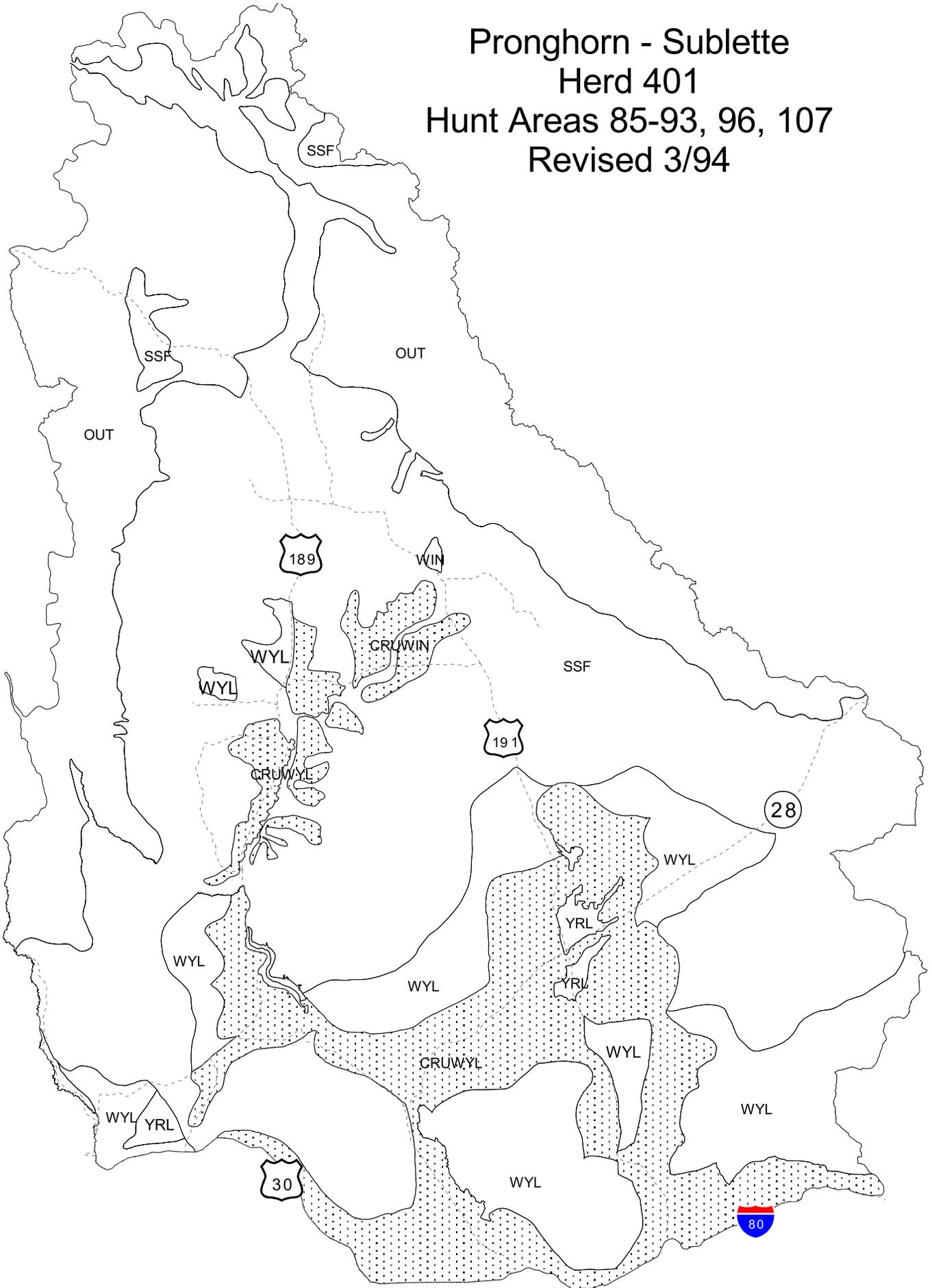
Parameters:		Optim cells
Juvenile Survival =		0.500
Adult Survival =		0.933
Initial Total Male Pop/10,000 =		1.103
Initial Female Pop/10,000 =		1.931

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		54.31	1.42	57.15	59.04	1.50	2908	2068	275	5251	29.0	11.8
1994		63.01	1.58	52.54	50.94	1.37	1408	195	24	1627	16.2	1.2
1995		61.19	1.61	52.13	53.06	1.46	1606	331	44	1981	17.2	1.9
1996		77.47	1.68	51.41	49.61	1.24	2282	985	82	3349	23.3	5.2
1997		73.02	1.71	51.40	52.59	1.36	2085	1118	187	3390	19.8	5.5
1998		72.39	1.62	52.60	50.28	1.26	2823	1756	220	4799	24.8	8.1
1999		76.32	1.68	52.16	56.19	1.36	2909	2113	374	5396	25.1	9.5
2000		57.01	1.28	52.74	52.22	1.21	3447	2492	343	6282	28.8	11.0
2001		61.93	1.46	49.58	54.31	1.33	2245	1053	137	3435	20.8	4.8
2002		61.54	1.41	49.31	46.45	1.16	2467	1477	212	4156	22.2	6.6
2003		59.66	1.44	49.16	47.24	1.23	2435	1585	161	4181	21.6	6.9
2004		74.01	1.74	49.34	47.50	1.28	2444	1544	239	4227	21.4	6.7
2005		68.75	1.61	51.10	56.13	1.40	2248	1583	143	3974	18.2	6.5
2006		65.83	1.41	53.33	53.06	1.21	2364	1824	205	4393	17.6	7.3
2007		67.24	1.39	55.24	53.82	1.20	2584	1889	227	4700	18.2	7.4
2008		63.85	1.36	56.54	58.74	1.28	3040	2643	336	6019	20.5	10.1
2009		56.84	1.22	57.32	57.07	1.22	3240	3049	287	6576	21.8	11.8
2010		63.03	1.30	57.39	52.86	1.16	2960	2934	268	6202	21.1	11.9
2011		62.30	1.46	56.01	57.86	1.39	2728	2157	197	5082	33.7	14.9
2012		63.08	1.52	53.42	58.86	1.45	2219	1539	1539	3879	29.3	10.9
2013		62.77	1.43	50.99	47.54	1.19	2104	1345	1345	3647	29.2	9.5
2014		73.66	1.63	50.23	51.62	1.28	1832	1251	1251	3262	25.8	8.8
2015		66.50	1.53	51.09	52.67	1.31			1050	2920	24.2	8.6
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

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



## 2014 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2014 - 5/31/2015

HERD: PR411 - UINTA-CEDAR MOUNTAIN

HUNT AREAS: 95, 99

PREPARED BY: JEFF SHORT

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	10,797	8,965	9,684
Harvest:	885	841	845
Hunters:	927	925	925
Hunter Success:	95%	91%	91 %
Active Licenses:	1,010	1,004	1,000
Active License Success:	88%	84%	84 %
Recreation Days:	3,576	3,793	3,700
Days Per Animal:	4.0	4.5	4.4
Males per 100 Females	62	55	
Juveniles per 100 Females	54	62	

Population Objective (± 20%) : 10000 (8000 - 12000)

Management Strategy: Recreational

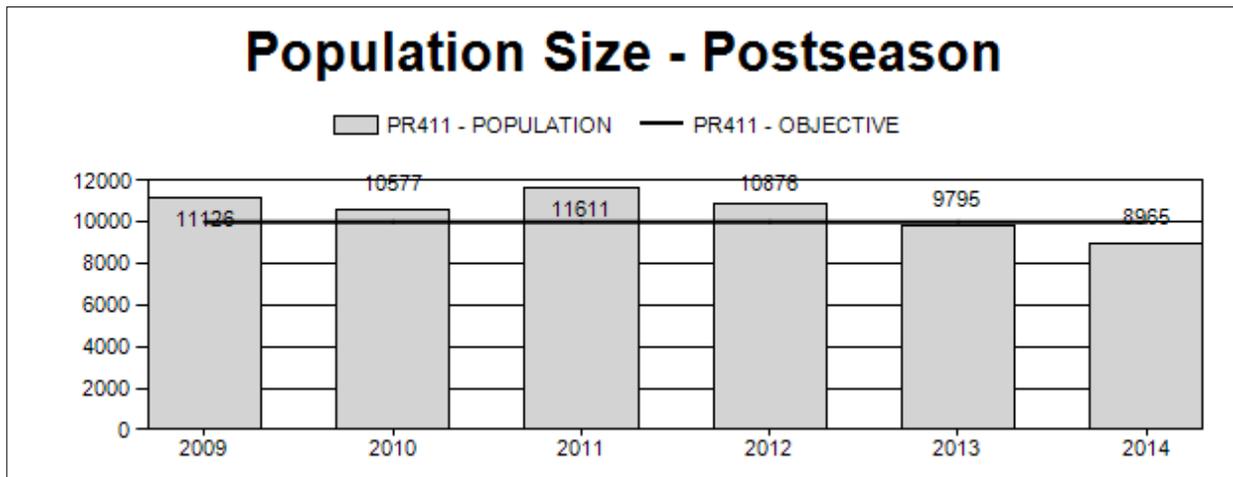
Percent population is above (+) or below (-) objective: -10.4%

Number of years population has been + or - objective in recent trend: 2

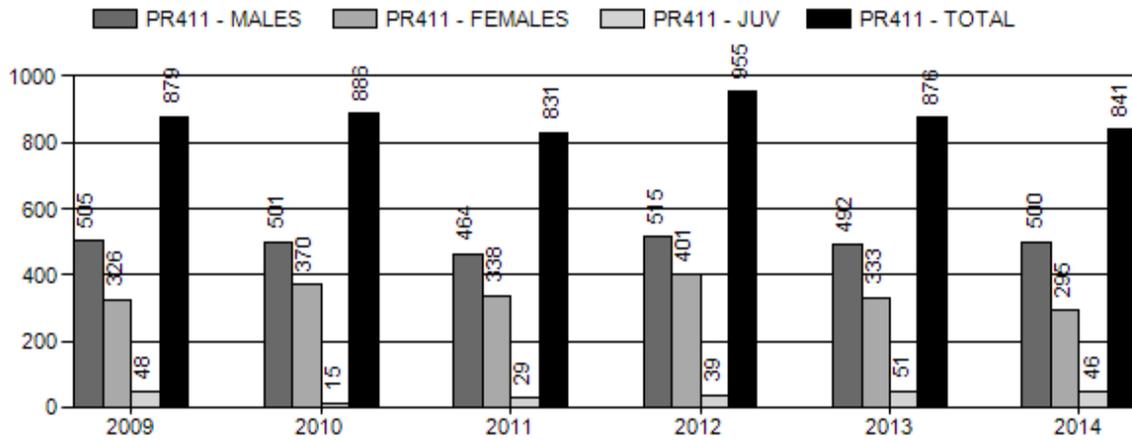
Model Date: 02/27/2015

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

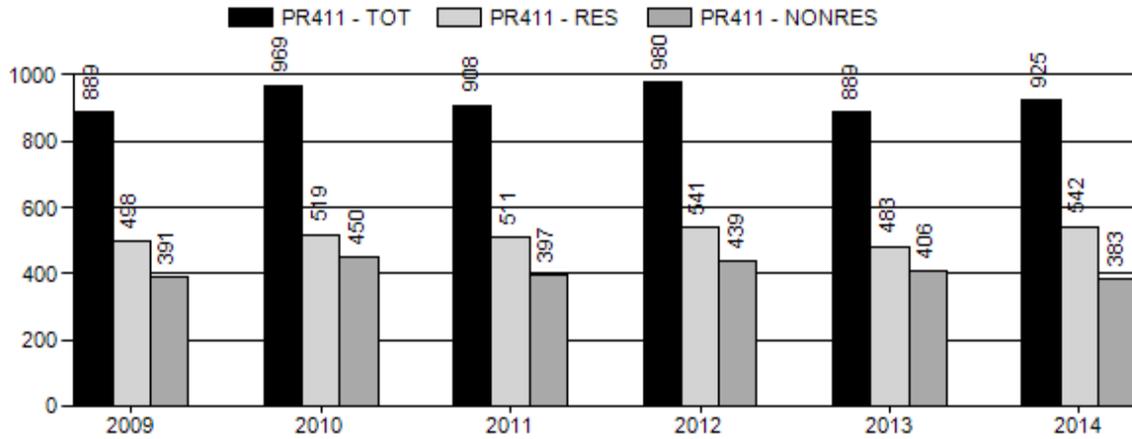
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	7.1%	6.8%
Males ≥ 1 year old:	21.8%	19.3%
Juveniles (< 1 year old):	1.6%	1.6%
Total:	8.5%	8.0%
Proposed change in post-season population:	-1.3%	8.0%



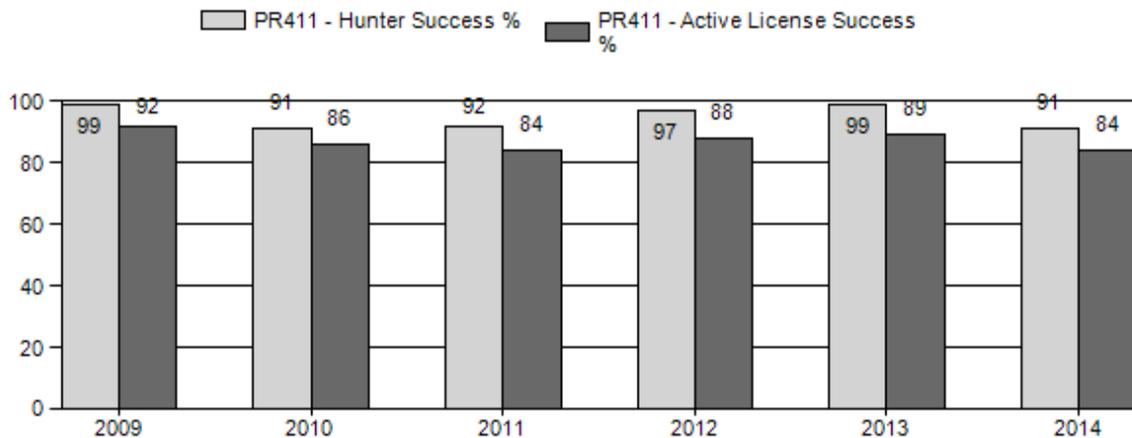
# Harvest



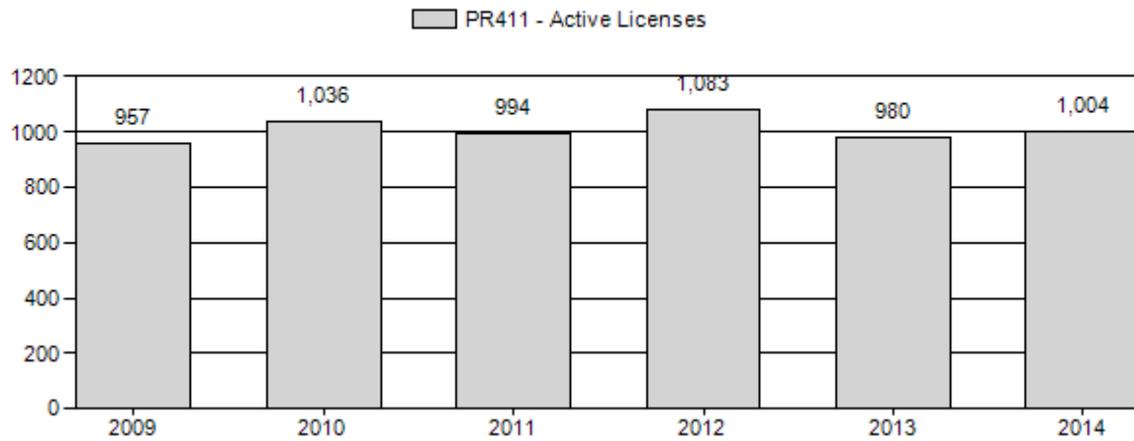
# Number of Hunters



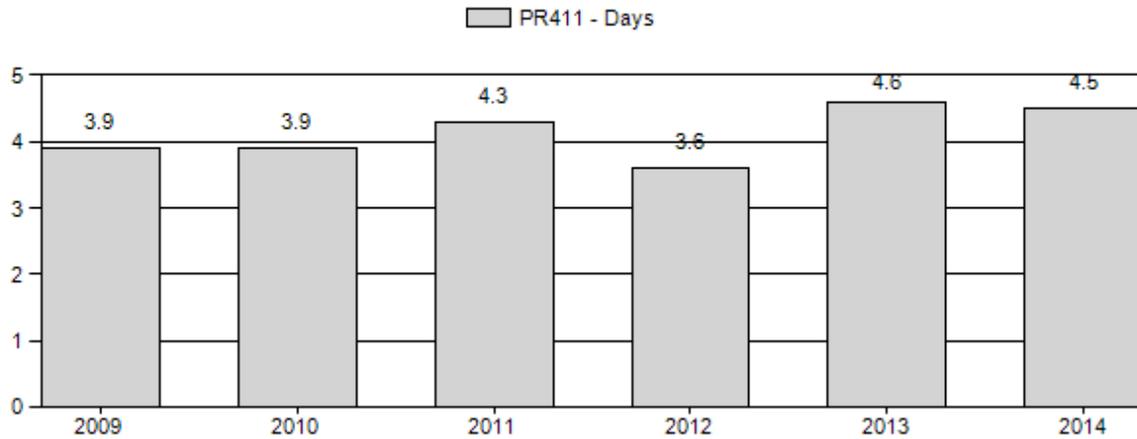
# Harvest Success



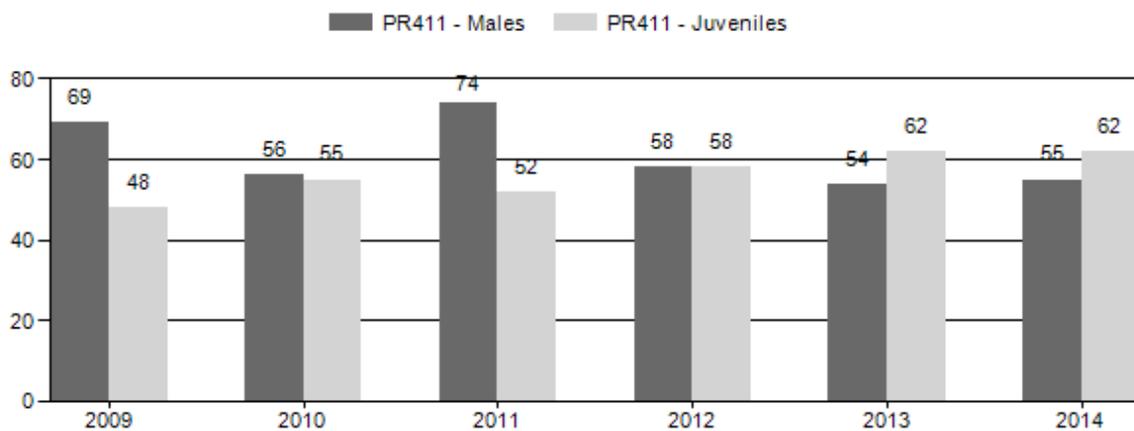
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



**2009 - 2014 Preseason Classification Summary**

for Pronghorn Herd PR411 - UINTA-CEDAR MOUNTAIN

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	9,891	152	374	526	25%	960	46%	598	29%	2,084	0	16	39	55	± 4	62	± 5	40

**2015 HUNTING SEASONS**

SPECIES: Pronghorn

HERD UNIT: Uinta-Cedar Mountain (411)

HUNT AREAS: 95, 99

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
95	1	Sept. 10	Oct. 31	325	Limited quota	Any antelope
	7	Aug 15	Oct. 31	150	Limited quota	Doe or fawn valid on irrigated lands
99	1	Sept. 10	Oct. 31	225	Limited quota	Any antelope
	6	Sept. 10	Oct. 31	300	Limited quota	Doe or fawn
	7	Sept. 10	Oct. 31	150	Limited quota	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 2014
95	7	+75
99	6	-100
99	7	+100
<b>Herd Unit Total</b>	<b>6</b>	<b>-100</b>
	<b>7</b>	<b>+175</b>

**Management Evaluation**

**Current Postseason Population Management Objective:** 10,000

**Management Strategy:** Recreational

**2014 Postseason Population Estimate:** ~8,965

**2015 Proposed Postseason Population Estimate:** ~9,684

## **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 impacts are 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 2014 and into 2015 was highly variable. In the early part of 2014 the winter was very mild and dry. A moist spring and summer followed. In late August and into September precipitation continued. The winter of 2014-2015 has been very mild to this point. The winters of 2011/12, 2012/13 and 2013/14 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 area 99. Pronghorn distribution was greatly affected by the drought during those times.

## **Habitat**

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

## **Field Data**

The 2014 post-season population estimate was about 8,965 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. Survey variance was extremely high for this survey and a new survey design needs to be used to survey this herd in the future. A new line transect survey is scheduled to be flown in 2015.

## **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. We will increase those permits to 150 for 2015 to address continual damage. Hopefully this will help to alleviate private land damage problems. Conservative seasons continue to be warranted in HA 95 due to 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. We are continuing this strategy to further reduce damage complaints and keep the herd near objective. For 2015 we will transfer

100 type 6 licenses to type 7 licenses to target antelope on private lands and relax pressure on antelope in the eastern portion of the hunt area that have been harvested very heavily for many years.

### **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 8,965 pronghorn in the herd. The model estimates a fairly 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 2015 season setting we will maintain similar levels of harvest in the herd unit while putting more pressure on antelope using private irrigated lands. This should continue to alleviate depredation issues and keep the population fairly stable. If we attain the projected harvest of 845 animals and near normal fawn recruitment this pronghorn population should be very close to objective. The model predicts a 2015 post-season population of about 9,684. The objective and management strategy were last revised in 2014.

# Model

INPUT	
Species:	Pronghorn
Biologist:	Jeff Short
Herd Unit & No.:	Uinta CM PR411
Model date:	02/27/15

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	105	114	<input type="checkbox"/> CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	105	124	<input type="checkbox"/> SCJ,SCA IV	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	41	130	<input checked="" type="checkbox"/> TSJ,CA Model	

Population Estimates from Top Model															
Year	Predicted Prehunt Population (year)			Total	Predicted Posthunt Population (year /)			Total	Predicted adult End-of-bio-year Pop (year)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	1423	2458	4838	8720	1264	1639	4057	6960	1994	4218	6212	7347	1837	7000	
1994	1838	1954	4134	7926	1813	1585	3953	7351	1799	3993	5793	5957	1489	10000	
1995	1611	1763	3913	7288	1589	1479	3795	6862	1853	3997	5851			10000	
1996	2377	1816	3917	8111	2362	1530	3825	7718	2107	4234	6341	6476	1619	10000	
1997	1981	2065	4149	8195	1935	1679	3950	7564	1929	4033	5962			10000	
1998	2162	1890	3853	8005	2157	1486	3775	7417	1762	3886	5648	4802	1201	10000	
1999	2327	1727	3809	7862	2301	1354	3573	7228	1967	4019	5986			10000	
2000	2047	1928	3938	7913	2018	1522	3757	7296	1759	3834	5593	7877	1969	10000	
2001	2095	1723	3757	7575	2023	1375	3447	6845	1967	3874	5840			10000	
2002	2010	1927	3796	7733	1981	1478	3552	7011	2021	3946	5987	6320	1580	10000	
2003	2088	1980	3867	7935	2064	1509	3534	7106	1751	3624	5375			10000	
2004	2881	1716	3552	8149	2870	1238	3461	7569	1671	3751	5422	4524	1131	10000	
2005	2517	1637	3676	7830	2494	1212	3608	7313	2213	4450	6663			10000	
2006	2317	2169	4361	8847	2297	1729	4241	8266	2596	4936	7532			10000	
2007	3084	2544	4837	10465	3028	2078	4599	9705	3248	5587	8834			10000	
2008	2276	3183	5475	10934	2175	2667	5112	9954	3390	5651	9041	10997	2423	10000	
2009	2670	3322	5538	11529	2617	2767	5179	10563	3002	5237	8239			10000	
2010	2826	2942	5132	10900	2810	2391	4725	9926	3415	5574	8989			10000	
2011	2866	3347	5462	11674	2834	2836	5090	10760	3082	5146	8228			10000	
2012	2903	3021	5043	10967	2873	2456	4598	9926	2814	4850	7664			10000	
2013	2944	2758	4753	10454	2888	2216	4386	9491	2572	4634	7206			10000	
2014	2829	2520	4541	9891	2778	1970	4217	8965	2908	4988	7896			10000	
2015	2875	2850	4888	10613	2826	2300	4558	9684						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	0.42			0.90		
1995	0.65			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	0.71			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	0.89			0.90		
2011	0.40			0.90		
2012	0.40			0.90		
2013	0.40			0.90		
2014	0.80			0.90		
2015	0.75			0.90		

**Parameters:** Optim cells

Adult Survival = 0.900

Initial Total Male Pop/10,000 = 0.246

Initial Female Pop/10,000 = 0.484

**MODEL ASSUMPTIONS**

Sex Ratio (% Males) = 50%

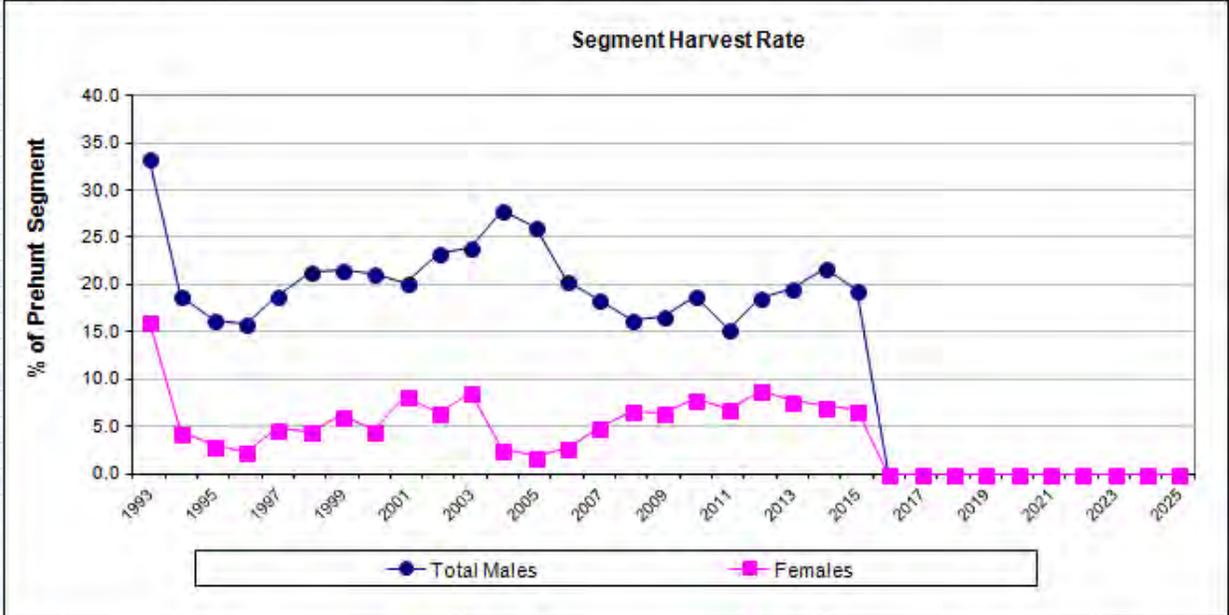
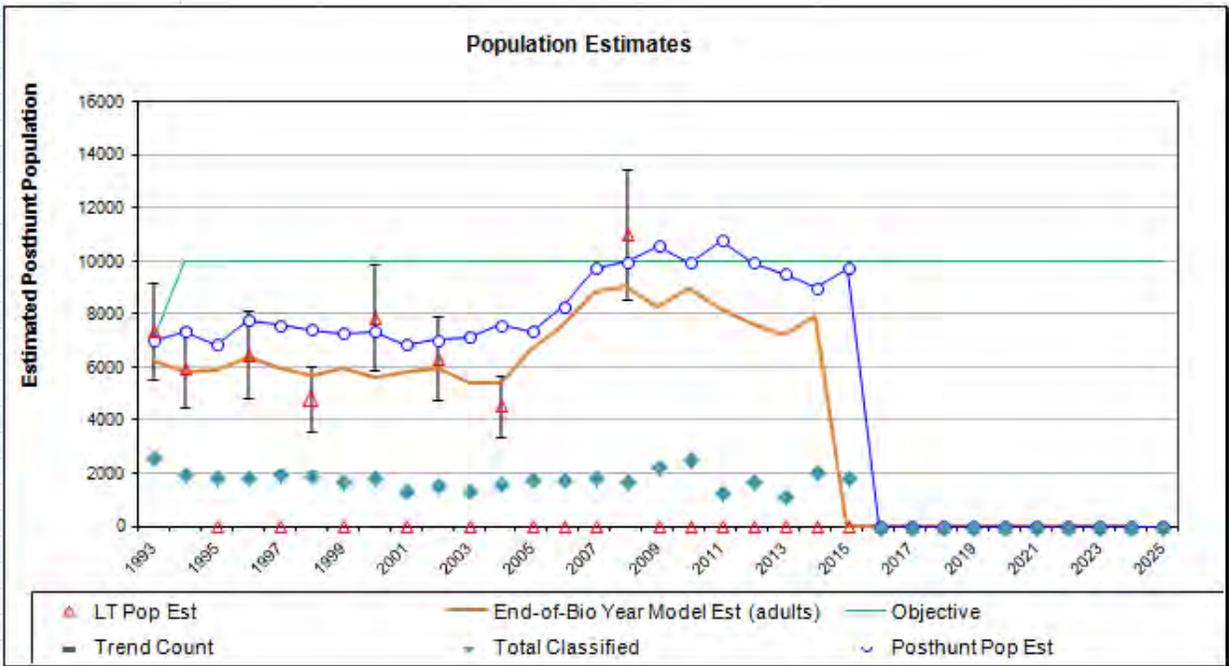
Wounding Loss (total males) = 10%

Wounding Loss (females) = 10%

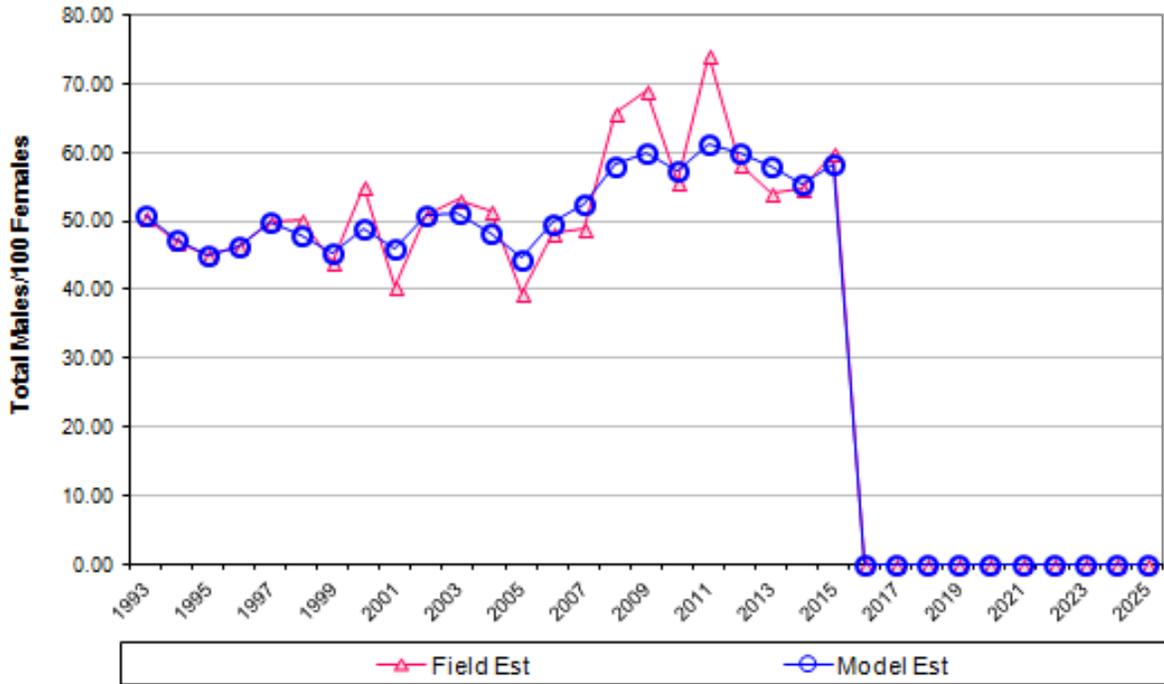
Wounding Loss (juveniles) = 10%

Over-summer adult survival = 98%

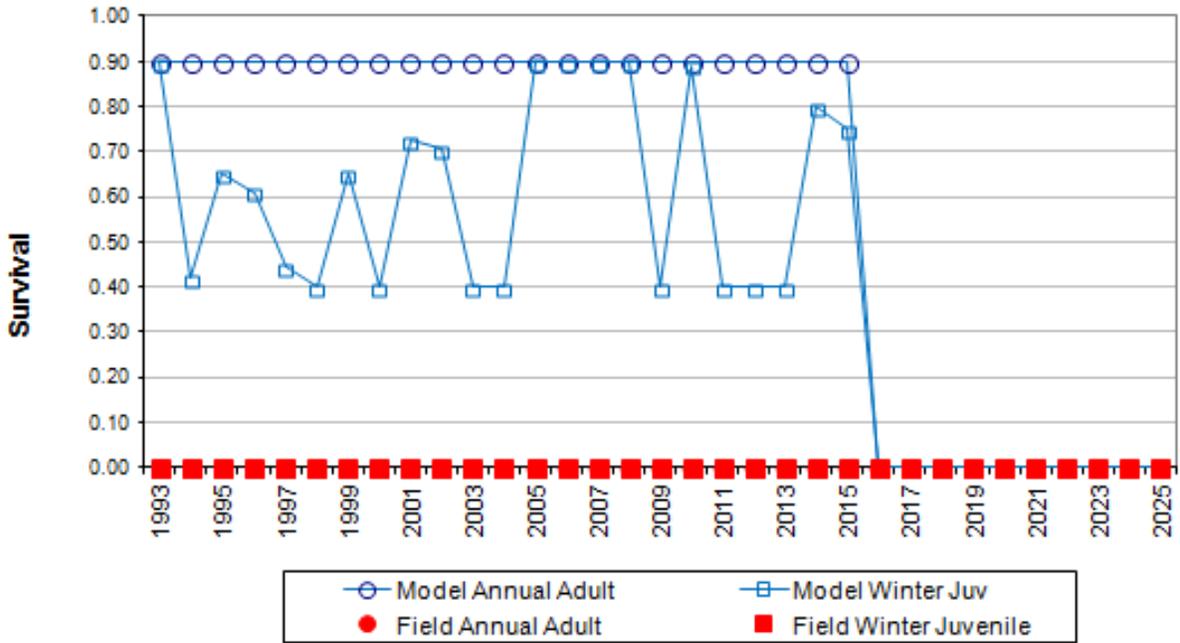
Classification Counts							Harvest						
Year	Juvenile/Female Ratio			Total Male/Female Ratio			Males	Females	Juveniles	Total Harvest	Segment Harvest Rate (%)		
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE					Total Males	Females	
1993		29.42	1.61	50.81	50.65	2.28	745	710	145	1600	33.3	16.1	
1994		44.47	2.49	47.26	47.06	2.58	335	164	23	522	18.9	4.4	
1995		41.16	2.39	45.06	44.99	2.53	259	108	20	387	16.2	3.0	
1996		60.67	3.30	46.37	46.37	2.75	260	84	13	357	15.7	2.4	
1997		47.74	2.63	49.77	49.71	2.70	351	181	42	574	18.7	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	48.94	55.18	3.07	369	165	27	561	21.1	4.6	
2001		55.74	3.51	45.87	40.43	2.84	317	282	65	664	20.2	8.3	
2002		52.94	3.22	50.77	50.77	3.13	408	222	26	656	23.3	6.4	
2003		53.99	3.51	51.21	52.96	3.46	429	303	22	754	23.8	8.6	
2004		81.11	4.57	48.30	51.42	3.33	434	83	10	527	27.8	2.6	
2005		68.48	3.65	44.54	39.49	2.52	387	62	21	470	26.0	1.9	
2006		53.14	3.00	49.73	48.29	2.81	400	109	19	528	20.3	2.7	
2007		63.76	3.42	52.60	48.99	2.86	424	216	51	691	18.3	4.9	
2008		41.58	2.63	58.14	65.84	3.59	469	330	92	891	16.2	6.6	
2009		48.21	2.60	59.99	69.15	3.32	505	326	48	879	16.7	6.5	
2010		55.07	2.65	57.32	55.73	2.67	501	370	15	886	18.7	7.9	
2011		52.46	3.69	61.27	74.19	4.68	464	338	29	831	15.3	6.8	
2012		57.57	3.37	59.89	58.32	3.40	513	405	28	946	18.7	8.8	
2013		61.94	4.33	58.02	54.10	3.94	492	333	51	876	19.6	7.7	
2014		62.29	3.25	55.50	54.79	2.97	500	295	46	841	21.8	7.1	
2015		58.82	3.32	58.30	60.00	3.36			300	845	19.3	6.8	
2016													
2017													
2018													
2019													
2020													
2021													
2022													
2023													
2024													
2025													



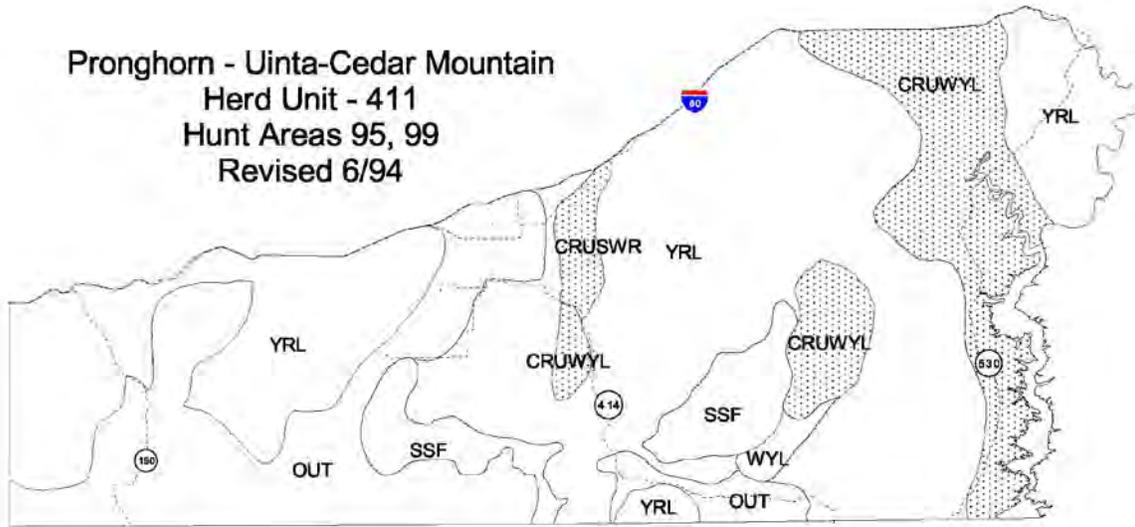
**Model vs Field Posthunt Total Male/Female Ratios**



**Model vs Field Survival Rates**



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



## 2014 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2014 - 5/31/2015

HERD: PR412 - SOUTH ROCK SPRINGS

HUNT AREAS: 59, 112

PREPARED BY: PATRICK BURKE

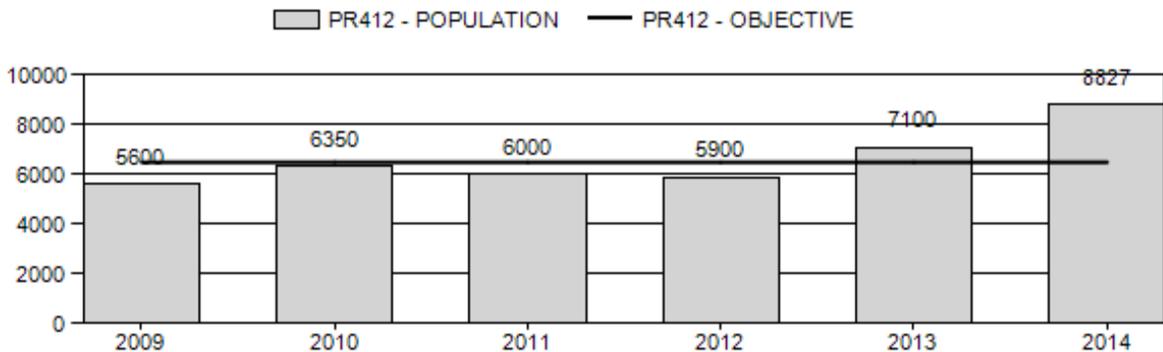
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	6,190	8,827	8,899
Harvest:	373	284	285
Hunters:	404	328	350
Hunter Success:	92%	87%	81%
Active Licenses:	424	328	350
Active License Success:	88%	87%	81 %
Recreation Days:	1,426	894	1,000
Days Per Animal:	3.8	3.1	3.5
Males per 100 Females	46	47	
Juveniles per 100 Females	47	66	

Population Objective ( $\pm$  20%): 6500 (5200 - 7800)  
 Management Strategy: Recreational  
 Percent population is above (+) or below (-) objective: 36%  
 Number of years population has been + or - objective in recent trend: 0  
 Model Date: 02/11/2015

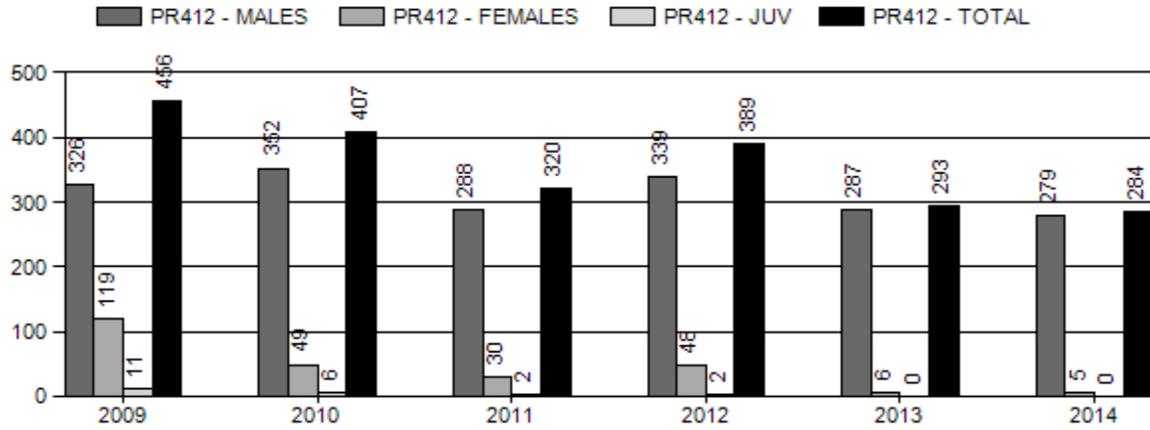
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

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

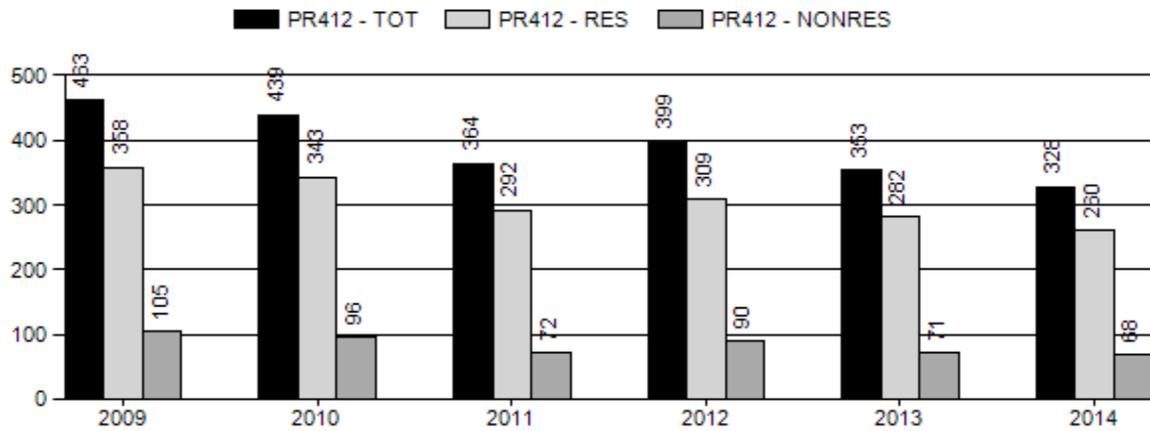
## Population Size - Postseason



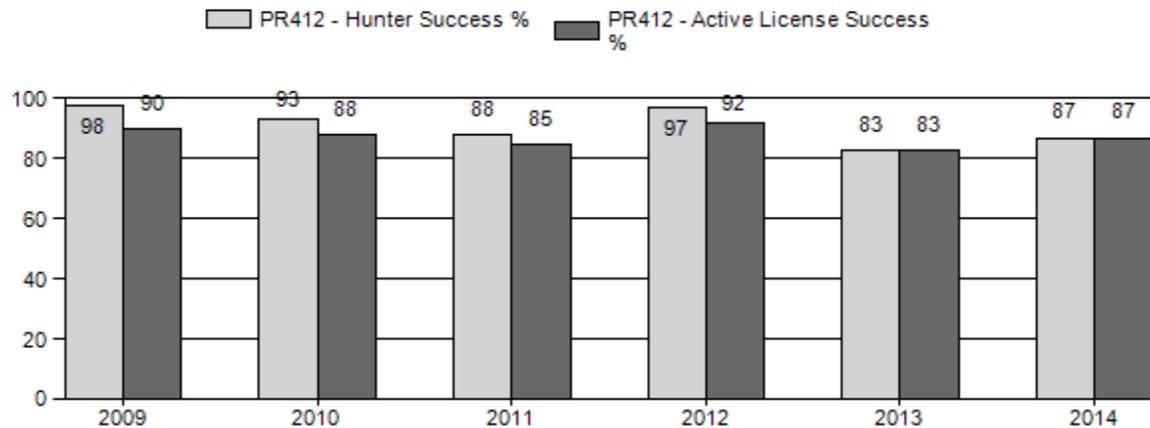
# Harvest



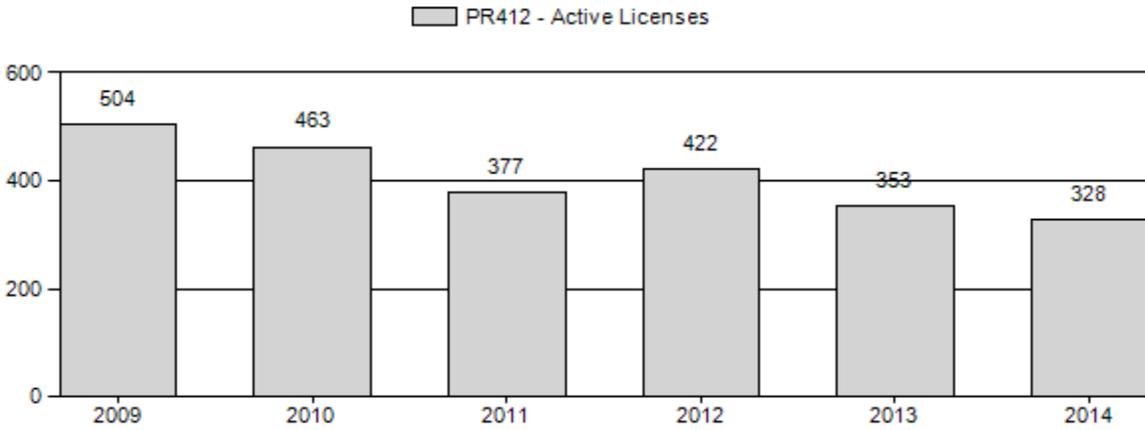
# Number of Hunters



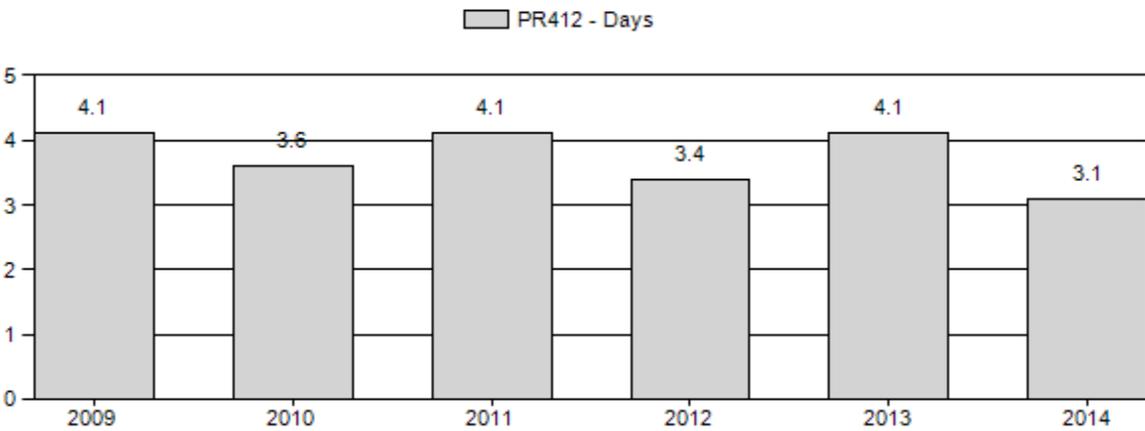
# Harvest Success



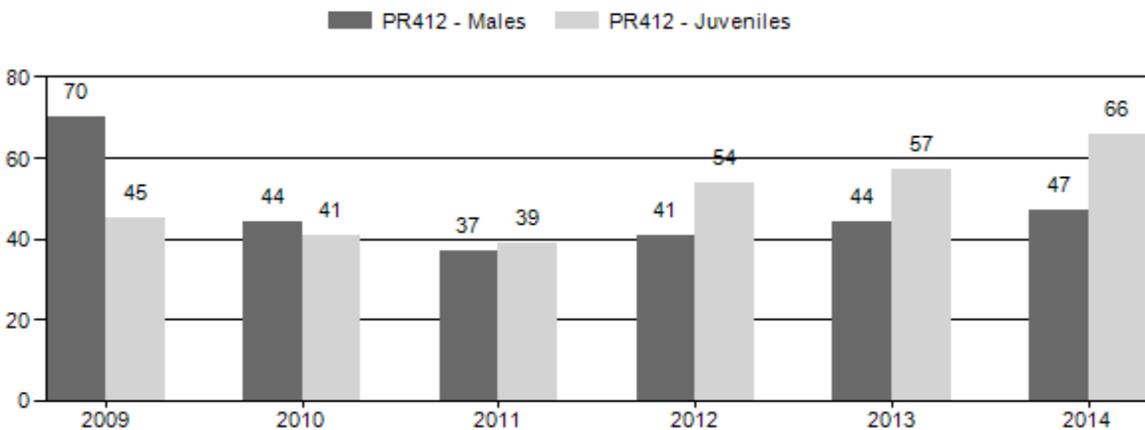
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



### 2009 - 2014 Preseason Classification Summary

for Pronghorn Herd PR412 - SOUTH ROCK SPRINGS

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
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	6,300	120	268	388	21%	936	51%	505	28%	1,829	931	13	29	41	± 3	54	± 4	38
2013	7,450	119	256	375	22%	848	50%	482	28%	1,705	944	14	30	44	± 4	57	± 5	39
2014	9,139	144	195	339	22%	724	47%	480	31%	1,543	1,773	20	27	47	± 5	66	± 6	45

**2015 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 2014
<b>Herd Unit Total</b>		<b>None</b>

**Management Evaluation**

**Current Management Objective:** 6,500

**Management Strategy:** Recreational

**2014 Postseason Population Estimate:** ~8,800

**2015 Proposed Postseason Population Estimate:** ~8,900

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 2014 post-season population to be a little over 8,800 pronghorn. This estimate is a significant increase from the 2013 and 2012 post-season population estimates of 7,000 and 5,900 animals respectively. This drastic increase in the model estimate does not coincide with field observations 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 has decreased slightly in size over the last few years rather than increased by almost 3,000 animals in just two years. The most likely explanation for the larger population estimate is a combination of slightly increased fawn ratios along with a somewhat higher observed buck to doe ratio in the last couple of years.

## **Weather**

The most prominent weather condition present in the South Rock Springs pronghorn herd for the last several years has been dry summer conditions with relatively mild winters. The summer of 2012 was the driest on record in Wyoming and the summer of 2013 was also very. While the summer of 2014 saw substantially better moisture in most of Wyoming, the portion of southwest Wyoming inhabited by this herd was still considered to be experiencing drought conditions by the National Weather Service. Unlike the South Rock Springs deer herd, all indications are that this pronghorn herd has dealt fairly well with these conditions. Multiple years of drought conditions have undoubtedly reduced forage quality and quantity and the severe drought conditions of 2012 and 2013 along with mild drought conditions in 2014, did result in many of the water sources in the herd unit drying up.

## **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 have chosen to winter in areas outside of their normal winter ranges the past several winters. 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. The summer of 2014 saw better moisture than the previous two summers, but was still considered to be experiencing mild drought conditions. The amount of moisture received did appear to be enough to result in better fawn ratios than have been seen in this herd unit in many years however.

## **Field Data**

Pre-season classifications conducted in August 2014 resulted in observed fawn to doe ratios of 66 fawns per 100 does. This observed fawn to doe ratio is the highest seen in the herd since 2004, when 66 fawns per 100 does was also seen. Pre-season classifications also resulted in observed buck ratios of 47 total bucks per 100 does for the herd unit as a whole.

## **Harvest Data**

Harvest statistics for the 2014 hunting season were typical for this herd. Harvest success for the herd unit was 87%. Days per harvest was 3.1 days per harvest during the 2014. A total of 284 pronghorn were harvested in 2014, 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.

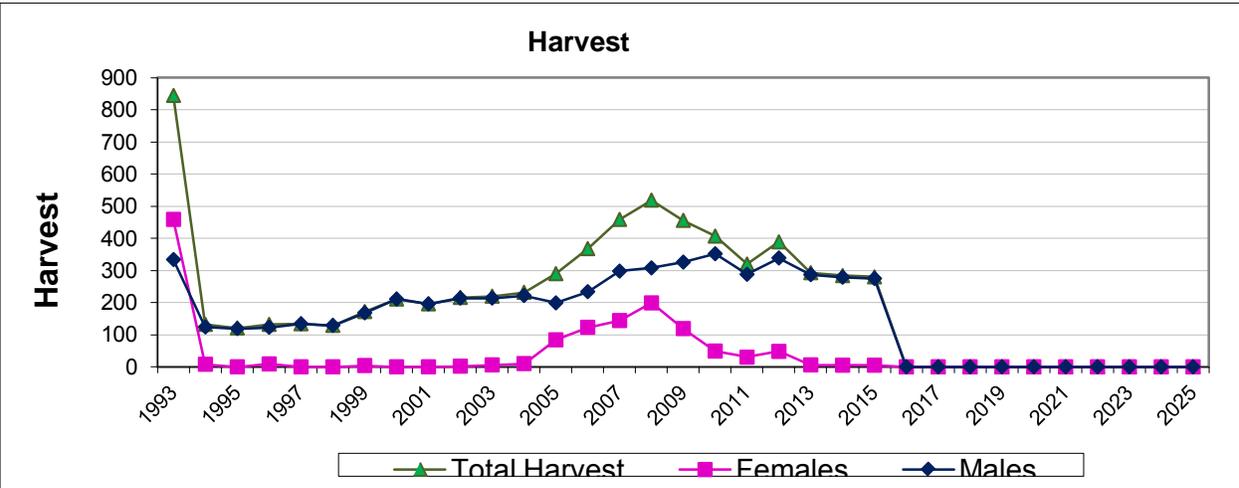
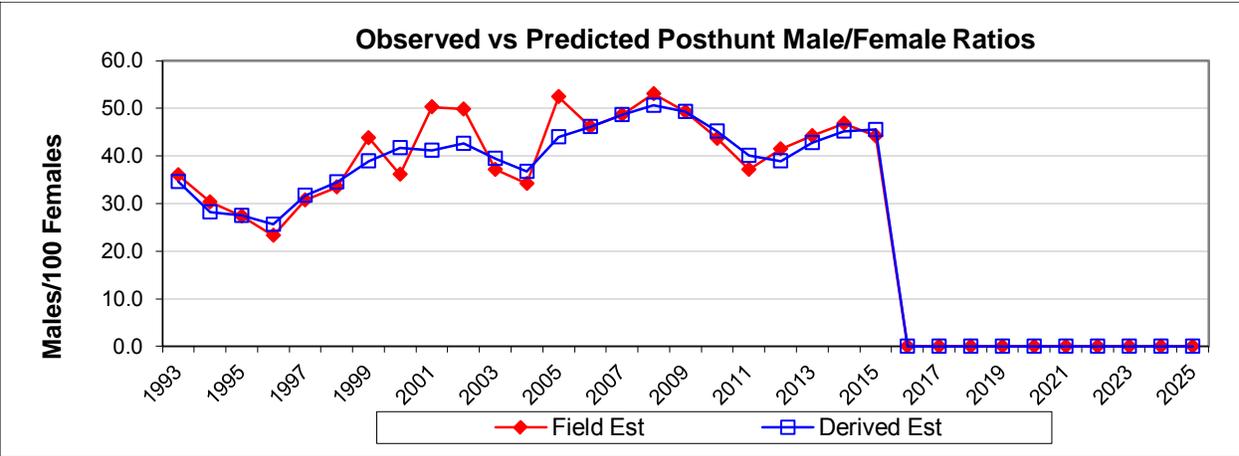
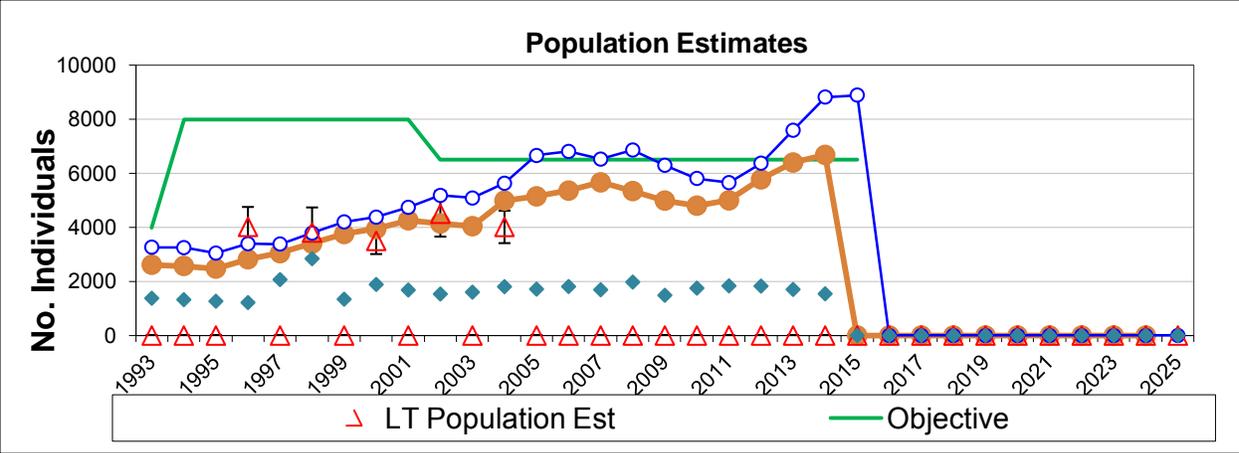
## **Population**

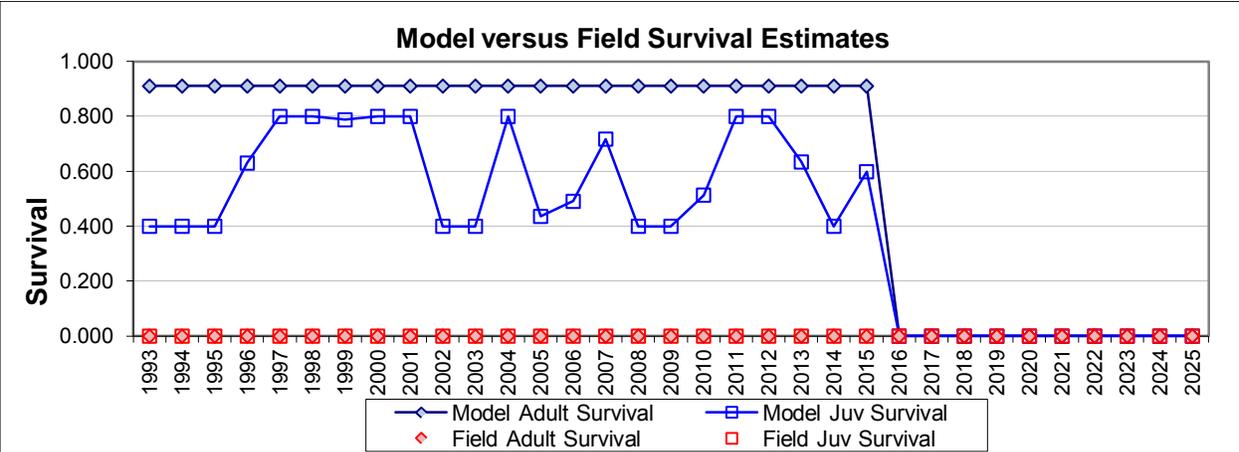
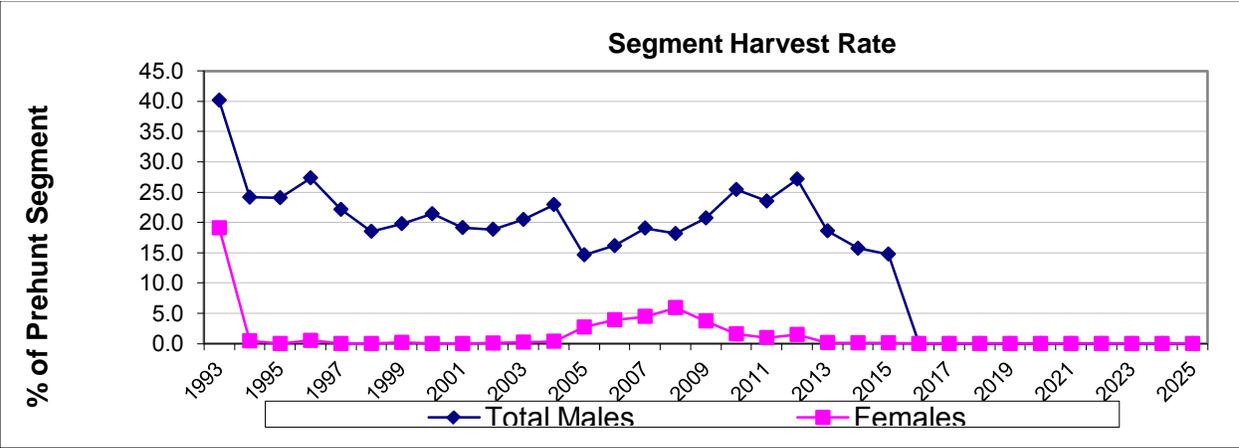
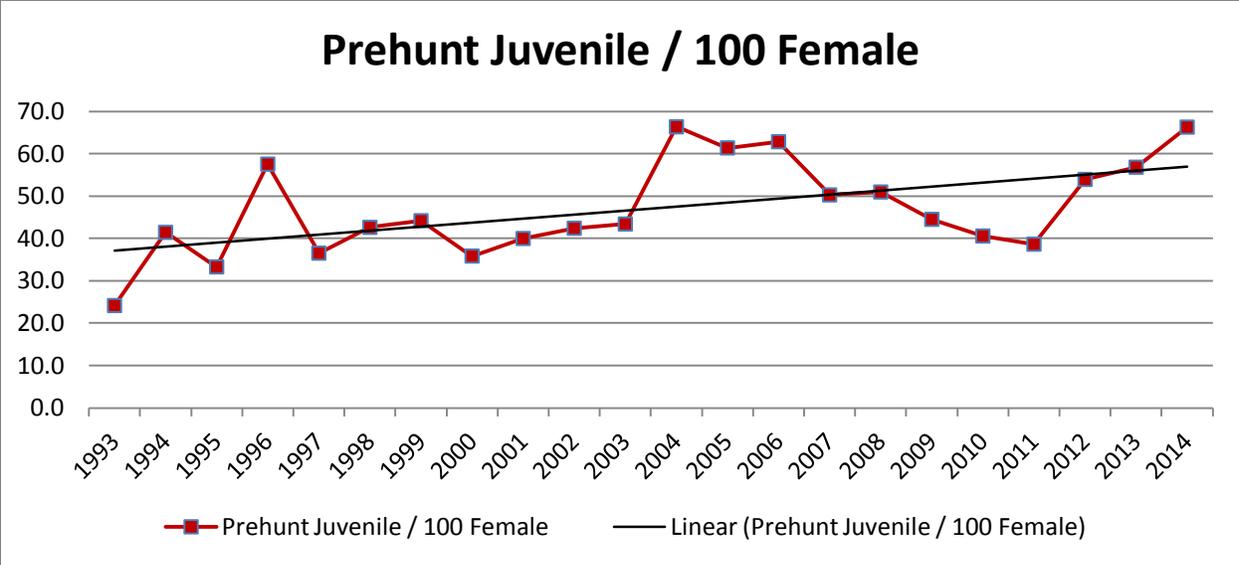
The model for this population has tracked fairly well with field observations of this herd until 2013, when the post-season population estimate moved in a direction counter to the field observations of managers and the public. The model performance in 2014 is even worse than in 2013, with the model “running away” and forecasting a simply unrealistic growth rate. The growth predicted by the model of almost 3,000 animals in just two years is simply not possible given the fawn ratios and habitat conditions in this herd unit. The unrealistic estimates given by the model in the last two years suggest that this model is no longer reliable, and should not be considered an accurate estimate of this population.

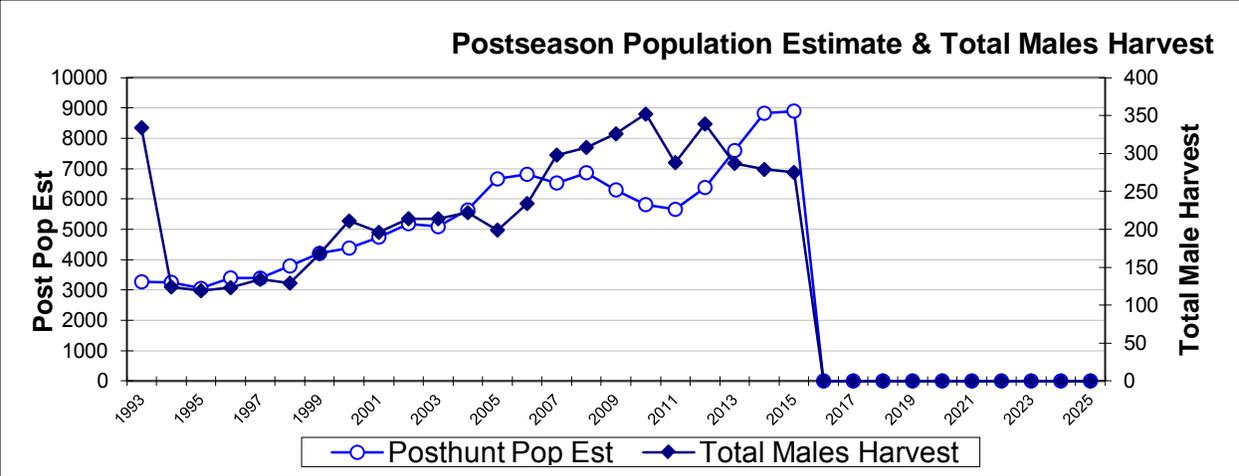
The last useable line-transect survey on this herd was conducted in 2005, and the lack of recent anchor points may partially explain why this model has allowed the population estimates for this herd to increase. A line-transect survey may be useful for estimating the size of this herd. The time-specific 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 and the biology of the species.

## **Management Summary**

The proposed season for 2015 is identical to the 2014 season. The lack of reliability of the model combined with field observations of a relatively stable population suggest that the most prudent course of action would to maintain the current season structure until data suggest that a change is needed. A line transect survey is scheduled for this spring.







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

Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	113	122	<input type="checkbox"/> CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	112	144	<input type="checkbox"/> SCJ,SCA Model	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	49	159	<input checked="" type="checkbox"/> TSJ,CA 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	2311	3548	614	2200	2814				4000	
1994	894	601	2156	3651	894	465	2147	3506	596	2153	2749				8000	
1995	703	584	2110	3387	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	1690	1625	3341	6647	1692	1298	3183	6142	1831	3580	5411				6500	
2008	1788	1795	3508	7091	1775	1456	3289	6520	1661	3357	5017				6500	
2009	1495	1627	3290	6382	1453	1289	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																6500
2016																6500
2017																6500
2018																6500
2019																6500
2020																6500
2021																6500
2022																6500
2023																6500
2024																6500
2025																6500

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%

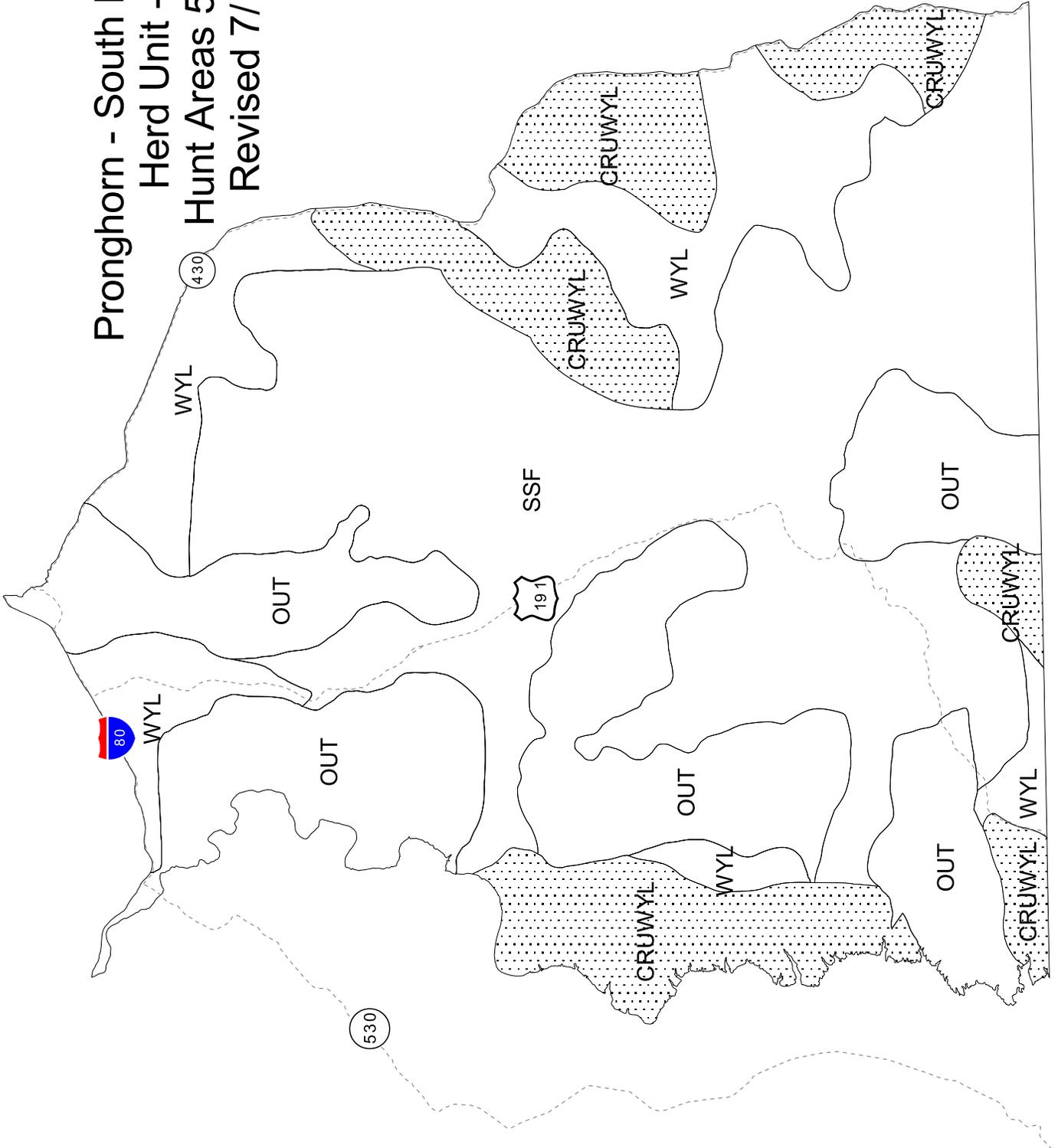
Wounding Loss (females) = 10%

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		66.30	3.90	40.94	46.82	3.08	279	5	5	284	21.3	0.1
2015		59.03	3.37		44.17	2.78				280		
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

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



## 2014 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2014 - 5/31/2015

HERD: PR414 - BITTER CREEK

HUNT AREAS: 57-58

PREPARED BY: TONY MONG

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	9,469	8,517	9,272
Harvest:	254	250	270
Hunters:	273	244	273
Hunter Success:	93%	102%	99%
Active Licenses:	278	261	278
Active License Success:	91%	96%	97%
Recreation Days:	874	756	800
Days Per Animal:	3.4	3.0	3.0
Males per 100 Females	54	55	
Juveniles per 100 Females	39	59	

Population Objective ( $\pm 20\%$ ) : 25000 (20000 - 30000)

Management Strategy: Special

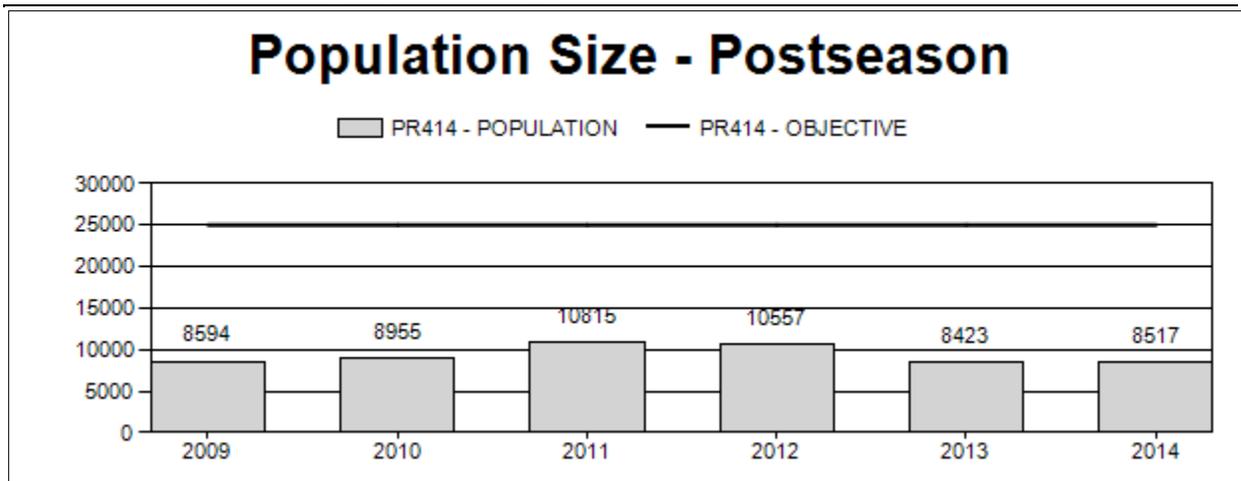
Percent population is above (+) or below (-) objective: -65.9%

Number of years population has been + or - objective in recent trend: 20

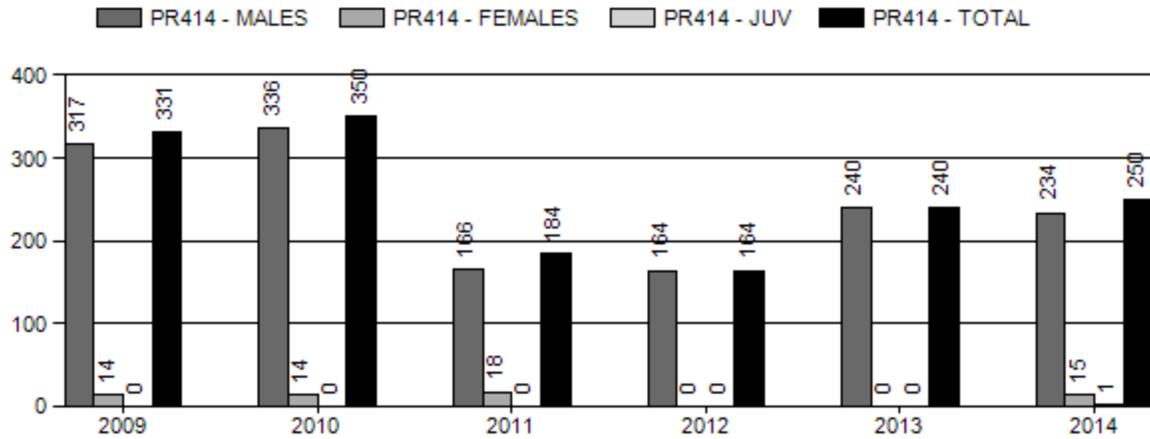
Model Date: 03/02/2015

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

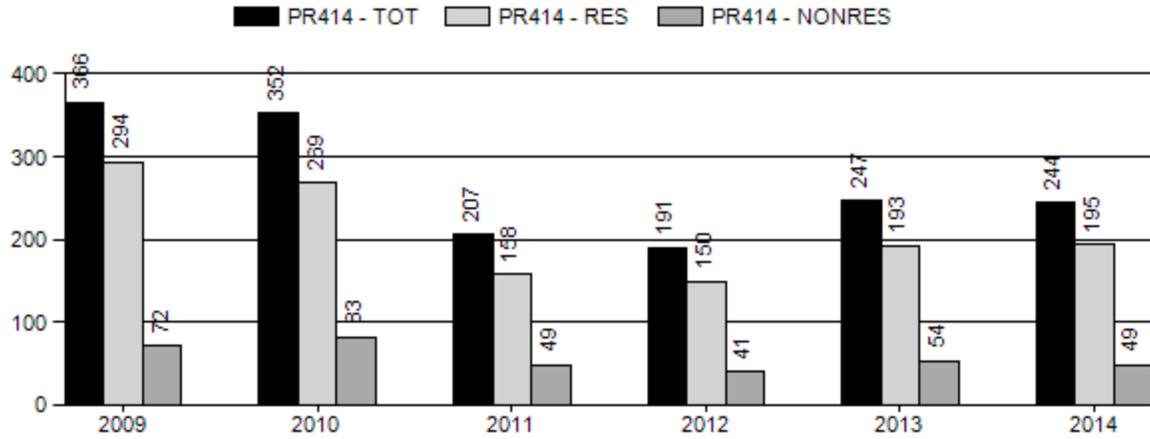
	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	0%	0.4%
Males $\geq 1$ year old:	6.5%	11.7%
Juveniles (< 1 year old):	0%	0%
Total:	2.0%	3%
Proposed change in post-season population:	1.0%	10%



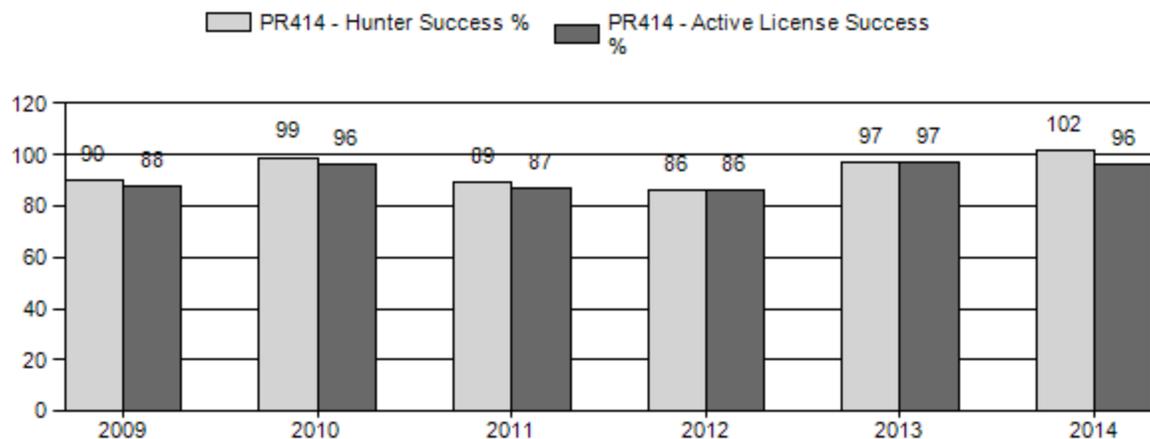
# Harvest



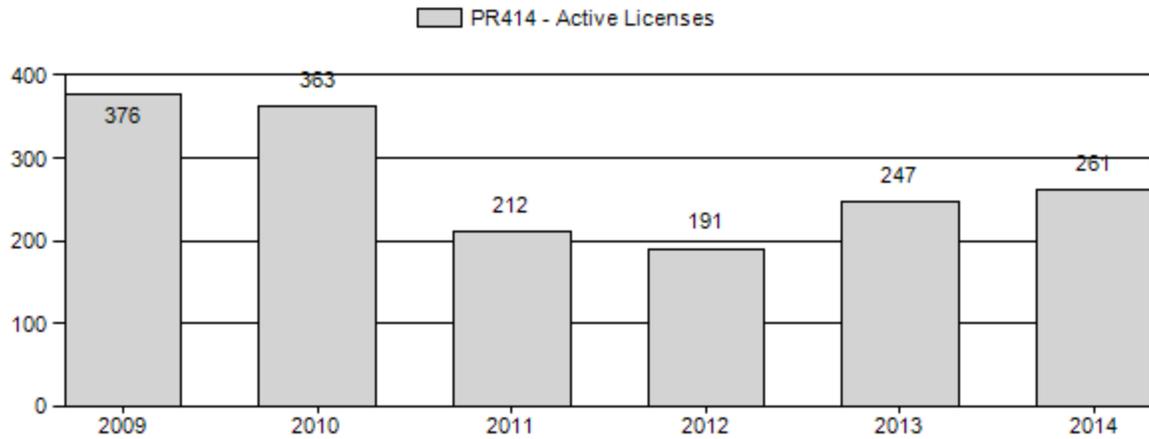
# Number of Hunters



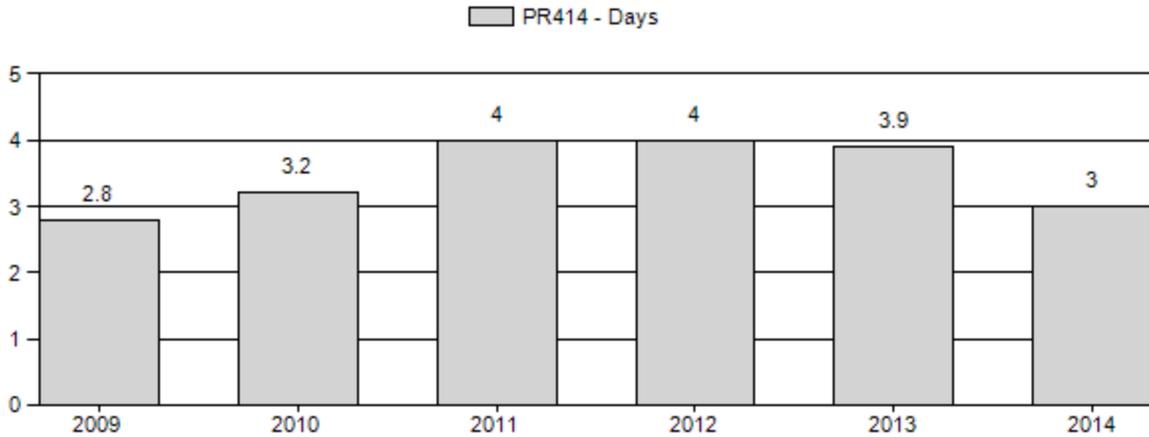
# Harvest Success



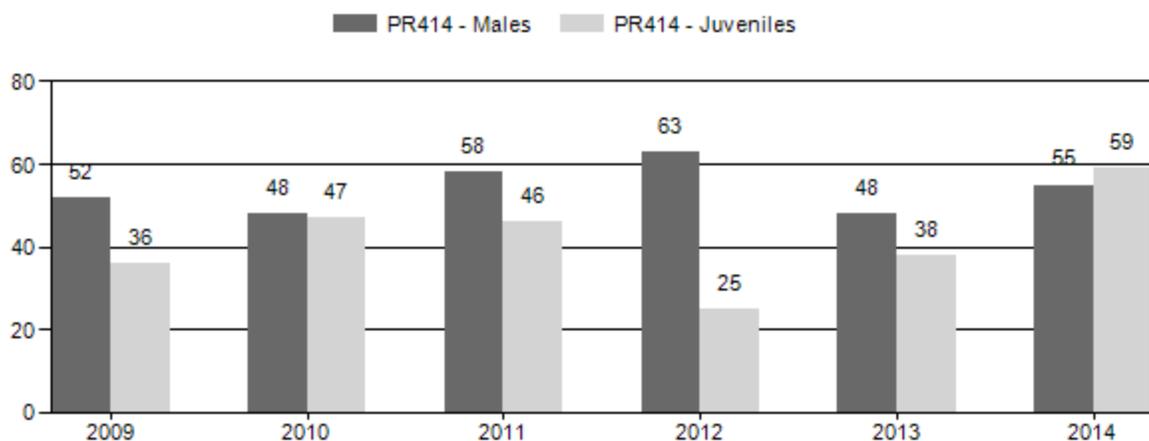
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



# 2015 HUNTING SEASON

SPECIES : **Pronghorn**

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

HUNT AREAS: **57, 58**

Hunt Area	Type	Dates of Season		Quota	License	Limitations
		Opens	Closes			
57	1	Sep. 20	Oct. 31	250	Limited Quota	Any antelope
	7	Sep. 1	Oct. 31	25	Limited Quota	Doe or fawn valid on or within one (1) mile of private land south of Carbon County Road 700 and east of Carbon County Road 730
58	1	Sep. 20	Oct. 31	30	Limited Quota	Any antelope
57, 58	Archery	Aug. 15	Sep. 19			Refer to Section 3

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2014</i>
57	1	+25
	7	0
58	1	0
<b><i>Herd Unit Total</i></b>	<b><i>1</i></b>	<b><i>+25</i></b>

**Management Evaluation**

**Current Management Objective: 25,000**

**Management Strategy: Special**

**2014 End-of-bio-year Estimate: 6,900**

**2015 Proposed postseason Estimate: 9,200**

The Bitter Creek pronghorn herd is significantly below the objective of 25,000 (set in 1993), with a 2014 post-season estimate of 8,500. Our current management strategy continues to focus on increasing herd size. Since we continue to observe higher buck ratios in area 57, some additional buck harvest opportunity is possible in this area. Therefore, we are increasing type 1 licenses in this area to allow for more opportunity, and will maintain current license levels in hunt area 58 due to lower buck ratios and much lower pronghorn densities. The private land type 7 licenses were successful in curbing minor damage issues on irrigated meadows in the southeastern portion of hunt area 57, and will be continued.

**Herd Unit Issues**

The Bitter Creek herd is facing many challenges through the expansion of the Continental Divide-Creston Junction (CDC), Desolation Flats, and Hiawatha gas fields. 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 on summer and winter ranges as well as migration routes for the Bitter Creek herd. New developments are continuing 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 has been built to connect two new compressor stations that will be placed on and near Willow Creek Rim. In addition a new road has been built to facilitate traffic from Wamsutter to Willow Creek Rim, bisecting current winter range and migration routes. This new road has significantly increased the amount of traffic and speeds in areas that had previously seen minimal. The number of proposals to conduct oil and gas development activities on a year-round basis throughout the herd unit is increasing. These landscape level impacts are proving to be a challenge for the pronghorn in the Bitter Creek herd.

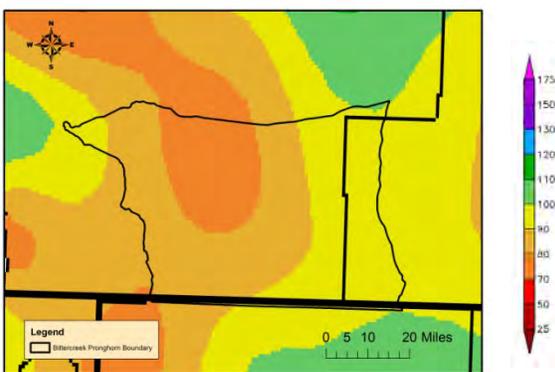
Feral horse numbers in this area have impacted wild native ungulates through competition for resources in this exceptionally dry and unproductive landscape. A recent decision to reduce numbers by the Bureau of Land Management due to a legal settlement with private landowners in the checkerboard ownership area will result in less competition and additional habitats for this and other native species using this area.

## Weather

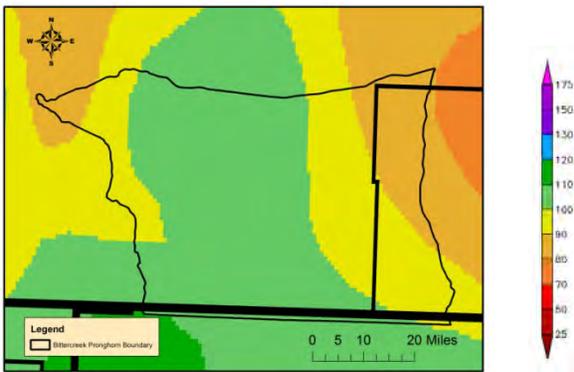
Weather conditions have been quite variable over the last several years. Overall the herd unit has seen above average precipitation in 2014 when compared to 2013 (Figure 1). This increased precipitation should equate to better vegetation in 2015. The 2014-15 winter was an extremely easy winter with low levels of snow fall and higher than average temperatures. Although initially concerning because of the low moisture levels throughout the winter, spring moisture levels have made up for lower winter moisture levels.

Figure 1. A) Percent of normal precipitation for the herd unit from January 2013 to December 2013, B) Percent of normal precipitation for the herd unit from January 2014 to December 2013.

A)



B)



## Habitat

Moisture levels going into and coming out of the winter of 2014-15 has allowed for improved habitat conditions. Increased precipitation during the fall months of 2014 resulted in a late growth opportunity for most vegetation in the herd unit. Animals took advantage of this late growth and went into winter in better than average body condition. An early warming trend following the winter, coupled with improved moisture during the 2015 spring months has resulted in an early green up that persists to this day. Some areas in the herd unit have received precipitation in quantities not observed in many years. Shrub and herbaceous growth is expected to dramatically increase in 2015, which will result in continued improvements in pronghorn production, survival, and herd size.

## Field Data

The last 4 years has seen an average population of around 9,000 pronghorn, significantly below the objective for this herd unit. Very low fawn survival and production (average pre-season fawn:doe ratio since 2010 = 43:100) has played the primary role in the inability of this population to recover. Inclimate weather conditions including severe winters and drought are hampering a quick positive population response to low harvest rates in this herd unit. We did see a significant increase in fawn ratios in 2014 (59:100 in 2014 compared to 38:100 in 2013) due to improved precipitation and habitat. Disparity in fawn production and buck ratios between hunt areas 57 and 58 also results in management challenges for the herd. Hunt area 58 has shown extremely low buck ratios in both 2013 and 2014 (30 and 42 bucks:100 does, respectively) compared to hunt area 57 (61 and 67 bucks:100 does, respectively) further illustrating the difference in potential between the two hunt areas. Area 58 tends to pull the overall buck ratio for the herd downward, and makes achieving special management criteria ( $\geq 60$  bucks:100 does) difficult. This disparity is also evident regarding fawn production. In 2014, hunt area 58 had a much lower fawn ratio (53:100 does) compared to the more productive hunt area 57 (65 fawns:100 does).

## Harvest Data

Despite lower population levels hunters are still able to find pronghorn to harvest. Overall harvest success is 102%, with a slight difference between hunt areas 57 (102%) and 58 (100%). The population has been slow to respond to the low harvest and little to no doe harvest. Over the last 5 years we have harvested less than 50 doe pronghorn out of the entire herd unit yet we continue to see limited population growth due to limited fawn production.

## **Population**

The current population model estimates the 2014 end-of-bio-year population to be 6,900 animals. Both the CJ, CA and the SCJ, SCA models have almost identical AICc values and very similar population estimates and trend. We chose the SCJ, SCA 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 (2009 bio-year) and also on model fit (CJ, CA = 72; SCJ, SCA = 71). It is clear from the spreadsheet model and line transects estimates that this population is well below the population objective. The current post-season estimate for this herd unit is 8,500, 66% below the current objective. This herd unit objective is out for review this spring, and personnel will be recommending a reduction (to reflect reality) from 25,000 to 13,000. This will allow some growth to levels achieved in the recent past, and is more in line with current habitat potential in this herd.

## **Management Summary**

Given better habitat conditions and continued conservative seasons, the 2015 hunting season will allow for maximum opportunity to increase this population, while increasing buck harvest in a modest manner.. We are increasing type 1 licenses in hunt area 57 to allow more opportunity because of higher buck ratios. Due to continuing concern with potential damage situations in the SE portion of hunt area 57, we will continue issuing a minimal number of doe-fawn licenses to address landowner concerns. Despite the low number of licenses available in hunt area 58, it appears pronghorn in this area continue to struggle, and we proposed no change to the hunt area 58 quota. The 2015 harvest strategy should lead to the largest growth potential for the herd, barring major impacts from the landscape level challenges mentioned above.

<b>INPUT</b>	
Species:	Pronghorn
Biologist:	Tony Mong
Herd Unit & No.:	Bittercreek, 414
Model date:	03/02/15

<b>MODELS SUMMARY</b>		Relative AICc	Fit	Notes
CJ,CA	Constant Juvenile & Adult Survival	71	62	
SCJ,SJA	Semi-Constant Juvenile & Semi-Constant Adult Survival	72	53	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	170	48	

Year	Predicted Prehunt Population (year <i>t</i> )				Predicted Posthunt Population (year <i>t</i> )				Population Estimates from Top Model				LT Population Estimate		Trend Count
	Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total Adults	Field Est	Field SE	
1993	4770	4022	8503	17295	4555	3064	6698	14318	3978	7156	11134				
1994	3444	3899	7013	14355	3444	3417	7013	13874	4063	7363	11426				
1995	3270	3981	7216	14467	3270	3514	7210	13994	4099	7488	11587				
1996	4010	4017	7338	15366	4010	3450	7302	14762	4253	7790	12043				
1997	3212	4168	7634	15015	3212	3607	7593	14412	4155	7811	11966				
1998	3728	4072	7655	15455	3728	3494	7632	14854	4207	8004	12211				
1999	3792	4123	7844	15759	3789	3506	7809	15104	4230	8180	12410				
2000	3297	4145	8017	15459	3297	3595	8001	14894	4171	8209	12380				
2001	3961	4088	8044	16093	3955	3667	8019	15641	4448	8421	12869				
2002	2639	4359	8252	15250	2637	3912	8236	14785	4270	8220	12490				
2003	2865	4185	8056	15105	2862	3760	8016	14639	4203	8088	12291				
2004	4066	4119	7926	16111	4064	3699	7906	15669	4511	8353	12864				
2005	4358	4421	8186	16964	4356	4019	8154	16529	4890	8663	13553				
2006	3265	4792	8490	16547	3262	4403	8465	16130	4907	8615	13522				
2007	3483	4809	8443	16735	3476	4427	8419	16322	3223	6187	9410				
2008	1640	3158	6063	10862	1637	2882	6048	10567	3060	5946	9005				
2009	2099	2998	5827	10924	2099	2650	5811	10560	2981	5872	8853				
2010	2704	2922	5755	11380	2704	2552	5739	10995	2308	4404	6713				
2011	1967	2262	4316	8545	1967	2080	4296	8343	2449	4486	6935				
2012	1112	2400	4396	7908	1112	2220	4396	7728	2230	4300	6531				
2013	1588	2186	4214	7988	1588	1922	4214	7724	2187	4263	6450				
2014	2471	2144	4177	8792	2470	1886	4161	8517	2398	4496	6893				
2015	2809	2350	4406	9564	2808	2075	4389	9272	2703	4803	7507				
2016	3002	2649	4707	10358	3001	2392	4691	10083				10500	2481		
												7337	999		

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	0.59		0.88	
1994	0.59		0.88	
1995	0.59		0.88	
1996	0.59		0.88	
1997	0.59		0.88	
1998	0.59		0.88	
1999	0.59		0.88	
2000	0.59		0.88	
2001	0.59		0.88	
2002	0.59		0.88	
2003	0.59		0.88	
2004	0.59		0.88	
2005	0.59		0.88	
2006	0.59		0.88	
2007	0.10		0.70	
2008	0.59		0.88	
2009	0.59		0.88	
2010	0.65		0.60	
2011	0.59		0.88	
2012	0.59		0.88	
2013	0.59		0.88	
2014	0.59		0.88	
2015	0.59		0.88	
2016	0.59		0.88	

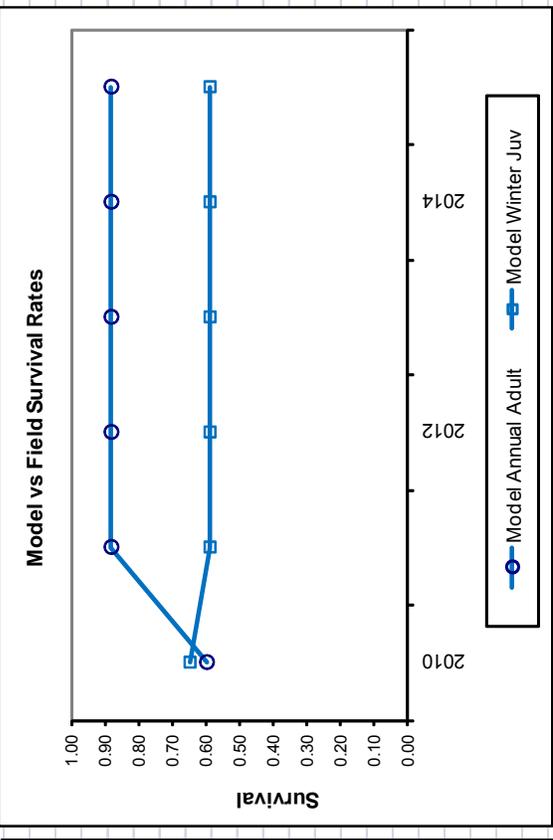
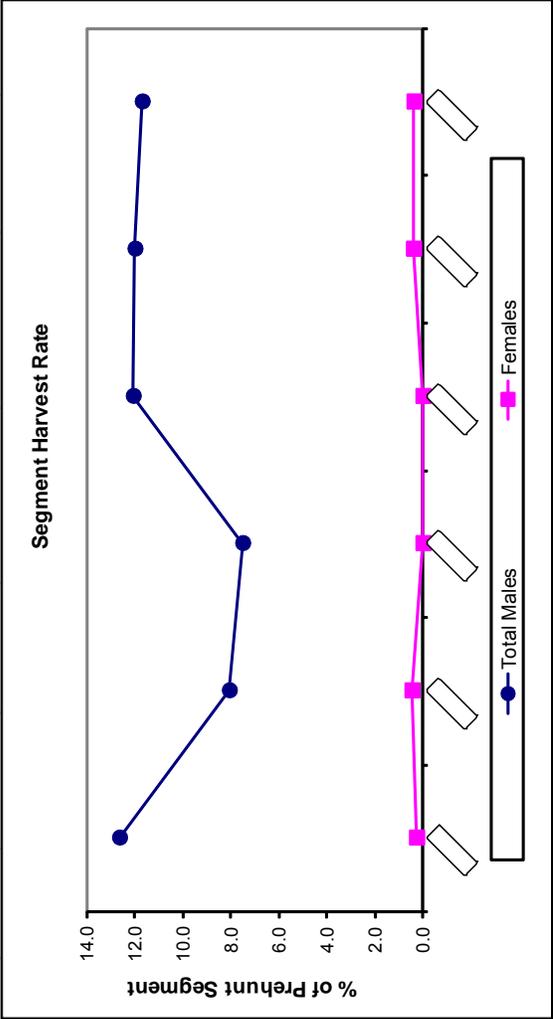
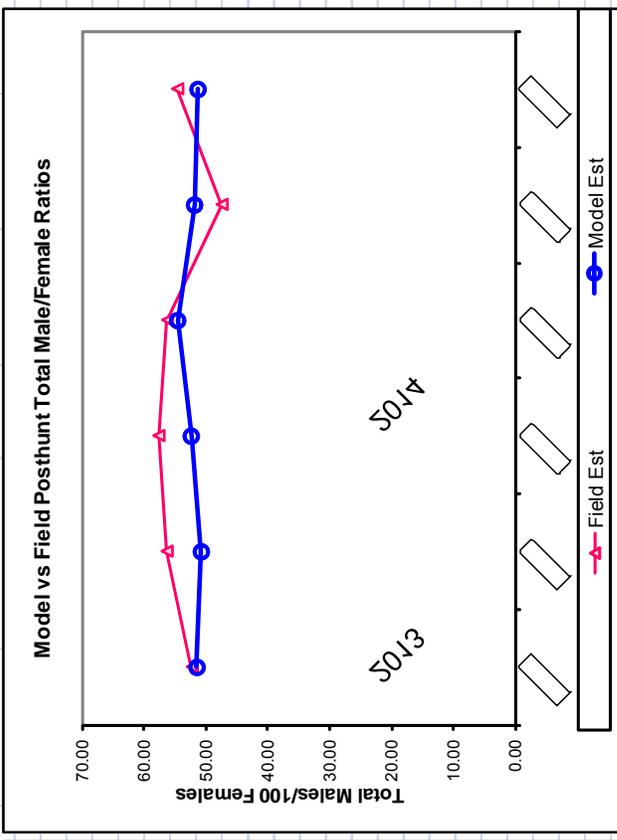
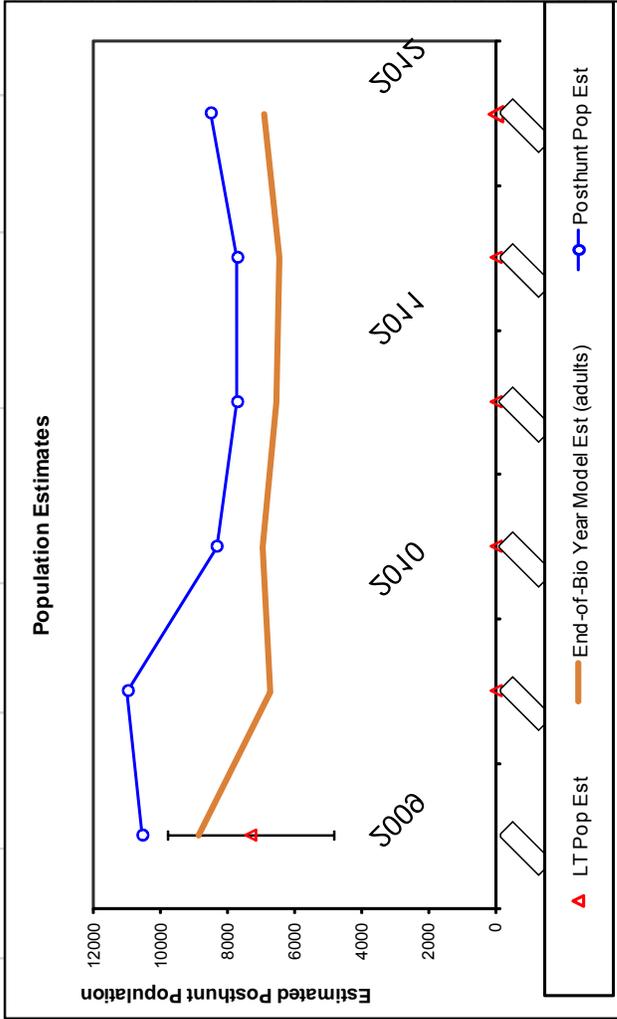
Parameters:		Optim cells
Juvenile Survival =		0.591
Adult Survival =		0.884
Initial Total Male Pop/10,000 =		0.402
Initial Female Pop/10,000 =		0.850

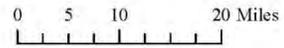
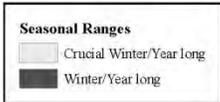
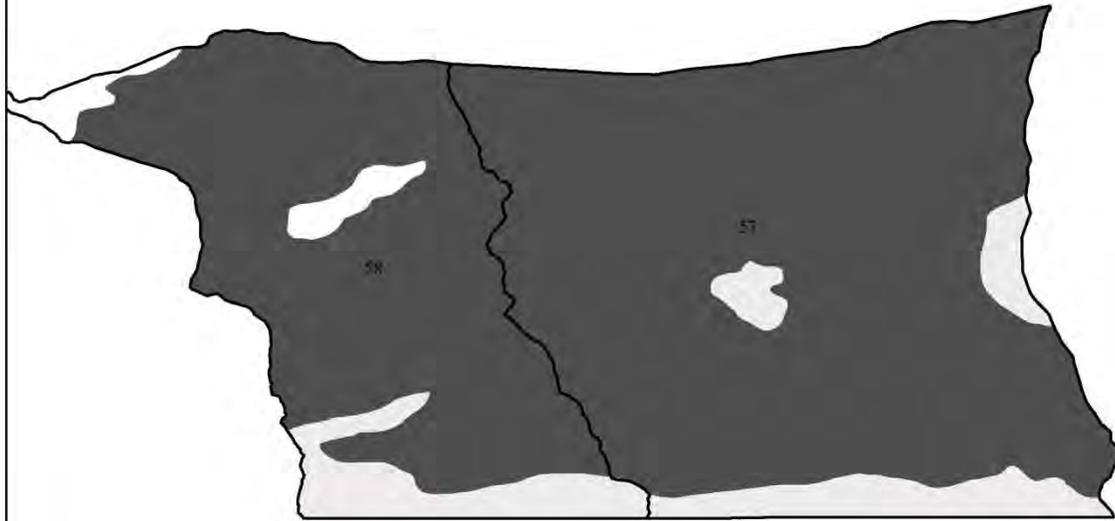
MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

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		56.09	2.26	47.30	52.94	2.17	871	1641	195	2707	23.8	21.2
1994		49.11	2.38	55.59	56.52	2.61	438	0	0	438	12.4	0.0
1995		45.31	1.95	55.18	51.01	2.10	425	5	0	430	11.7	0.1
1996		54.64	2.57	54.75	50.59	2.44	516	33	0	549	14.1	0.5
1997		42.08	2.11	54.59	56.80	2.58	510	38	0	548	13.5	0.5
1998		48.70	2.26	53.19	47.36	2.21	525	21	0	546	14.2	0.3
1999		48.35	2.16	52.56	55.29	2.36	561	32	3	596	15.0	0.4
2000		41.12	2.01	51.71	50.62	2.30	500	14	0	514	13.3	0.2
2001		49.24	2.50	50.82	51.44	2.57	383	23	5	411	10.3	0.3
2002		31.98	1.91	52.82	58.41	2.83	406	15	2	423	10.2	0.2
2003		35.56	2.19	51.94	58.47	3.04	386	36	2	424	10.1	0.5
2004		51.30	2.55	51.97	53.15	2.61	382	18	2	402	10.2	0.2
2005		53.24	2.55	54.00	54.12	2.58	365	29	2	396	9.1	0.4
2006		38.46	2.18	56.44	56.80	2.82	354	22	3	379	8.1	0.3
2007		41.26	2.13	56.96	52.60	2.50	347	21	7	375	7.9	0.3
2008		27.06	1.53	52.09	47.38	2.18	251	14	3	268	8.7	0.3
2009		36.02	2.27	51.46	52.36	2.89	317	14	0	331	11.6	0.3
2010		46.99	2.49	50.77	56.42	2.82	336	14	0	350	12.7	0.3
2011		45.57	2.66	52.41	57.74	3.12	166	18	0	184	8.1	0.5
2012		25.29	1.91	54.60	56.35	3.19	164	0	0	164	7.5	0.0
2013		37.68	2.63	51.87	47.54	3.06	240	0	0	240	12.1	0.0
2014		59.15	4.09	51.32	54.71	3.88	234	15	15	250	12.0	0.4
2015		63.77	4.31	53.33	54.71	3.88	250	15	15	266	11.7	0.4
2016		63.77	4.31	56.28	54.71	3.88	234	15	15	250	9.7	0.4

FIGURES



# Bitter Creek PR414 Herd Seasonal Ranges



## 2014 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2014 - 5/31/2015

HERD: PR419 - CARTER LEASE

HUNT AREAS: 94, 98, 100

PREPARED BY: JEFF SHORT

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	6,818	6,192	6,098
Harvest:	1,557	1,501	1,500
Hunters:	1,609	1,551	1,500
Hunter Success:	97%	97%	100 %
Active Licenses:	1,799	1,731	1,750
Active License Success:	87%	87%	86 %
Recreation Days:	5,470	6,340	6,200
Days Per Animal:	3.5	4.2	4.1
Males per 100 Females	66	63	
Juveniles per 100 Females	62	79	

Population Objective ( $\pm 20\%$ ) : 6000 (4800 - 7200)

Management Strategy: Recreational

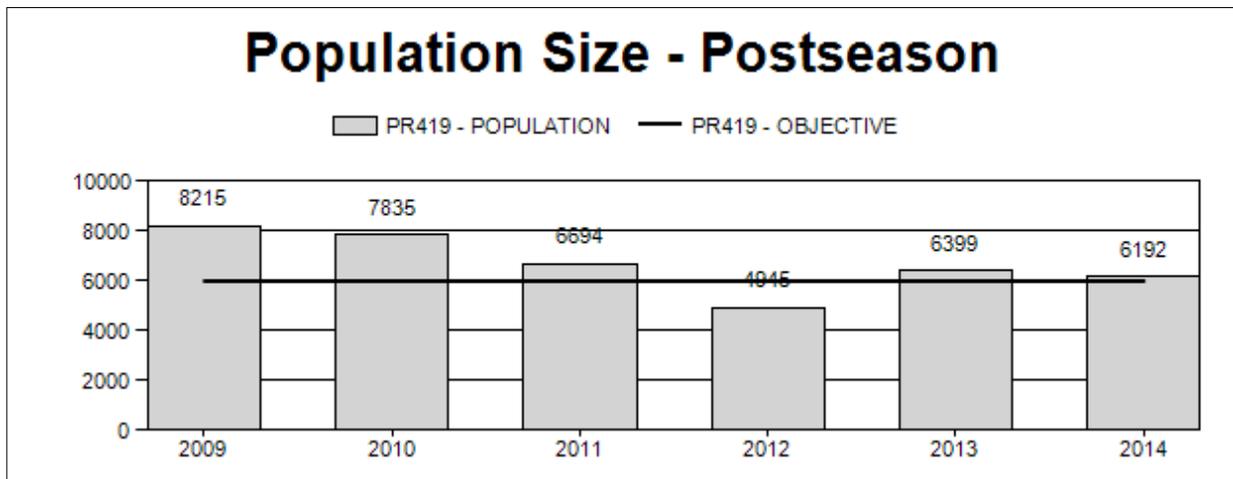
Percent population is above (+) or below (-) objective: 3%

Number of years population has been + or - objective in recent trend: 0

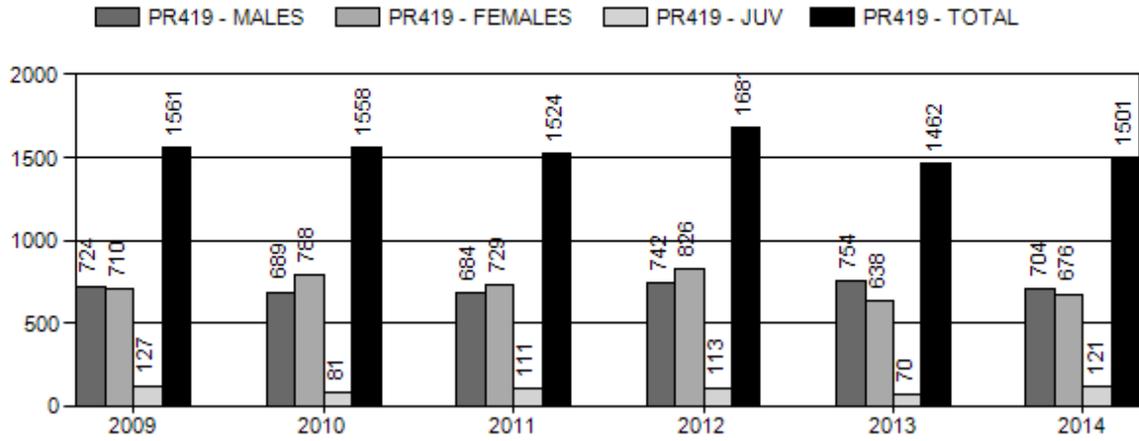
Model Date: 02/27/2015

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

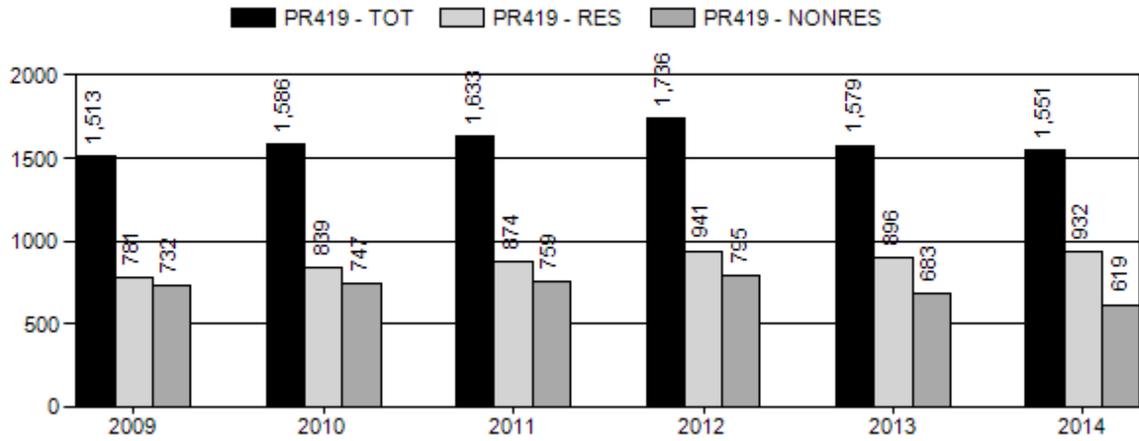
	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	14.3%	13.7%
Males $\geq 1$ year old:	28.7%	28.5%
Juveniles ( $< 1$ year old):	3.2%	2.5%
Total:	13.2%	13.0%
Proposed change in post-season population:	-7.1%	-1.5%



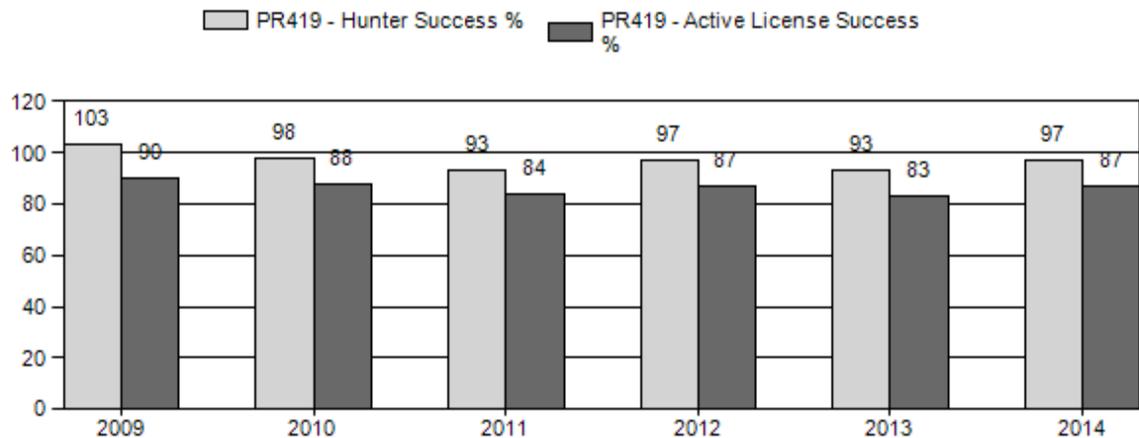
# Harvest



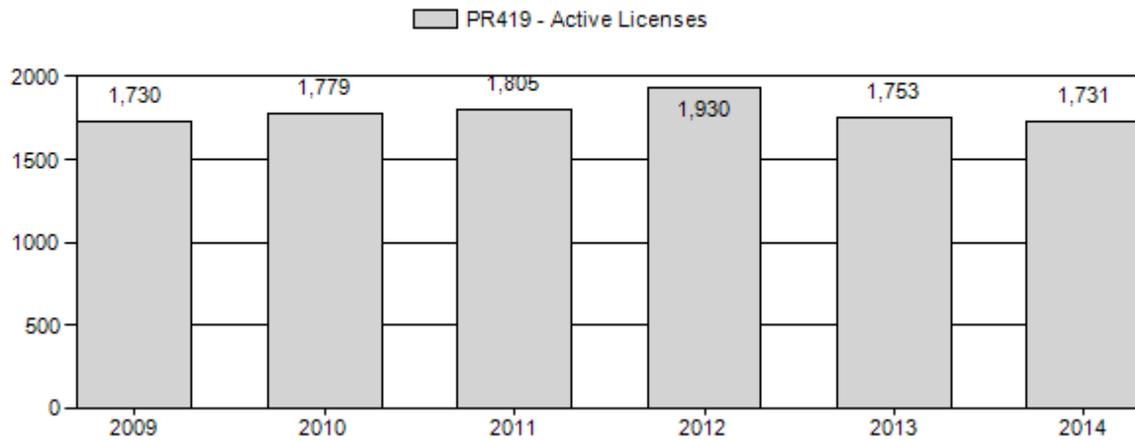
# Number of Hunters



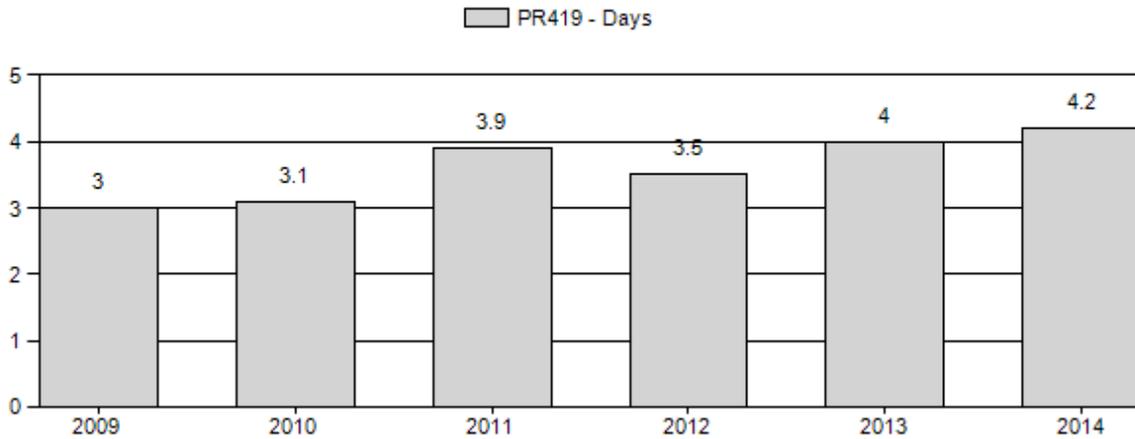
# Harvest Success



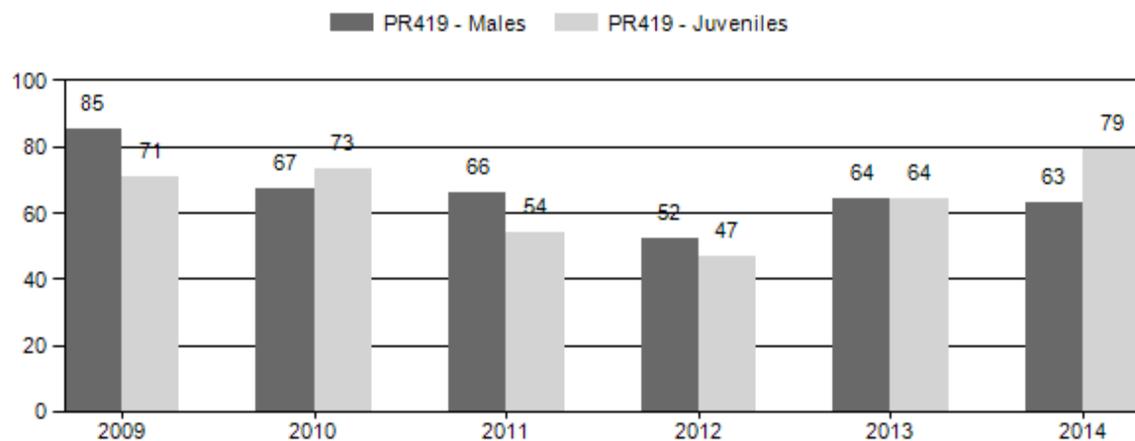
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



**2009 - 2014 Preseason Classification Summary**

for Pronghorn Herd PR419 - CARTER LEASE

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
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	7,073	152	511	663	26%	1,058	41%	838	33%	2,559	0	14	48	63	± 4	79	± 5	49

**2015 HUNTING SEASONS**

SPECIES: Pronghorn

HERD UNIT: Carter Lease (419)

HUNT AREAS: 94, 98, 100

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
94	1	Sept. 10	Oct. 31	450	Limited quota	Any antelope
	6	Sept. 10	Oct. 31	250	Limited quota	Doe or fawn
	7	Sept. 10	Oct. 31	200	Limited quota	Doe or fawn valid on or within one (1) mile of irrigated lands.
98	1	Sept. 10	Oct. 31	200	Limited quota	Any antelope
	6	Sept. 10	Oct. 31	300	Limited quota	Doe or fawn
100	1	Sept. 10	Oct. 31	200	Limited quota	Any antelope
	6	Sept. 10	Oct. 31	150	Limited quota	Doe or fawn
	7	Sept. 10	Oct. 31	100	Limited quota	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 2014
<b>Herd Unit Total</b>		

**Management Evaluation**

**Current Postseason Population Management Objective: 6,000**

**Management Strategy: Recreation**

**2014 Postseason Population Estimate: ~6,192**

**2015 Proposed Postseason Population Estimate: ~6,098**

## **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 2014 and into 2015 was highly variable. In the early part of 2014 the winter was very mild and dry. A moist spring and summer followed. In late August and into September precipitation continued. The winter of 2014-2015 has been very mild to this point. The winters of 2011/12, 2012/13 and 2013/14 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 greatly affected by the drought during those times.

## **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 and 2014 Herd Unit fawn ratios rebounded greatly to 64:100 in 2013 and 79:100 in 2014.

Line transect survey data was most recently conducted in 2014 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 and 2014 to survey HA 94 with high enough intensity to develop a better estimate. The Hunt area 94 population had been declining for several years due to aggressive harvest strategies. That harvest has been reduced slightly and we have now leveled off at or 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. Efforts have been made to tighten line transect estimates and we now have two estimates with tight confidence intervals. The current model tracks very well and we have fairly good confidence in the 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 TSJ,CA model was selected due to its excellent fit with the data, a reasonably low relative AICc score, proper population dynamics fit with the nature of this herd and the population estimate appears to be reasonable. Another reason we have good confidence in the strength of this model is that all three model variations produce a very similar population estimate.

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 continue to 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 5,192 pronghorn following the 2014 season in hunt area 94. This is very near the population objective of 5,000 animals for that area. The model estimates that we were on a steep downward trend from 2009 to 2012. This was 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 was substantiated by reductions in classification sample sizes and field observations. Since 2012 we have relaxed harvest slightly and had very mild winters. This has rebounded the population to objective levels. 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 2015 we will leave the Herd Unit at the same license numbers and season structure as 2014. All areas in the Herd Unit have ample hunting opportunity. We are now right at the objective in Hunt Area 94 according to the model and striving to maintain very low antelope densities in Areas 98 and 100. We will maintain levels of type 7 harvest in hunt area 94 to alleviate damage concerns on irrigated lands. The Objective and management strategy were last revised in 2000 and are scheduled to be revised again in 2015.

# Model

INPUT					
Species:	Pronghorn				
Biologist:	Jeff Short				
Herd Unit & No.:	Carter Lease PR419				
Model date:	02/27/15				
<input type="button" value="Clear form"/>					
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	123	137	<input type="checkbox"/> SCJ,SCA M	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	95	193	<input checked="" 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			
1993	267	1584	2418	4268	255	821	2151	3227	831	2124	2955			5000
1994	1318	815	2081	4214	1318	705	2079	4102	1052	2356	3409			5000
1995	1948	1031	2309	5288	1948	919	2298	5165	1255	2563	3819			5000
1996	1860	1230	2512	5602	1860	1104	2507	5470	1772	3104	4876			5000
1997	2511	1737	3042	7289	2499	1596	2999	7094	2000	3331	5330			5000
1998	2688	1960	3254	7892	2650	1754	3190	7595	2238	3602	5841			5000
1999	2735	2193	3530	8459	2718	1927	3347	7992	2346	3691	6037			5000
2000	1566	2299	3617	7482	1528	1903	3195	6625	2064	3279	5343			5000
2001	2308	2022	3214	7544	2292	1785	3069	7146	2127	3345	5472			5000
2002	1357	2084	3279	6720	1330	1768	3052	6149	1905	3123	5028			5000
2003	2110	1867	3060	7037	2080	1546	2954	6579	2198	3543	5741			5000
2004	2993	2154	3472	8619	2967	1828	3324	8119	2295	3720	6015			5000
2005	3071	2249	3646	8966	3026	1865	3365	8256	2333	3755	6087			5000
2006	1843	2286	3680	7809	1797	1842	3199	6837	2054	3331	5386			5000
2007	2705	2013	3265	7983	2661	1593	2905	7129	1969	3241	5209			5000
2008	2312	1929	3176	7417	2245	1454	2841	6541	2362	3680	6042	7400	1837	5000
2009	2353	2314	3607	8274	2298	1837	3218	7353	2147	3456	5603			5000
2010	2351	2104	3387	7842	2319	1667	2993	6979	2001	3255	5257	5789	627	5000
2011	1610	1961	3190	6762	1540	1548	2754	5842	1654	2781	4434			5000
2012	863	1621	2725	5208	805	1107	2181	4093	1435	2599	4034			5000
2013	1470	1406	2547	5423	1435	926	2189	4550	1555	2693	4247	4092	571	5000
2014	1911	1524	2639	6073	1843	1087	2263	5192	1573	2702	4275			5000
2015	1761	1541	2648	5951	1712	1101	2285	5098						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	0.90			0.92		
1994	0.59			0.92		
1995	0.40			0.92		
1996	0.78			0.92		
1997	0.40			0.92		
1998	0.45			0.92		
1999	0.40			0.92		
2000	0.40			0.92		
2001	0.40			0.92		
2002	0.40			0.92		
2003	0.73			0.92		
2004	0.40			0.92		
2005	0.40			0.92		
2006	0.40			0.92		
2007	0.40			0.92		
2008	0.90			0.92		
2009	0.40			0.92		
2010	0.40			0.92		
2011	0.40			0.92		
2012	0.90			0.92		
2013	0.90			0.92		
2014	0.60			0.92		
2015	0.60			0.92		

**Parameters:** Optim cells

Adult Survival = 0.924

Initial Total Male Pop/10,000 = 0.158

Initial Female Pop/10,000 = 0.242

**MODEL ASSUMPTIONS**

Sex Ratio (% Males) = 50%

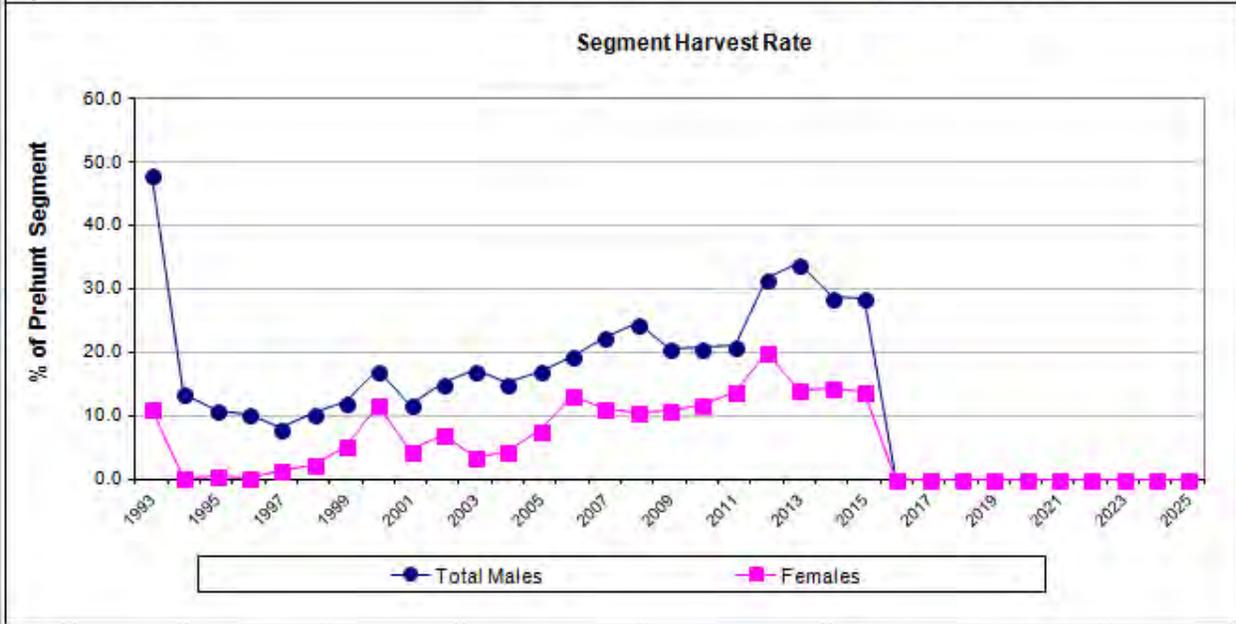
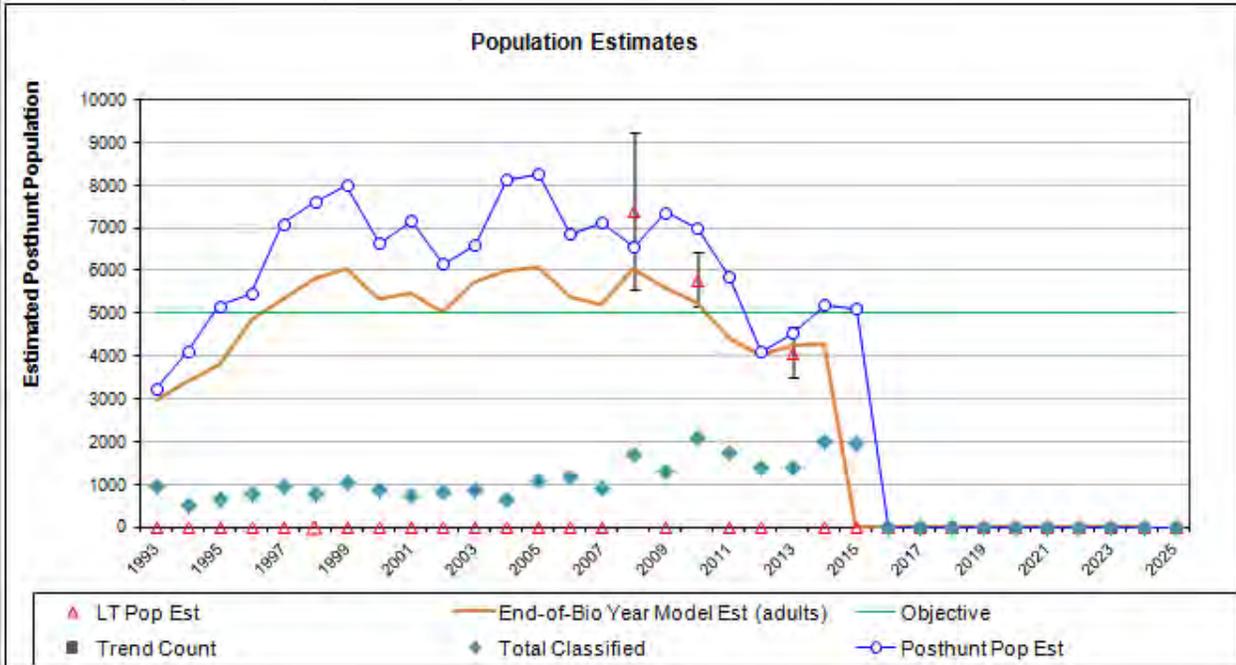
Wounding Loss (total males) = 10%

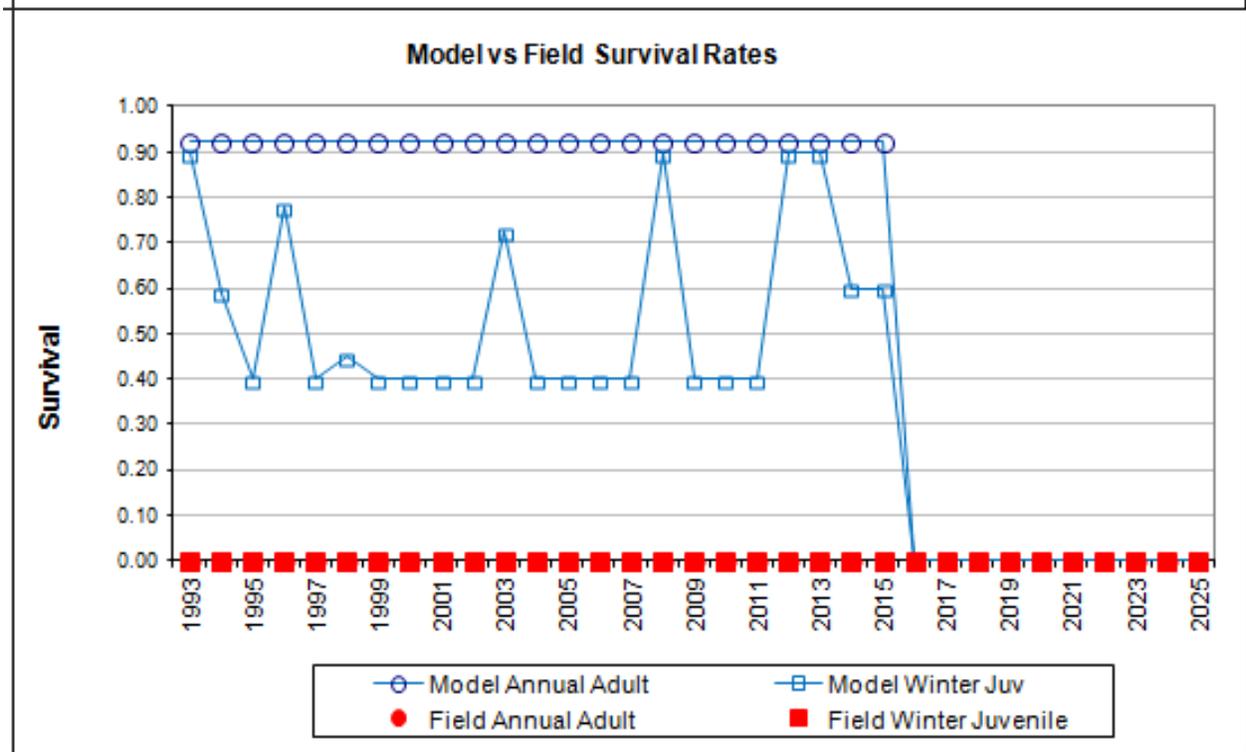
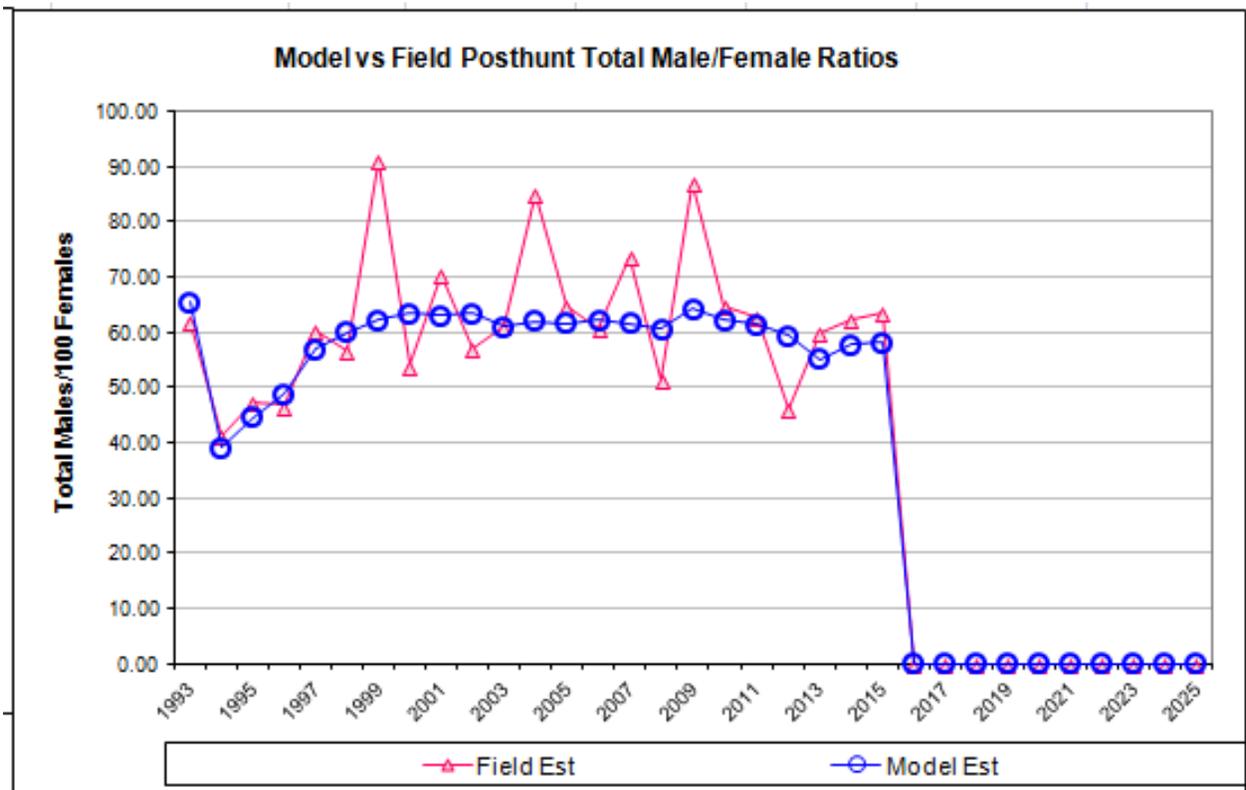
Wounding Loss (females) = 10%

Wounding Loss (juveniles) = 10%

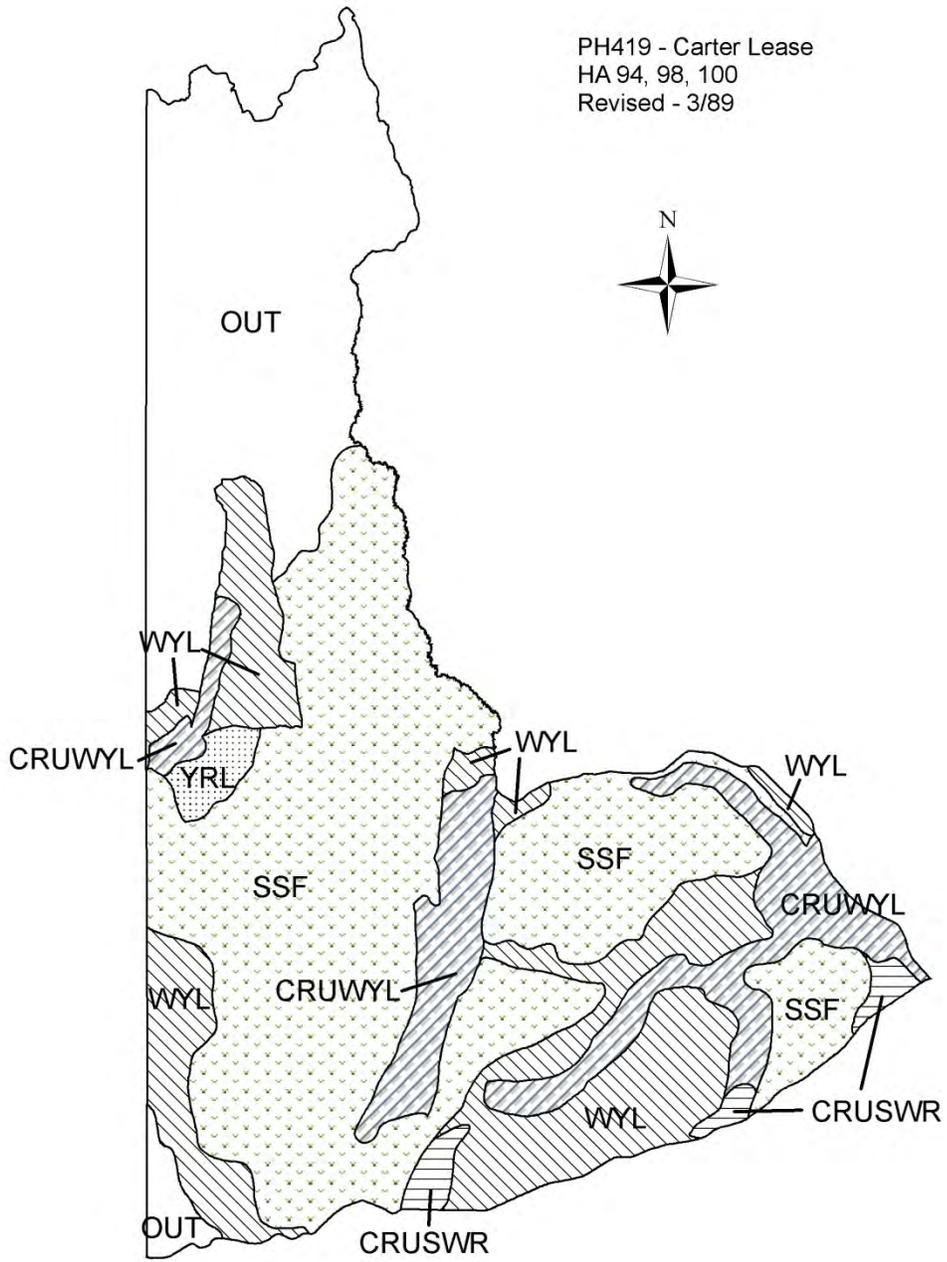
Over-summer adult survival = 96%

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	65.50	62.03	4.26	693	242	11	946	48.1	11.0
1994		63.32	6.32	39.15	41.31	4.75	100	2	0	102	13.5	0.1
1995		84.35	7.27	44.65	47.28	4.87	102	10	0	112	10.9	0.5
1996		74.04	5.93	48.96	46.72	4.33	115	5	0	120	10.3	0.2
1997		82.53	6.18	57.08	60.25	4.94	128	39	11	178	8.1	1.4
1998		81.74	6.56	60.04	56.52	5.06	187	67	16	270	10.5	2.3
1999		77.47	5.90	62.13	91.14	6.64	242	167	15	424	12.1	5.2
2000		43.30	3.72	63.56	54.02	4.31	360	384	35	779	17.2	11.7
2001		71.84	6.25	62.93	70.25	6.15	216	131	15	362	11.7	4.5
2002		41.40	3.69	63.58	57.21	4.57	288	206	25	519	15.2	6.9
2003		68.95	5.54	61.00	61.05	5.09	292	97	27	416	17.2	3.5
2004		86.22	7.95	62.06	85.04	7.87	297	134	24	455	15.2	4.2
2005		84.23	5.91	61.70	64.64	4.90	349	255	41	645	17.1	7.7
2006		50.09	3.64	62.13	60.67	4.15	404	437	42	883	19.4	13.1
2007		82.87	6.52	61.67	73.88	6.01	409	327	40	776	22.3	11.0
2008		72.81	4.06	60.75	51.24	3.18	432	304	61	797	24.6	10.5
2009		65.23	4.50	64.17	87.03	5.53	434	353	50	837	20.6	10.8
2010		69.40	3.61	62.11	64.86	3.44	397	358	29	784	20.8	11.6
2011		50.48	3.02	61.49	62.86	3.51	376	396	64	836	21.1	13.7
2012		31.65	2.29	59.47	46.28	2.92	467	495	495	1014	31.7	20.0
2013		57.70	3.76	55.19	59.88	3.86	436	326	326	794	34.1	14.1
2014		72.41	3.81	57.74	62.40	3.43	397	342	342	801	28.7	14.3
2015		66.51	3.59	58.19	63.37	3.47			330	775	28.6	13.7





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





## 2014 - JCR Evaluation Form

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

PERIOD: 6/1/2014 - 5/31/2015  
  
 PREPARED BY: TONY MONG

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	7,505	8,566	8,797
Harvest:	193	192	225
Hunters:	206	207	235
Hunter Success:	94%	93%	96%
Active Licenses:	218	219	245
Active License Success:	89%	88%	92%
Recreation Days:	607	684	750
Days Per Animal:	3.1	3.6	3.3
Males per 100 Females	55	45	
Juveniles per 100 Females	60	56	

Population Objective (± 20%) : 9000 (7200 - 10800)

Management Strategy: Recreational

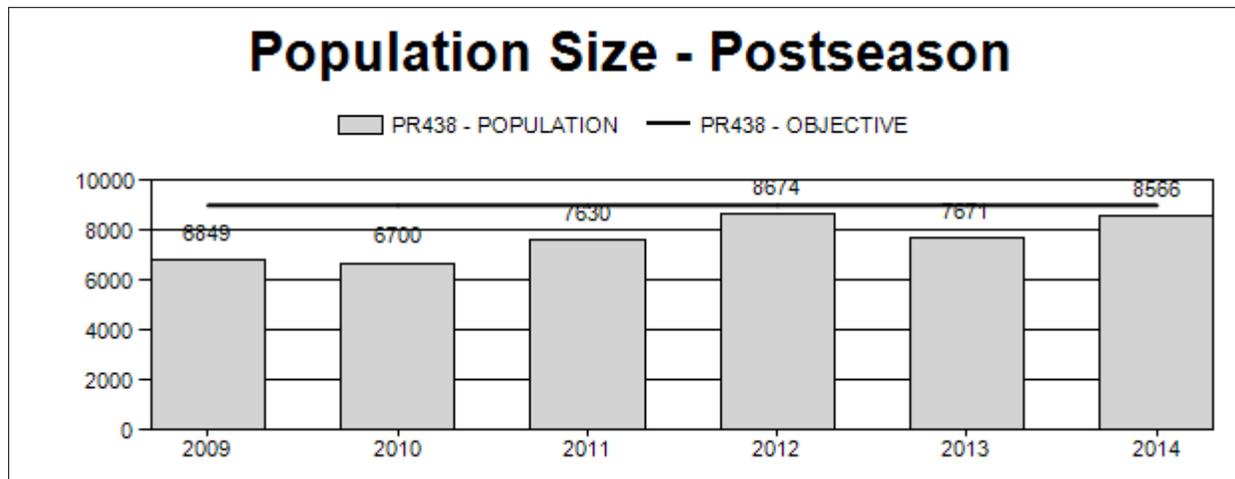
Percent population is above (+) or below (-) objective: -4.8%

Number of years population has been + or - objective in recent trend: 11

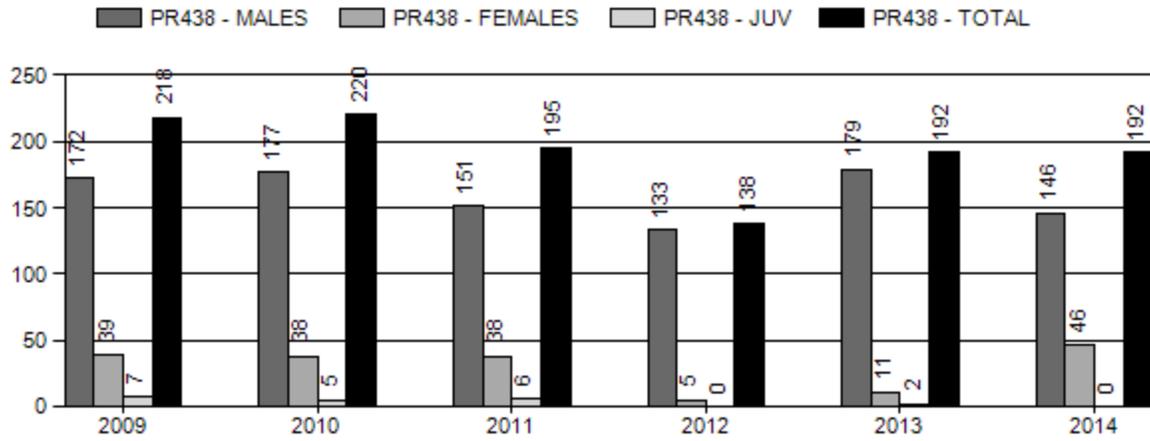
Model Date: 03/02/2015

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

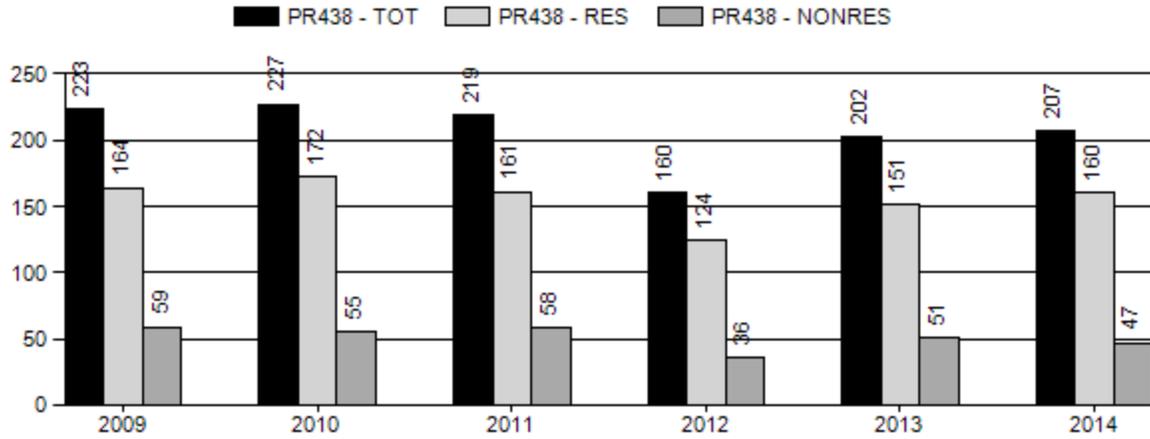
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.9%	2.0%
Males ≥ 1 year old:	7.5%	7.5%
Juveniles (< 1 year old):	0%	0.5%
Total:	2.15%	2.7%
Proposed change in post-season population:	2.0%	2.0%



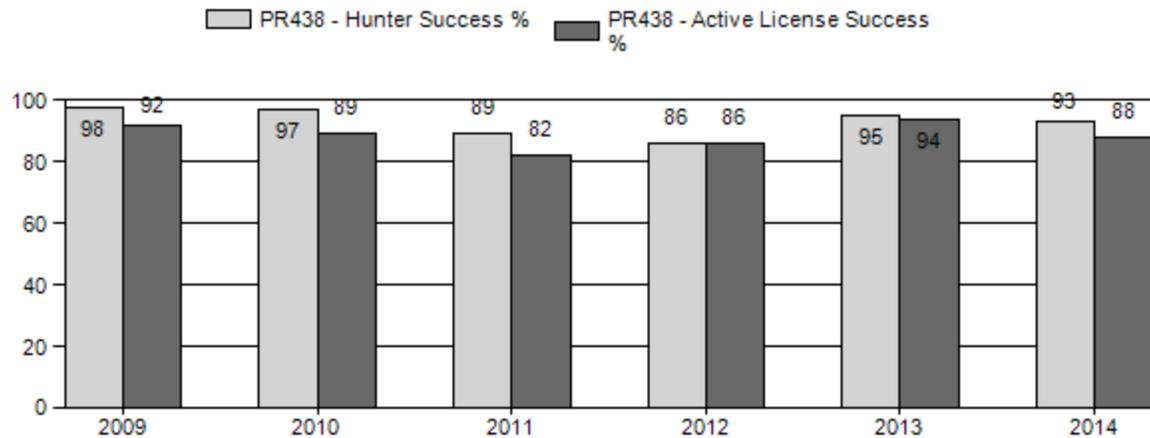
# Harvest



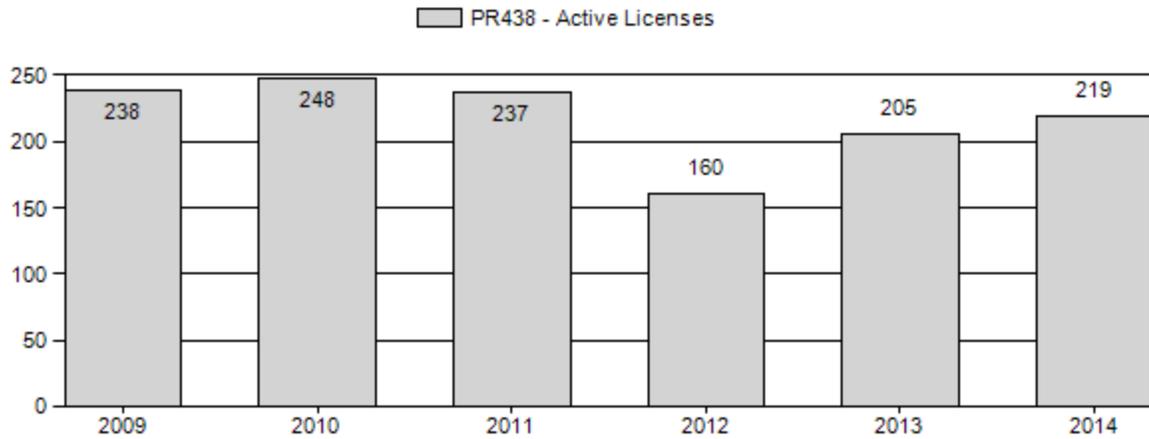
# Number of Hunters



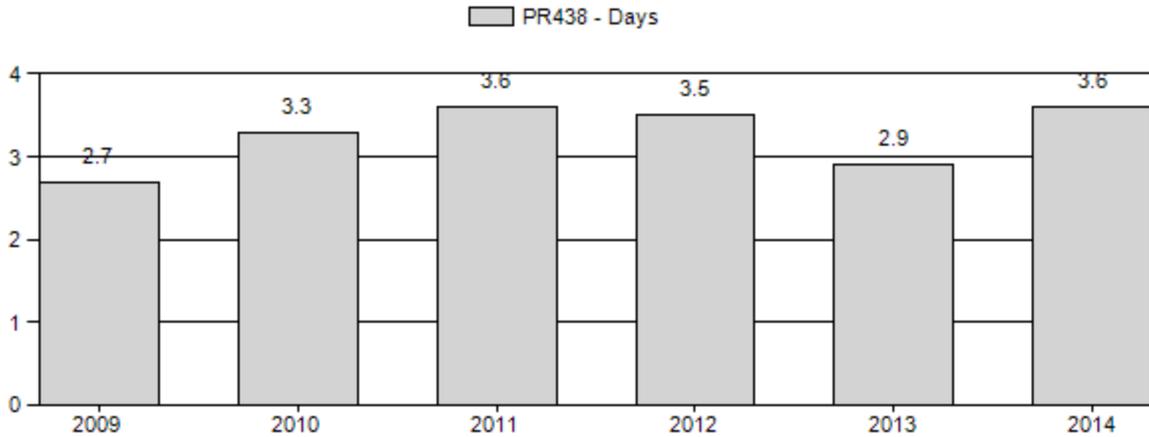
# Harvest Success



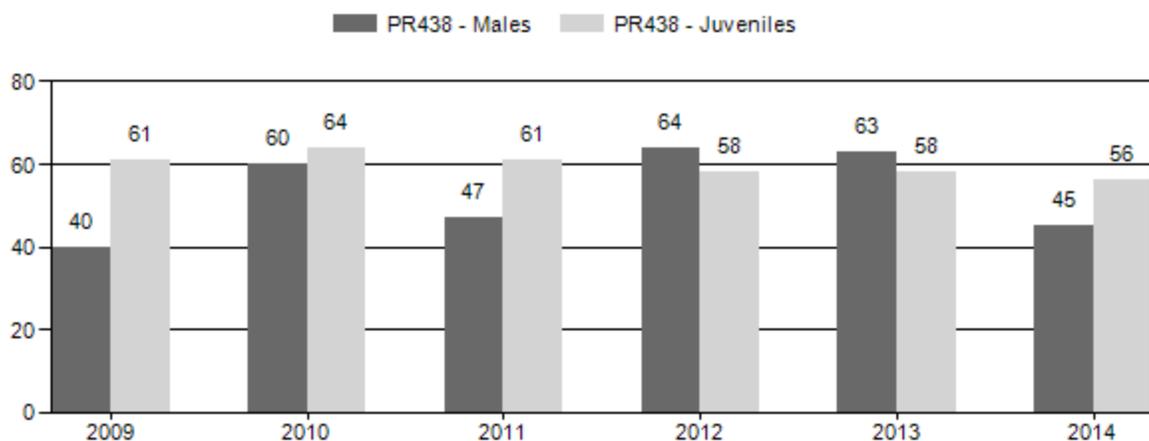
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



# 2015 HUNTING SEASON

SPECIES : Pronghorn

HERD UNIT : **Baggs (438)**

HUNT AREAS: **53, 55**

## Dates of Season

Hunt Area	Type	Opens	Closes	Quota	License	Limitations
53	1	Sep. 20	Oct. 31	100	Limited quota	Any antelope
	6	Sep. 20	Oct. 31	75	Limited quota	Doe or fawn
	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	50	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 2014</i>
53	1	0
	6	+75
	7	0
55	1	0
	6	+25
<b><i>Herd Unit Total</i></b>	<b>1</b>	<b>0</b>
	<b>6</b>	<b>+100</b>
	<b>7</b>	<b>0</b>

### Management Evaluation

**Current Management Objective: 9,000**

**Management Strategy:** Recreation

**2014 End-of-bio-year Estimate: 6,700**

**2015 Proposed Postseason Population Estimate: 8,800**

The Baggs Pronghorn Herd is nearing the objective of 9,000 (set in 1993), and our current management strategy is to maintain current population levels. Buck ratios remain within recreational management guidelines, but concerns exist in the southern portion of the herd unit (Area 53), where limited access concerns occur. Consequently, Type 1 license issuance will remain the same as last year despite the fact more opportunity is available on a herd unit basis. Since the herd is now at objective, some female harvest is warranted to maintain the herd at objective. Therefore, we are proposing an additional 100 doe/fawn licenses across the herd unit.

## Herd Unit Issues

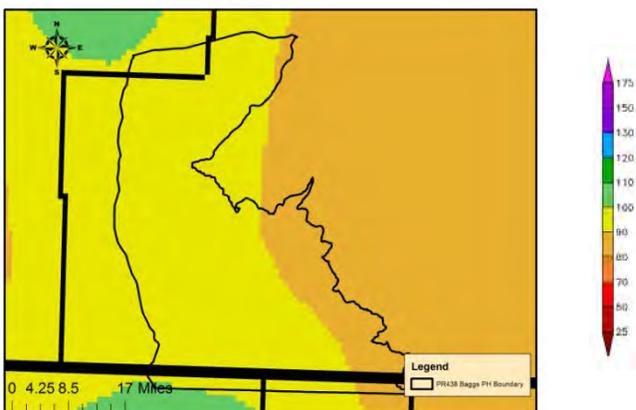
Throughout the Baggs Pronghorn Herd we continue to see increasing development of oil and gas fields associated with the Atlantic Rim Project. Construction of the largest wind turbine project in North America, the Chokecherry-Sierra Madre Wind Project, should begin within two years. Hunt area 53 consists primarily of public land and remains relatively open to hunting. However, area 55 has significant access concerns due to checkerboard ownership and outfitter leases.

## Weather

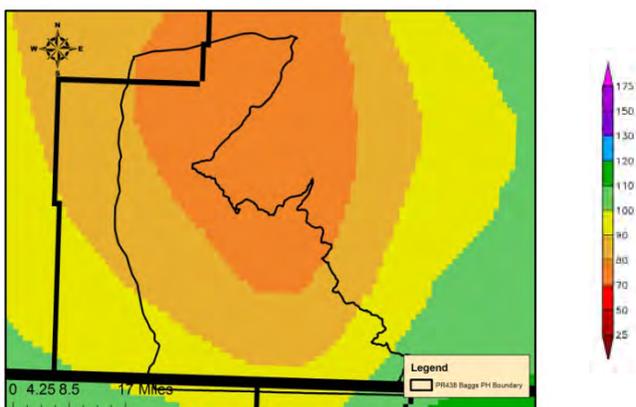
Weather conditions have been quite variable in this herd unit during recent years, ranging from severe winter weather to long-term drought. Conditions have improved dramatically over the past year. Overall, the herd unit has seen higher than normal precipitation in 2014 (Figure 1), when compared to 2013. This increase in moisture should equate to better vegetation in 2015. The 2014-15 winter was extremely mild, with low levels of snowfall and higher than average temperatures throughout winter. Although initially concerning because of the low winter precipitation, 2015 spring moisture levels seem to have more than made up for this shortfall.

Figure 1. A) Percent of normal precipitation for the herd unit from January 2013 to December 2013, B) Percent of normal precipitation for the herd unit from January 2014 to December 2013.

A)



B)



## **Habitat**

Precipitation during 2014-15 has resulted in dramatically improved habitat conditions. The increase in moisture and mild temperatures during the fall months of 2014 resulted in a late growth opportunity for vegetation in the herd unit, and pronghorn benefitted through increased body condition prior to the 2014-15 winter. An early warming trend following this winter, coupled with regular moisture through the 2015 spring months, resulted in an early green up, persisting through today. Some areas in the herd unit received more moisture than observed for many years.

## **Field Data**

Beginning with the severe winter of 2007-08, inclement weather conditions, including droughts and severe winters resulted in a fairly slow recovery for Baggs pronghorn. However, recent higher fawn ratios (5-year average 60:100), favorable winters, and very conservative hunting seasons have allowed this herd to reach objective, and more liberal seasons are warranted in the future. We continue to see disparate adult buck ratios between hunt areas 53 (5-year average 29:100) and 55 (5-year average 47:100), due in large part to differences in access and harvest rates. Fawn production over the last 4 years (60:100) has been high compared to the previous 10 years (52:100).

## **Harvest Data**

The disparity between buck ratios in Areas 53 and 55 is apparent within the harvest data. Hunt area 55 has a higher hunter success rate (hunter success = 98%) when compared to hunt area 53 (hunter success = 87%). However, success rates in Area 53 are consistent with most other public land recreational management areas. The lower hunter success leads local managers to believe that hunters are either not finding bucks, or (more likely) are not finding a buck of suitably large size. In either case, the proposed 2015 hunting season reflects our concern with buck numbers in this southern portion of the herd unit (Area 53), and continues to recognize access concerns in the northern portion (Area 55). Conservative harvest of females and increased fawn production has been successful at increasing population numbers and will allow for additional hunter opportunity in the coming years.

## **Population**

The current population model estimates the 2014 end-of-bio-year population to be 6,700 animals. The CJ, CA 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. However, results are inconsistent with the most recent line transect estimate (2012), suggesting the model is conservative. Despite efforts to parameterize the model to try and fit the 2012 line transect estimate, efforts were not successful. I have a high level of confidence in the line transect data collected in 2012. Although the model shows a population nearing the objective, I believe we have already reached that objective. A survey next year is warranted to further calibrate the spreadsheet model.

## **Management Summary**

The challenge with managing this herd is driven by the disparity in buck ratios and access between the two hunt areas, coupled with an increasing population. Because of the overall population levels, we are going to maintain population levels near the objective through

increased female harvest, but are maintaining buck harvest opportunity at 2014 levels due to access and buck ratio disparity. It is likely additional opportunity will be possible in the near future, particularly given expected increases in fawns with the exceptional conditions this year is bringing. Impacts brought on by development are expected to continue in this herd, and will continue to be monitored to document impacts.

<b>INPUT</b>	
Species:	Pronghorn
Biologist:	Tony Mong
Herd Unit & No.:	Baggs, 438
Model date:	03/02/15

<b>MODELS SUMMARY</b>		Relative AICc	Fit	Notes
CJ,CA	Constant Juvenile & Adult Survival	134	125	
SCJ,JSCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	139	116	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	200	81	

Year	Population Estimates from Top Model										LT Population Estimate		Trend Count
	Predicted Prehunt Population (year <i>t</i> )		Predicted Posthunt Population (year <i>t</i> )		Total		Predicted adult End-of-bio-year Pop (year <i>t</i> )		LT Population Estimate				
	Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	Total Males	Females	Total Adults	Field Est	
1993	2842	3558	7745	14144	2712	2550	6311	11574	2782	6189	8970		
1994	2779	2726	6065	11570	2753	2395	5905	11053	2748	5987	8735		
1995	1604	2693	5867	10164	1604	2335	5867	9806	2450	5728	8178		
1996	2164	2401	5613	10179	2164	2214	5594	9972	2478	5596	8074		
1997	2088	2429	5484	10001	2080	2288	5440	9808	2530	5432	7962		
1998	2881	2480	5323	10685	2879	2335	5278	10492	2746	5457	8204		
1999	2942	2691	5348	10981	2939	2459	5327	10726	2865	5518	8382		
2000	2771	2807	5407	10986	2771	2507	5325	10603	2866	5474	8340		
2001	2561	2809	5364	10734	2557	2590	5320	10467	2903	5426	8328		
2002	2988	2845	5317	11150	2986	2499	5247	10732	2900	5449	8348		
2003	2290	2842	5340	10471	2282	2417	5288	9987	2663	5335	7998		
2004	2804	2610	5229	10643	2793	2120	5128	10041	2493	5292	7785		
2005	3478	2443	5186	11107	3457	1891	4840	10188	2416	5143	7559		
2006	2520	2368	5040	9928	2473	1745	4361	8579	2056	4450	6506		
2007	2308	2015	4361	8684	2240	1410	3852	7501	1693	3944	5637	4681	676
2008	1751	1659	3865	7275	1745	1467	3810	7021	1700	3863	5563		
2009	2296	1666	3786	7748	2289	1476	3743	7508	1826	3920	5746		
2010	2452	1789	3842	8083	2446	1595	3800	7841	1968	4007	5975		
2011	2383	1929	3927	8238	2376	1762	3885	8024	2133	4110	6244	7791	1155
2012	2352	2090	4028	8470	2352	1944	4023	8319	2223	4190	6413		
2013	2401	2179	4106	8685	2401	1982	4094	8476	2352	4232	6584		
2014	2330	2305	4148	8783	2324	2144	4097	8566	2435	4269	6703		
2015	2449	2386	4183	9018	2443	2208	4146	8797					

Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.42		0.90	
1994	0.42		0.90	
1995	0.42		0.90	
1996	0.42		0.90	
1997	0.42		0.90	
1998	0.42		0.90	
1999	0.42		0.90	
2000	0.42		0.90	
2001	0.42		0.90	
2002	0.42		0.90	
2003	0.42		0.90	
2004	0.42		0.90	
2005	0.42		0.90	
2006	0.42		0.90	
2007	0.42		0.90	
2008	0.42		0.90	
2009	0.42		0.90	
2010	0.42		0.90	
2011	0.42		0.90	
2012	0.42		0.90	
2013	0.42		0.90	
2014	0.42		0.90	
2015	0.42		0.90	

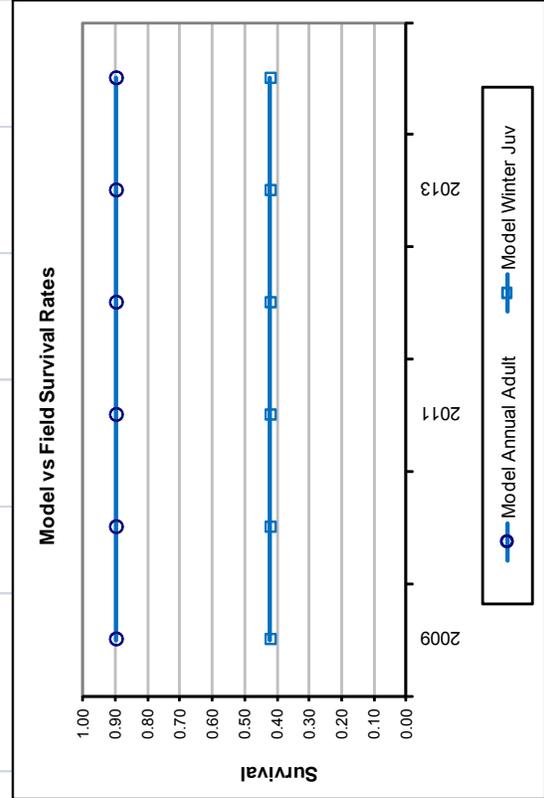
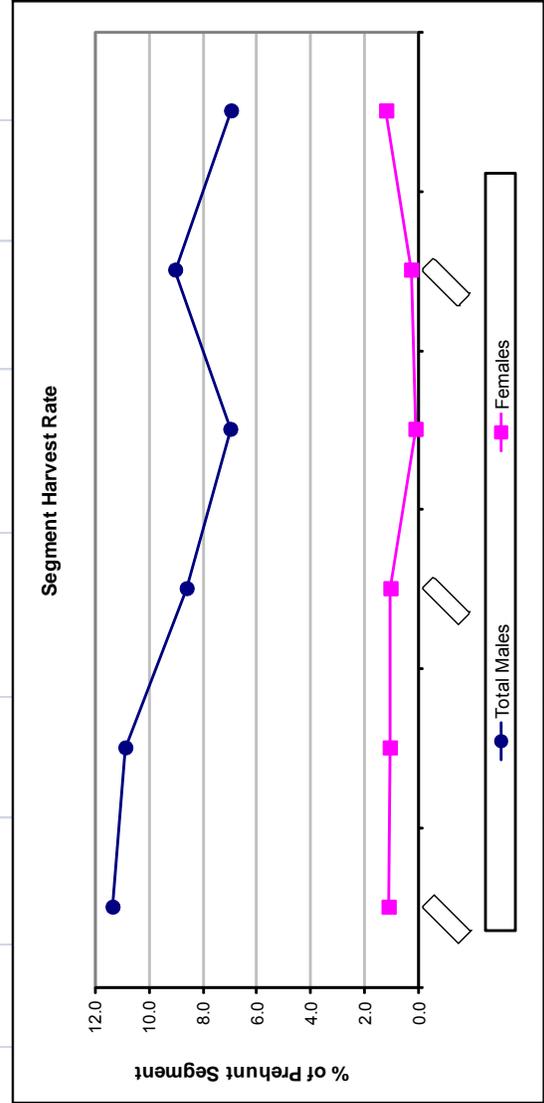
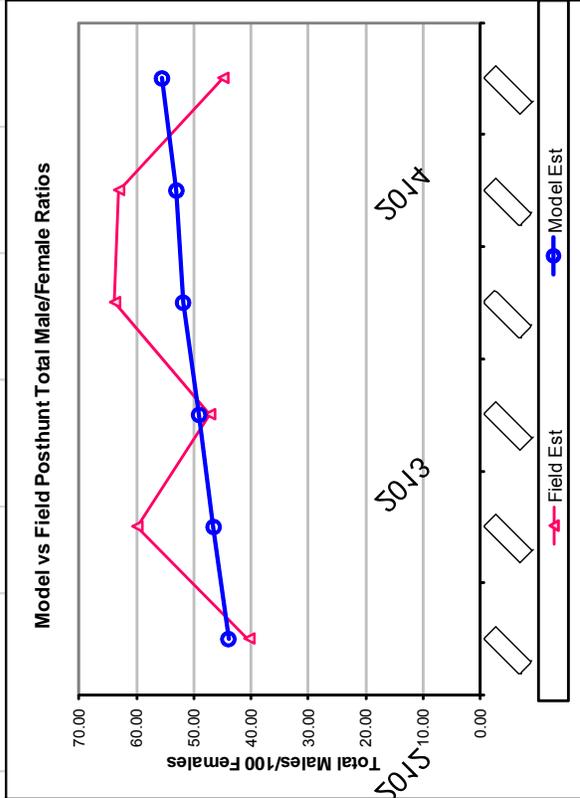
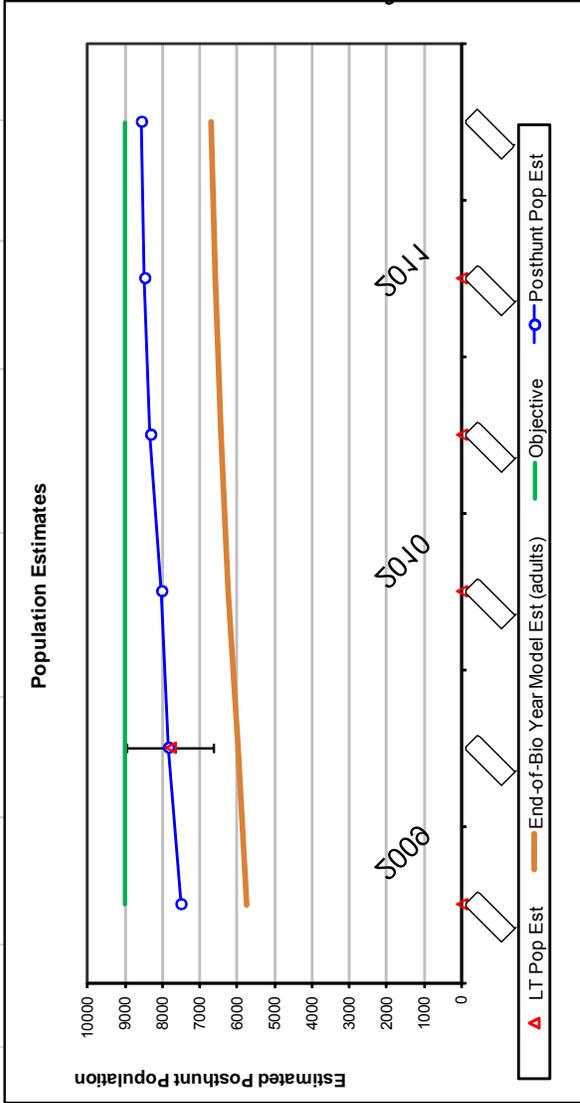
Parameters:		Optim cells
Juvenile Survival =		0.422
Adult Survival =		0.899
Initial Total Male Pop/10,000 =		0.356
Initial Female Pop/10,000 =		0.774

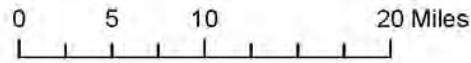
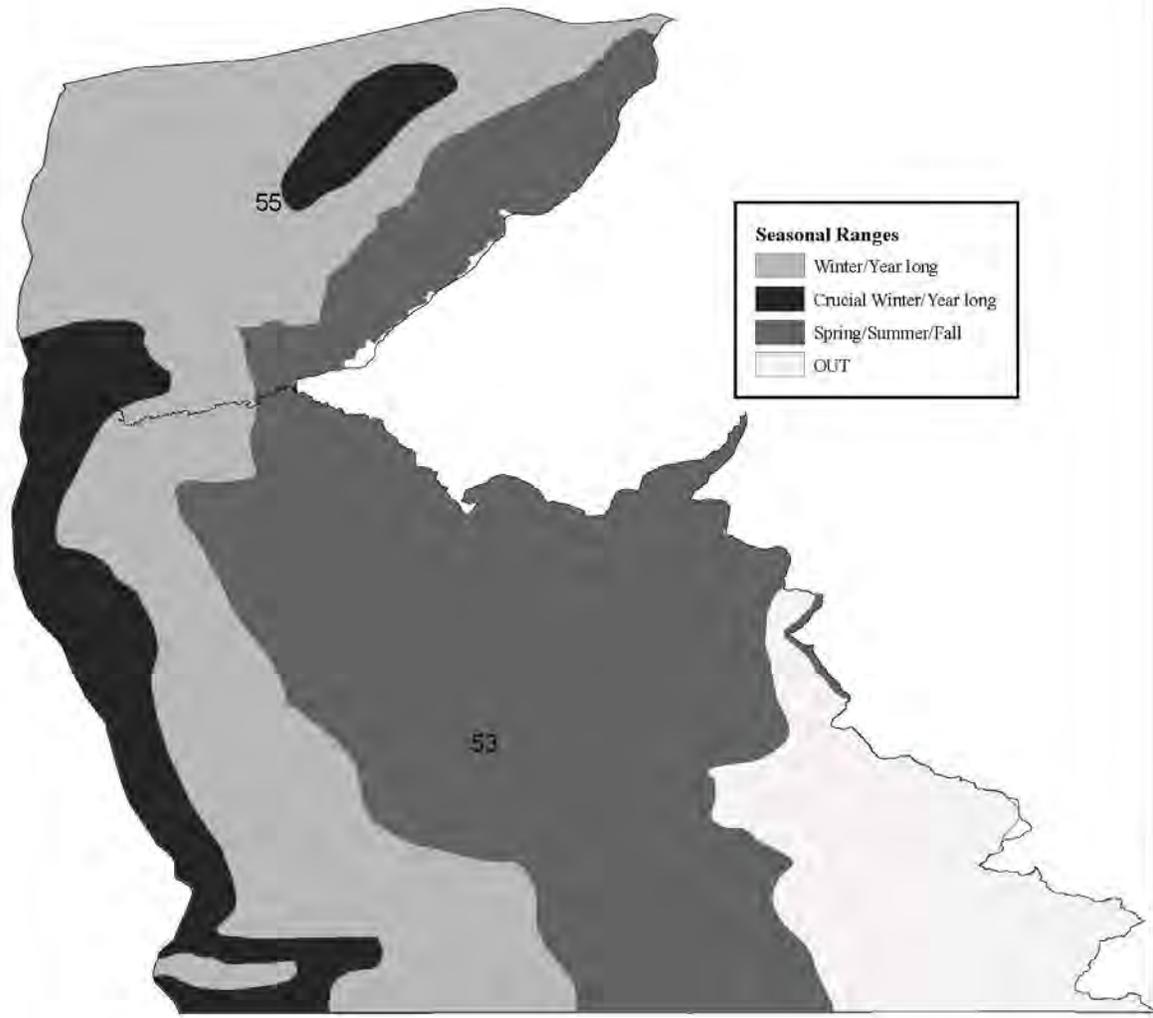
MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Year	Classification Counts						Harvest					
	Juvenile/Female Ratio			Total Male/Female Ratio			Juv	Males	Females	Total Harvest	Segment Harvest Rate (%)	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE					Total Males	Females
1993	36.70	2.13	2.51	45.94	47.52	2.51	916	1303	118	2337	28.3	18.5
1994	45.83	3.45	4.25	44.95	62.52	4.25	301	145	24	470	12.1	2.6
1995	27.35	2.37	2.97	45.91	39.16	2.97	0	0	0	326	13.3	0.0
1996	38.55	2.84	2.77	42.78	37.20	2.77	170	18	0	188	7.8	0.4
1997	38.07	2.58	2.88	44.29	45.05	2.88	128	40	7	175	5.8	0.8
1998	54.13	3.71	3.53	46.58	50.33	3.53	132	41	2	175	5.9	0.8
1999	55.00	3.49	3.21	50.32	48.57	3.21	211	19	2	232	8.6	0.4
2000	51.25	3.38	3.11	51.92	45.21	3.11	273	75	0	348	10.7	1.5
2001	47.74	3.20	3.83	52.36	62.15	3.83	199	40	4	243	7.8	0.8
2002	56.20	3.56	3.16	53.50	47.12	3.16	314	64	2	380	12.1	1.3
2003	42.88	3.15	4.20	53.22	65.86	4.20	386	47	7	440	14.9	1.0
2004	53.63	2.92	2.57	49.91	44.29	2.57	445	92	10	547	18.8	1.9
2005	67.06	3.83	3.03	47.11	47.38	3.03	502	315	19	836	22.6	6.7
2006	50.00	3.38	3.73	46.98	57.90	3.73	566	617	43	1226	26.3	13.5
2007	52.92	3.44	3.38	46.20	51.46	3.38	550	463	62	1075	30.0	11.7
2008	45.32	3.51	3.12	42.94	37.83	3.12	175	50	6	231	11.6	1.4
2009	60.66	3.65	2.79	44.00	40.44	2.79	172	39	7	218	11.4	1.1
2010	63.81	3.66	3.50	46.57	59.97	3.50	177	38	5	220	10.9	1.1
2011	60.67	3.94	3.33	49.11	47.29	3.33	151	38	6	195	8.6	1.1
2012	58.38	3.56	3.79	51.90	63.87	3.79	133	5	5	138	7.0	0.1
2013	58.46	3.81	4.02	53.07	63.17	4.02	179	11	11	190	9.0	0.3
2014	56.17	3.36	2.90	55.58	44.99	2.90	146	46	46	197	7.0	1.2
2015	58.53	3.69	3.35	57.03	50.74	3.35	162	34	34	201	7.5	0.9

FIGURES



# Baggs PR438 Herd Seasonal Ranges



## 2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD423 - UINTA

HUNT AREAS: 132-133, 168

PREPARED BY: JEFF SHORT

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	15,639	14,450	15,692
Harvest:	1,139	1,100	1,010
Hunters:	2,489	2,429	2,400
Hunter Success:	46%	45%	42 %
Active Licenses:	2,518	2,447	2,400
Active License Success:	45%	45%	42 %
Recreation Days:	11,396	12,689	12,000
Days Per Animal:	10.0	11.5	11.9
Males per 100 Females	28	26	
Juveniles per 100 Females	61	56	

Population Objective (± 20%) : 20000 (16000 - 24000)

Management Strategy: Recreational

Percent population is above (+) or below (-) objective: -27.8%

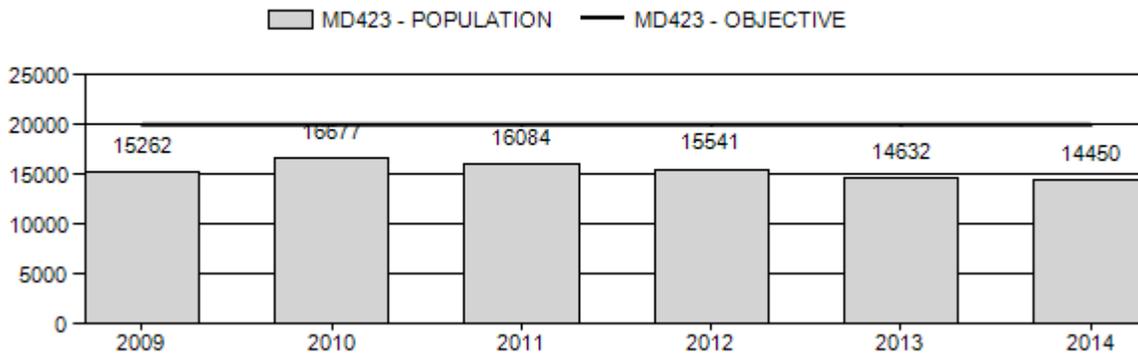
Number of years population has been + or - objective in recent trend: 20

Model Date: 02/28/2015

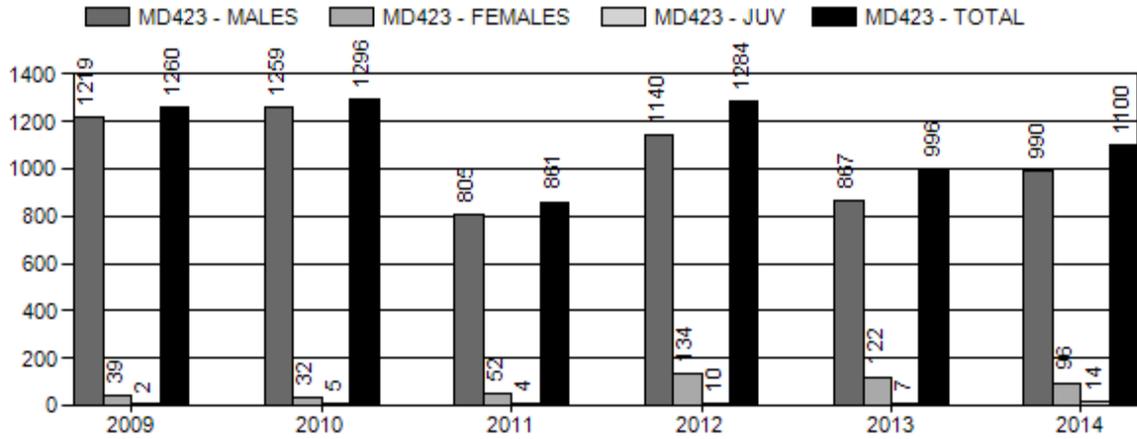
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.3%	1.3%
Males ≥ 1 year old:	34.4%	28.3%
Juveniles (< 1 year old):	0.3%	0.2%
Total:	7.0%	6.0%
Proposed change in post-season population:	-1.4%	8.5%

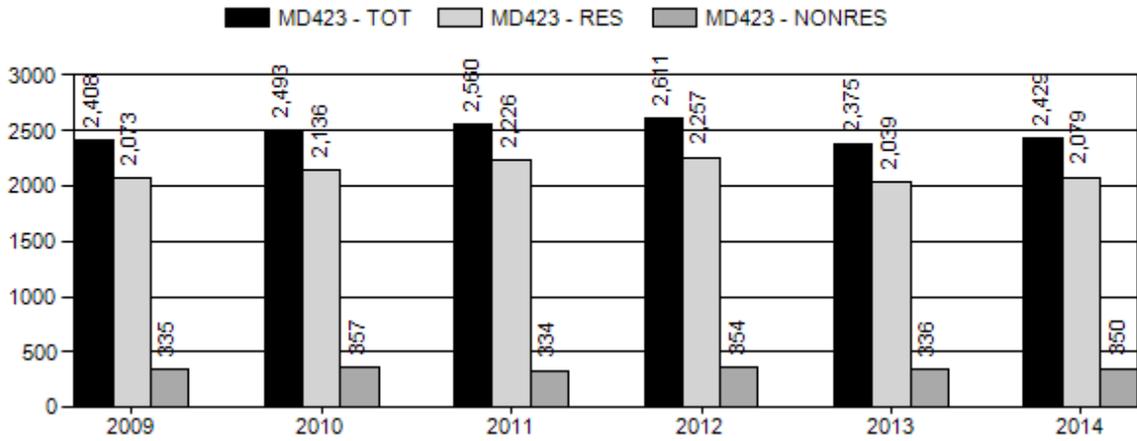
## Population Size - Postseason



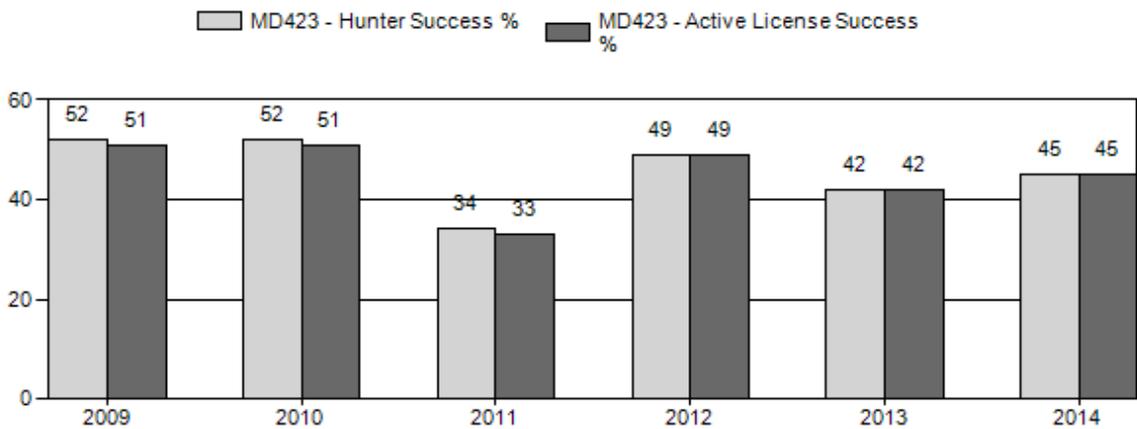
# Harvest



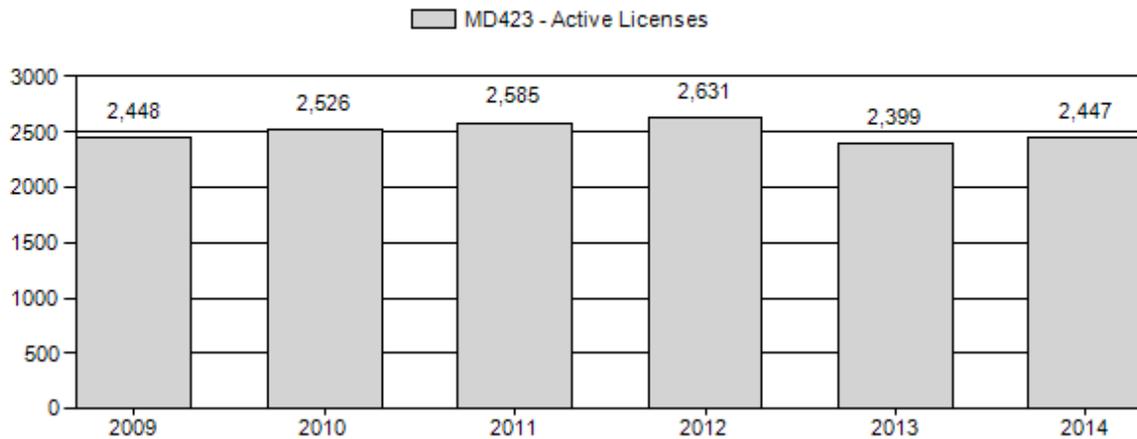
# Number of Hunters



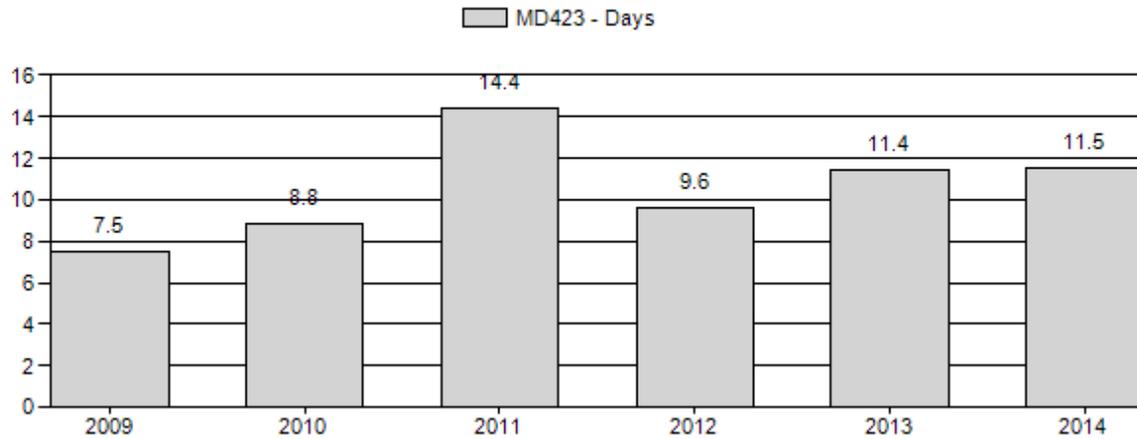
# Harvest Success



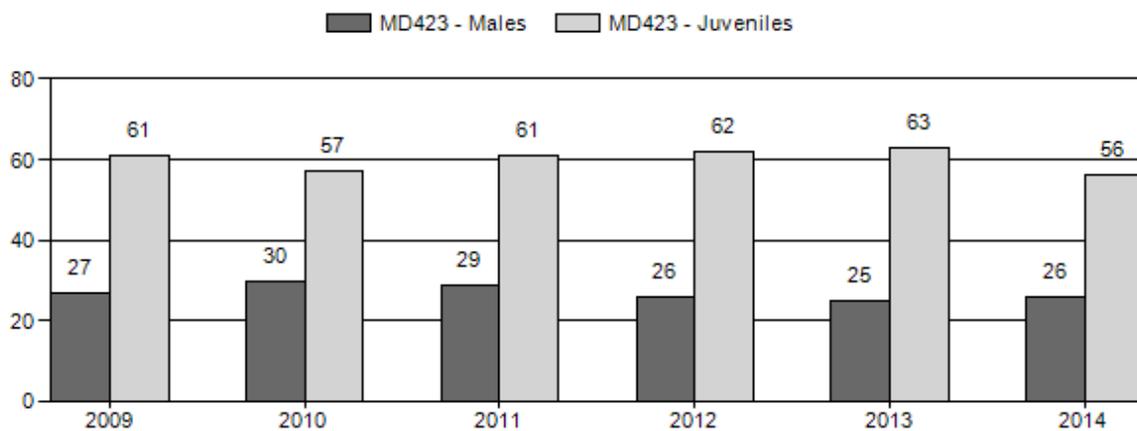
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



**2009 - 2014 Postseason Classification Summary**

for Mule Deer Herd MD423 - UINTA

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Cls 1	2+ CIs 2	2+ CIs 3	UnCls	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	15,262	115	0	0	0	206	321	14%	1,190	53%	725	32%	2,236	0	10	17	27	±2	61	±3	48
2010	16,677	261	0	0	0	271	532	16%	1,767	53%	1,011	31%	3,310	0	15	15	30	±2	57	±3	44
2011	16,084	93	0	0	0	313	406	15%	1,393	53%	846	32%	2,645	0	7	22	29	±2	61	±3	47
2012	15,541	119	0	0	0	311	430	14%	1,642	53%	1,025	33%	3,097	0	7	19	26	±2	62	±3	49
2013	14,632	151	0	0	0	235	386	13%	1,551	53%	974	33%	2,911	0	10	15	25	±2	63	±3	50
2014	14,450	224	298	222	50	0	520	14%	1,982	55%	1,112	31%	3,614	0	11	15	26	±1	56	±2	44

**2015 HUNTING SEASONS**

SPECIES : Mule Deer

HERD UNIT : Uinta (423)

HUNT AREAS: 132, 133, 168

Hunt Area	Type	Dates of Seasons		Quota	Licenses	Limitations
		Opens	Closes			
132		Oct. 1	Oct. 14		General	Antlered deer three (3) points or more on either antler
133		Oct. 1	Oct. 14		General	Antlered deer three (3) points or more on either antler
168		Oct. 1	Oct. 14		General	Antlered deer three (3) points or more on either antler
132, 133, 168	7	Oct. 1	Oct. 14	50	Limited quota	Doe or fawn valid on irrigated land
132, 133, 168	Archery	Sept. 1	Sept. 30			Refer to Section 3 of this chapter

**Region K Nonresident Quota: 500**

Hunt Area	License Type	Quota change from 2014
<b>Herd Unit Total</b>		

**Management Evaluation**

**Current Postseason Population Management Objective: 20,000**

**Management Strategy: Recreational**

**2014 Postseason Population Estimate: ~14,450**

**2015 Proposed Postseason Population Estimate: ~15,692**

## **Herd Unit Issues**

Energy development on crucial deer habitat is a looming issue for this herd. Extensive development has occurred over their range. Xeric environments and limited high quality fawning habitats greatly affect deer productivity in several areas in this herd. This limited fawning habitat will affect the ability of fawns to evade predation by coyotes. Winter severity every three to five years is a major limiting factor for this deer herd. This is especially true in the western part of the herd around Evanston, Fort Bridger and Leroy. The eastern portion of the herd around Cedar Mountain experiences a rain shadow effect and does not tend to get the sever winters in the last 10 years.

Highway mortality and impediment of migration is a significant issue in this herd unit. Mule deer have to cross highways to migrate to crucial winter ranges in several locations. In the Leroy area mule deer are crossing Interstate 80 to get to and from important winter ranges. Deer fencing is present in most of this area but deer crossing structures are limited and the fence is ageing and showing signs of wear. Deer must cross Highway 414 in several areas between Mountain View and McKinnon to migrate to summer and winter ranges. Mortalities are common in those areas. The most significant area of issue is Wyoming Highway 189 between I-80 and Kemmerer. A large segment of the herd must cross this highway to get to winter ranges. Mortalities are very common due to heavy traffic on the roadway. This issue is likely to become much larger due to increasing traffic on this section of the road.

## **Weather**

Weather during 2014 and into 2015 was highly variable. In the early part of 2014 the winter was very mild and dry. A moist spring and summer followed. In late August and into September precipitation continued. The winter of 2014-2015 has been very mild to this point. The winters of 2011/12, 2012/13 and 2013/14 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 production suffered from the extremely dry conditions. Conditions were better at the higher elevations.

## **Habitat**

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

## **Field Data**

The winter of 2010/11 was very severe in some areas and the population in the western part of the herd unit declined significantly due to it. Mortality surveys at the LeRoy winter range complex showed significant fawn and adult doe mortality. However, conditions were much milder in the eastern part of the herd unit. A radio collar study in that area showed a 92% survival rate from December of 2010 to December of 2011, a very high survival rate for mule deer does. Since then winter conditions have been very mild in this herd unit creating a situation where fawn and adult survival is relatively high and populations have been able to grow even with low fawn production.

Classification data is collected yearly by helicopter in Hunt Areas 168, 132 and 133. Sample sizes are very good with around 3,000 deer classified in the last 5 years. Post season buck ratios in 2014 were good with 26 bucks per 100 does. This is the middle of the range for the objective in the herd unit. Yearling buck ratios and adult buck:doe ratios were average at 11:100 and 15:100. This is very odd considering a point restriction was implemented in the entire Herd Unit for 2014. This should have greatly increased yearling buck ratios but did not.

For 2014 the fawn:doe ratios as a whole dropped from what we have been seeing in this herd unit at 56:100. This is very odd considering excellent conditions were in place for fawn recruitment during 2014 and surrounding mule deer herds had much better fawn:doe ratios. This is well below where we would like to see fawn:doe ratios. The low fawn recruitment in this population is of concern. It may be due to several factors including winter range habitat condition, summer range habitat condition, elk competition on summer habitats, neonate predation on summer ranges, aspen stand condition on summer habitats, limited areas of effective parturition habitats and doe age structure. We would like to continue to improve future fawn:doe ratios through habitat improvement and predator manipulation to promote growth of this herd.

Hunt Area 132 is very dry and low productivity habitat compared to the rest of the herd unit. It also has patchy fawning habitat and newborn fawns may be easier prey for coyotes due to the limited fawning sites. Since 2012 we have procured funding and implemented targeted predator control on mule deer fawning sites in HA132. Control is conducted during the fawning period. This was designed as a 3 year project and data will be analyzed in 2015.

### **Harvest Data**

The hunter harvest from seasons recently offered for mule deer do not impact overall population size, recruitment or productivity. They only influence buck:doe ratios and we have been able to maintain buck:doe ratios within the objective. Doe harvest is only allowed by youth hunters and in a very limited type 7 hunt on irrigated lands. The overall doe harvest is negligible. Harvest has fluctuated greatly over the past five years due to changes in populations from winter severity and fluctuations in weather conditions during the hunting season.

### **Population**

We feel somewhat confident in this model since it reflects field information and seems reasonable. However, caution should be used since this an interstate population with some interchange across state boundaries. Recent radio collar data documents over 12% interchange. This is far lower than we once expected though. More radio collar studies would help determine the extent of these movements. The TSJ,CA model was selected due to the low Relative AICc score and its good fit with the data. The TSJ,CA model fits very well with mule deer population dynamics in this type of system. Unfortunately model estimates do not seem to track well with known significant winter mortality events in the winters of 2007/2008 and 2010/2011 which concerns us. An independent population estimate would be helpful in validating the model but is not very feasible for this herd.

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.

The model predicts a post-season population of around 14,450 mule deer in 2014. This is a decrease in the population from 2010 levels. This reduction is substantiated by Hunter comments, winter mortality surveys and field observations. This supporting information gives us some confidence in model results. However, the reduction modeled from 2010 levels is not totally realistic considering the severity of winter mortality observed on the western winter ranges where the vast majority of the deer herd winters. The reduction should have been much greater than what is modeled.

## **Management Summary**

The 2015 season in hunt areas 132, 133 and 168 will allow for 14 days of general antlered deer hunting opportunity. In this part of the state we strive to offer a 14 day season and include 2 weekends of hunting opportunity. With the current favorable weather and survival conditions for improving deer herds and with buck:doe ratios within objective we feel we can offer a 14 day season. This is still a very conservative deer hunting season. A three point or more antler restriction is also in place in the entire Herd Unit. This restriction was brought on by members of the public. The use of the restriction for limited time periods is warranted in parts of the herd unit where buck security cover and fawn productivity is lacking but many parts of the Herd Unit do not require this type of management.

In 2008 we started a new hunt with 50 type 7 doe/fawn tags good for all hunt areas in the herd unit on irrigated land. This is to address the number of deer that are living year round on irrigated fields and give landowners an opportunity to have some harvested. This hunt will be continued in 2014. The Objective and management strategy were last revised in 2014.

<b>INPUT</b>	
Species:	Deer
Biologist:	Jeff Short
Herd Unit & No.:	Uinta MD423
Model date:	02/28/14

<b>MODELS SUMMARY</b>		Fit	Relative AICc	Check best model to create report
CJ,CA	Constant Juvenile & Adult Survival	97	106	<input type="checkbox"/> CJ,CA Model
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	96	130	<input type="checkbox"/> SCJ,SCA Mo
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	0	105	<input checked="" type="checkbox"/> TSJ,CA Model

<b>Population Estimates from Top Model</b>												
Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population				Predicted Posthunt Population				Objective
	Field Est	Field SE		Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	
1993				3385	2355	8491	14230	3345	1624	7880	12849	7000
1994				5602	2211	7396	15209	5602	1553	7396	14551	7000
1995				5124	2802	7645	15571	5124	2039	7645	14809	7000
1996				6313	3328	7975	17616	6313	2263	7975	16551	7000
1997				5125	2885	7619	15629	5115	2081	7467	14662	20000
1998				5798	2676	7141	15616	5798	1878	7141	14817	20000
1999				5417	2806	7169	15392	5417	1578	7169	14164	20000
2000				5134	3561	8195	16890	5093	2134	7936	15162	20000
2001				5177	2968	7777	15922	5156	1806	7597	14559	20000
2002				4691	2974	7774	15439	4637	1828	7388	13853	20000
2003				4760	3109	7718	15587	4726	1988	7521	14235	20000
2004				5572	3438	8024	17033	5529	2376	7787	15692	20000
2005				5637	3066	7551	16254	5637	2021	7551	15209	20000
2006				4814	3083	7668	15565	4814	2030	7668	14512	20000
2007				4440	2405	7078	13923	4440	1285	7078	12803	20000
2008				4410	2683	7484	14577	4408	1886	7452	13746	20000
2009				4948	3547	8161	16656	4946	2206	8118	15270	20000
2010				5109	4054	8955	18118	5103	2669	8919	16692	20000
2011				5155	3358	8539	17051	5151	2472	8481	16104	20000
2012				5159	3413	8395	16967	5148	2159	8247	15555	20000
2013				4912	2898	7944	15753	4904	1944	7810	14658	20000
2014				4462	3168	8030	15660	4446	2079	7925	14450	20000
2015				4953	3502	8347	16803	4942	2512	8237	15692	20000

<b>Survival and Initial Population Estimates</b>						
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.52			0.83		
1994	0.54			0.83		
1995	0.64			0.83		
1996	0.32			0.83		
1997	0.37			0.83		
1998	0.43			0.83		
1999	0.83			0.83		
2000	0.47			0.83		
2001	0.57			0.83		
2002	0.69			0.83		
2003	0.76			0.83		
2004	0.40			0.83		
2005	0.50			0.83		
2006	0.30			0.83		
2007	0.73			0.83		
2008	0.90			0.83		
2009	0.90			0.83		
2010	0.45			0.83		
2011	0.53			0.83		
2012	0.43			0.83		
2013	0.63			0.83		
2014	0.80			0.83		
2015	0.70			0.83		

**Parameters:** Optim cells

Adult Survival = 0.829

Initial Total Male Pop/10,000 = 0.162

Initial Female Pop/10,000 = 0.788

**MODEL ASSUMPTIONS**

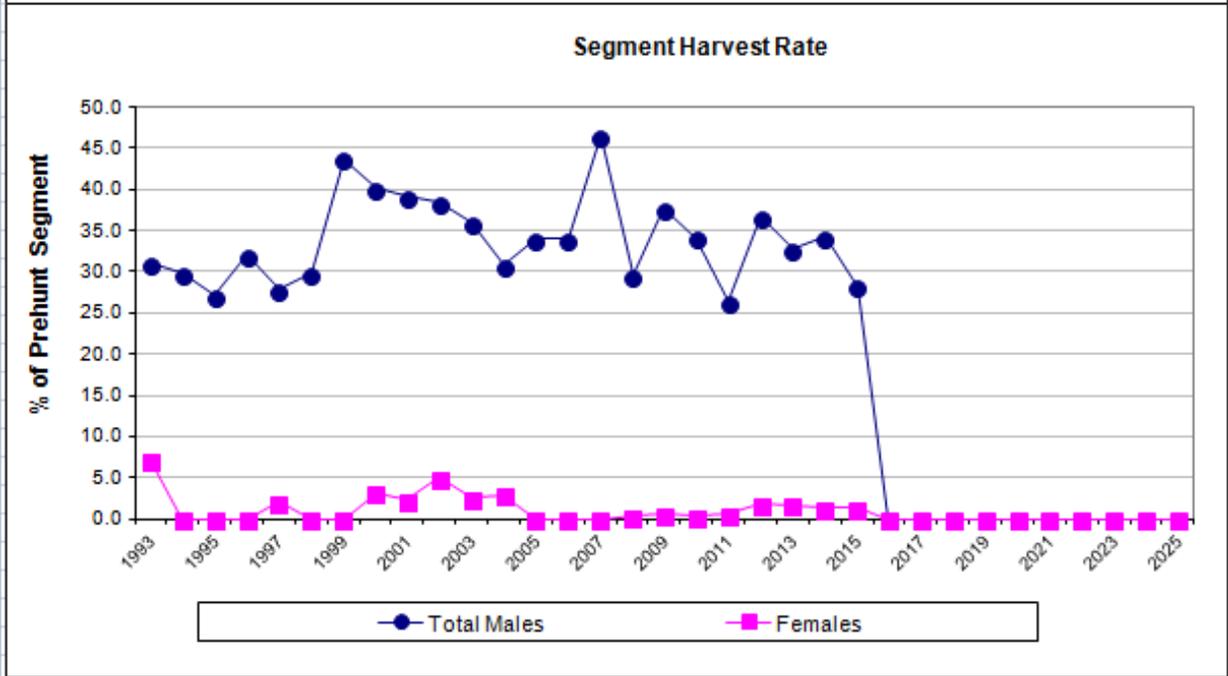
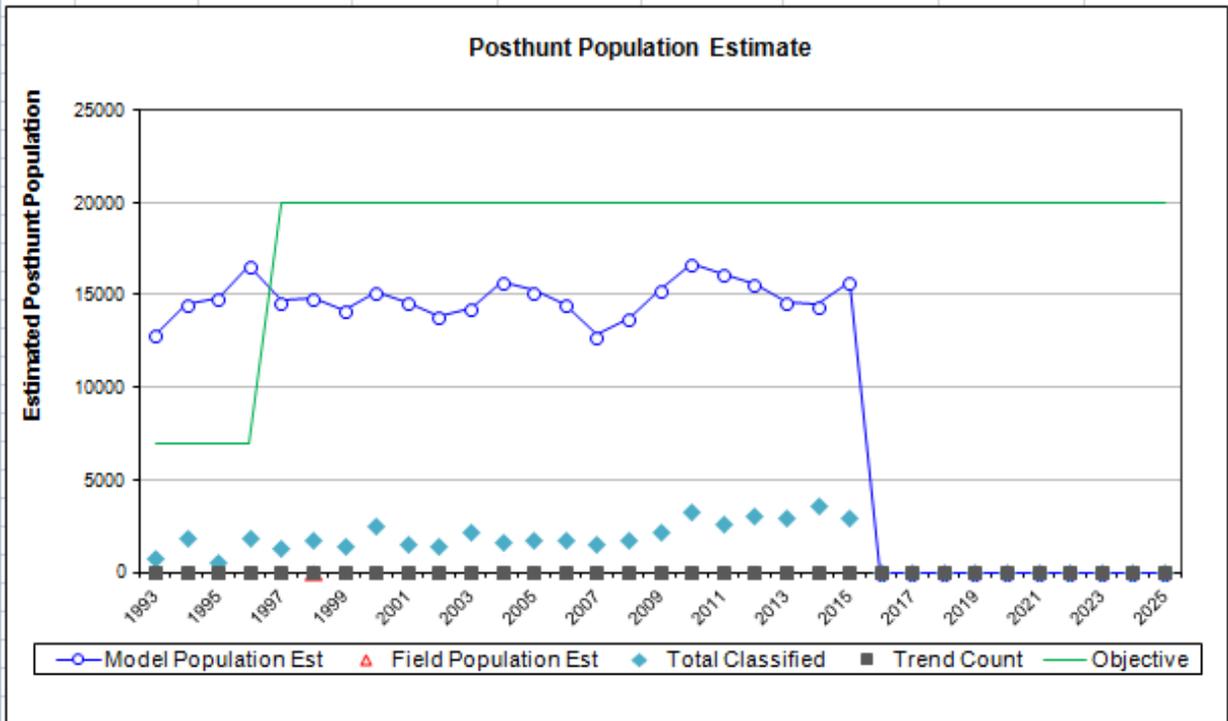
Sex Ratio (% Males) = 50%

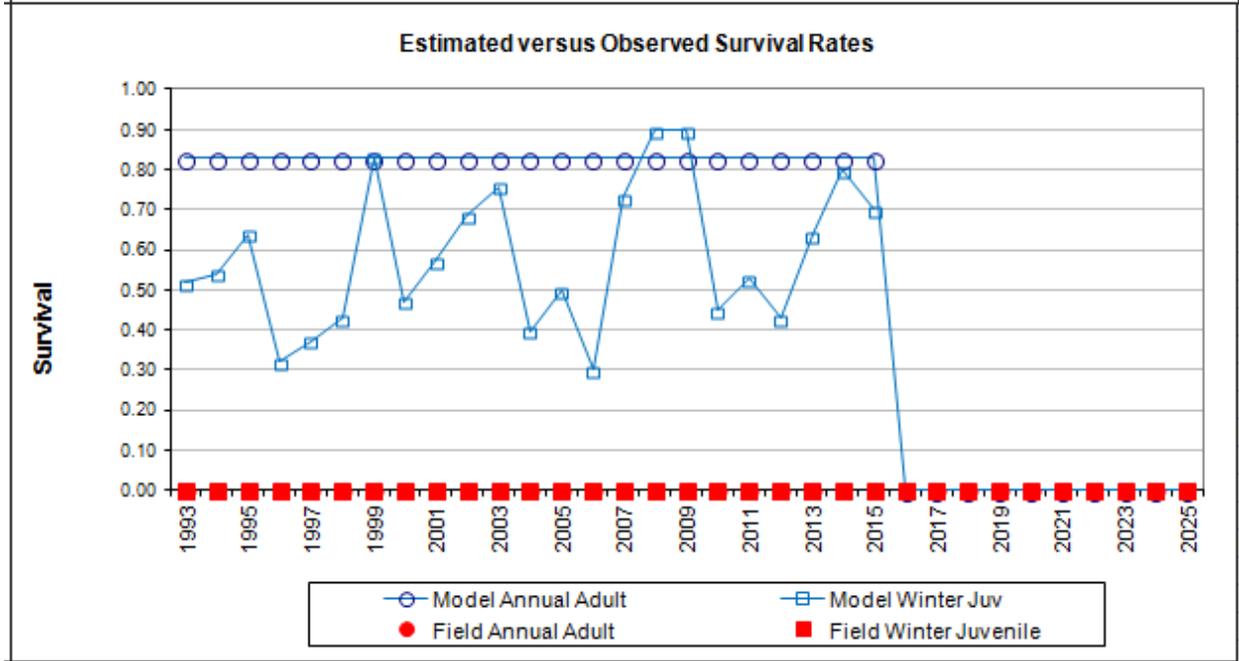
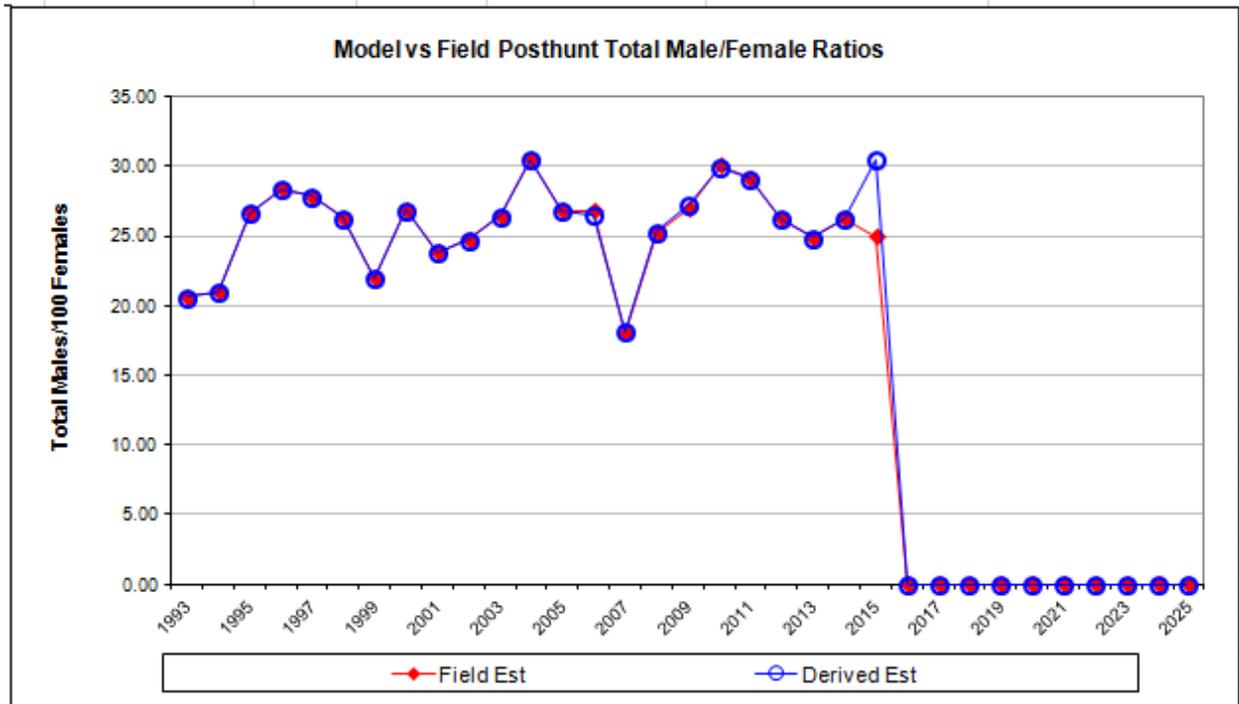
Wounding Loss (total males) = 10%

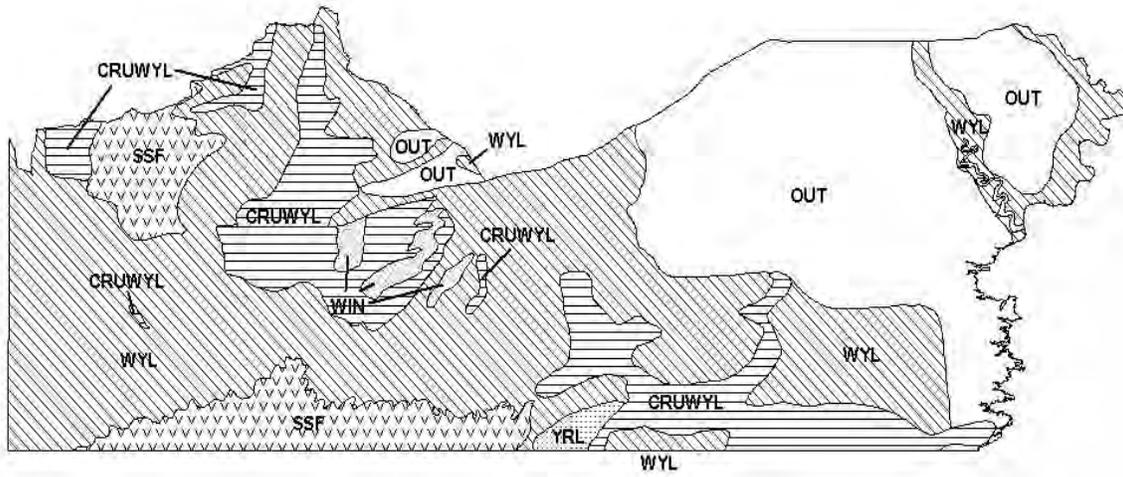
Wounding Loss (females) = 10%

Wounding Loss (juveniles) = 10%

<b>Classification Counts</b>										<b>Harvest</b>		
Year	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 w/o bull adj	Field SE					Total Males	Females
1993		42.45	3.51	20.61	20.61	2.25	36	664	555	1255	31.0	7.2
1994		75.74	3.75	20.99	20.99	1.64	0	598	0	598	29.8	0.0
1995		67.02	6.27	26.67	26.67	3.44	0	693	0	693	27.2	0.0
1996		79.16	3.97	28.38	28.38	2.01	0	968	0	968	32.0	0.0
1997		68.51	4.09	27.87	27.87	2.27	9	731	139	879	27.9	2.0
1998		81.20	4.12	26.30	26.30	1.96	0	726	0	726	29.8	0.0
1999		75.57	4.34	22.02	22.02	1.95	0	1116	0	1116	43.7	0.0
2000		64.18	2.85	26.89	26.89	1.62	37	1298	236	1571	40.1	3.2
2001		67.87	3.83	23.78	23.78	1.95	19	1056	164	1239	39.1	2.3
2002		62.76	3.63	24.74	24.74	1.99	49	1042	351	1442	38.5	5.0
2003		62.83	2.96	26.44	26.44	1.69	31	1019	179	1229	36.1	2.6
2004		71.00	3.91	30.51	30.52	2.24	39	965	215	1219	30.9	2.9
2005		74.65	3.91	26.76	26.76	2.00	0	950	0	950	34.1	0.0
2006		62.79	3.35	26.48	26.78	1.93	0	957	0	957	34.1	0.0
2007		62.73	3.51	18.16	17.97	1.60	0	1018	0	1018	46.6	0.0
2008		59.14	3.14	25.31	25.29	1.82	2	724	29	755	29.7	0.4
2009		60.92	2.87	27.18	26.97	1.70	2	1219	39	1260	37.8	0.5
2010		57.22	2.26	29.93	30.11	1.49	5	1259	32	1296	34.2	0.4
2011		60.73	2.65	29.15	29.15	1.64	4	805	52	861	26.4	0.7
2012		62.42	2.48	26.18	26.19	1.42	10	1140	134	1284	36.7	1.8
2013		62.80	2.57	24.89	24.89	1.42	7	867	122	996	32.9	1.7
2014		56.10	2.10	26.24	26.24	1.29	14	990	96	1100	34.4	1.3
2015		60.00	2.45	30.49	25.00	1.40	10	900	100	1010	28.3	1.3







Mule Deer (MD423) - Uinta  
 HA 132, 133, 168  
 Revised - 3/94





## 2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD424 - SOUTH ROCK SPRINGS

HUNT AREAS: 101-102

PREPARED BY: PATRICK BURKE

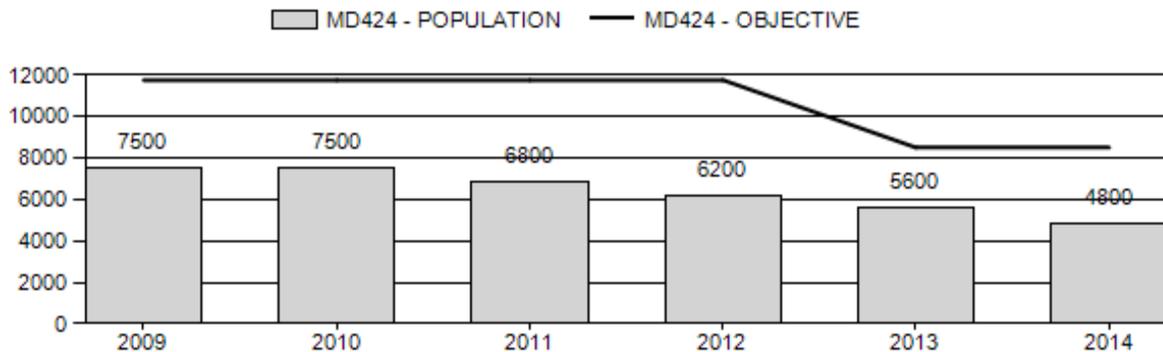
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	6,720	4,800	4,300
Harvest:	358	257	180
Hunters:	447	319	225
Hunter Success:	80%	81%	80%
Active Licenses:	447	319	225
Active License Success:	80%	81%	80%
Recreation Days:	3,006	2,356	1,700
Days Per Animal:	8.4	9.2	9.4
Males per 100 Females	26	20	
Juveniles per 100 Females	54	92	

Population Objective ( $\pm$ 20%) :	8500 (6800 - 10200)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-43.5%
Number of years population has been + or - objective in recent trend:	10
Model Date:	02/23/2015

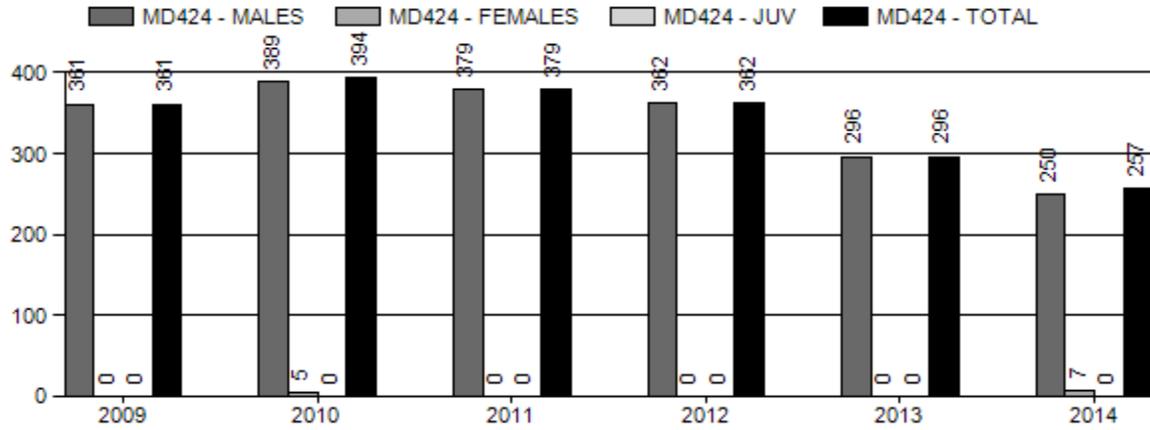
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	0%	0%
Males $\geq$ 1 year old:	19%	30%
Juveniles (< 1 year old):	0%	0%
Total:	4%	4%
Proposed change in post-season population:	11%	10%

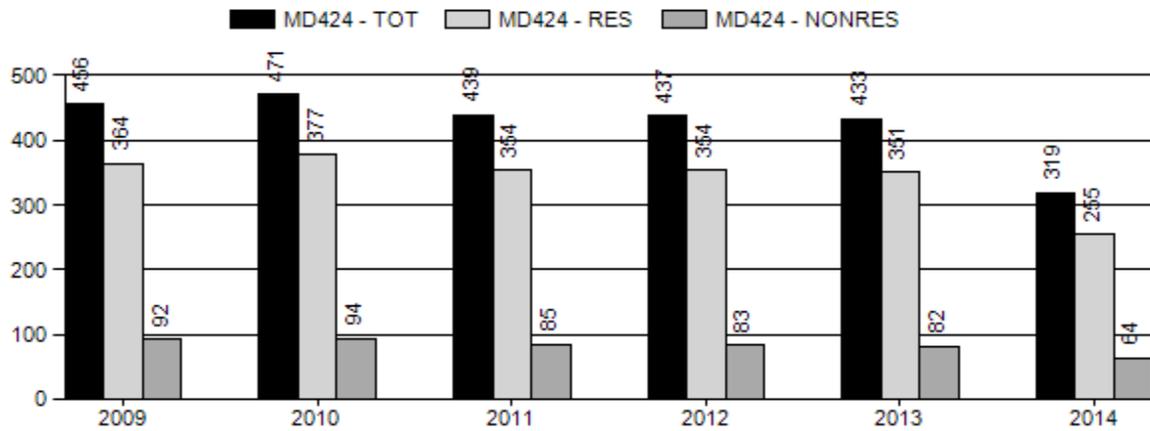
## Population Size - Postseason



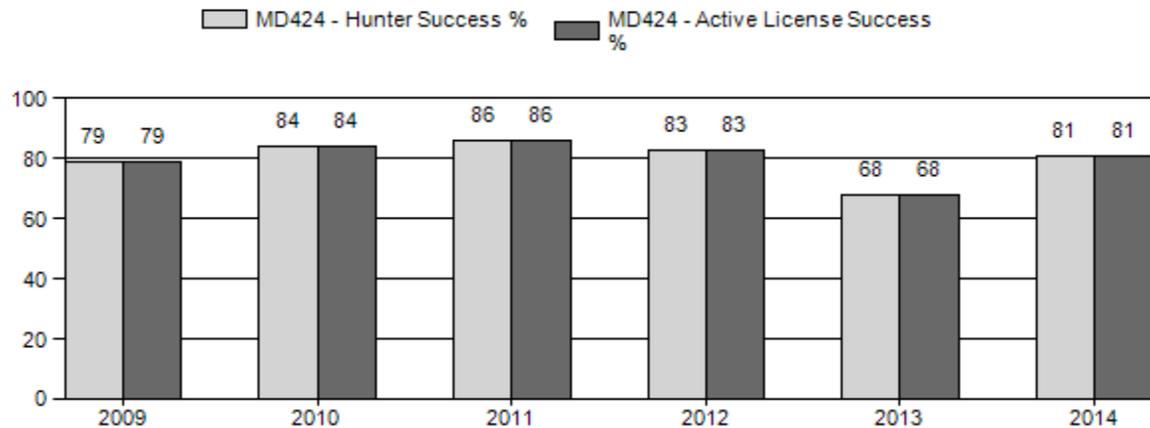
# Harvest



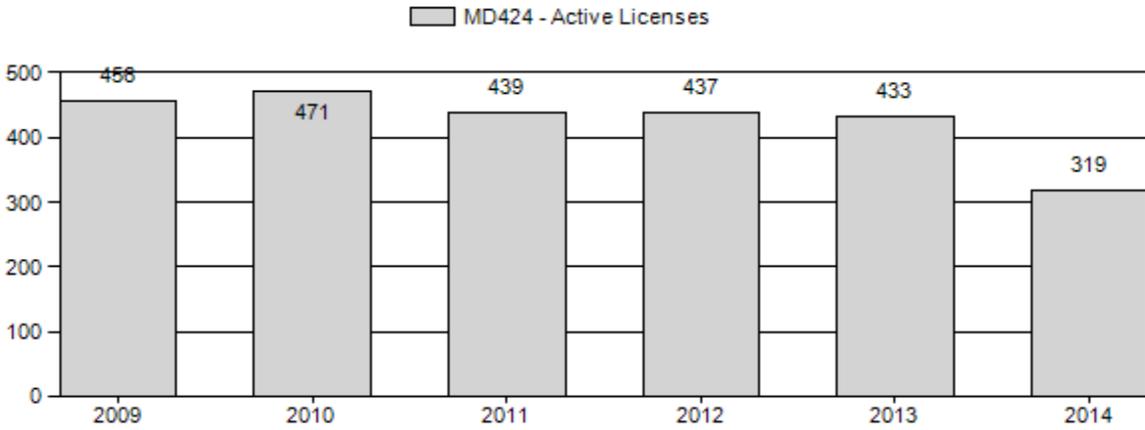
# Number of Hunters



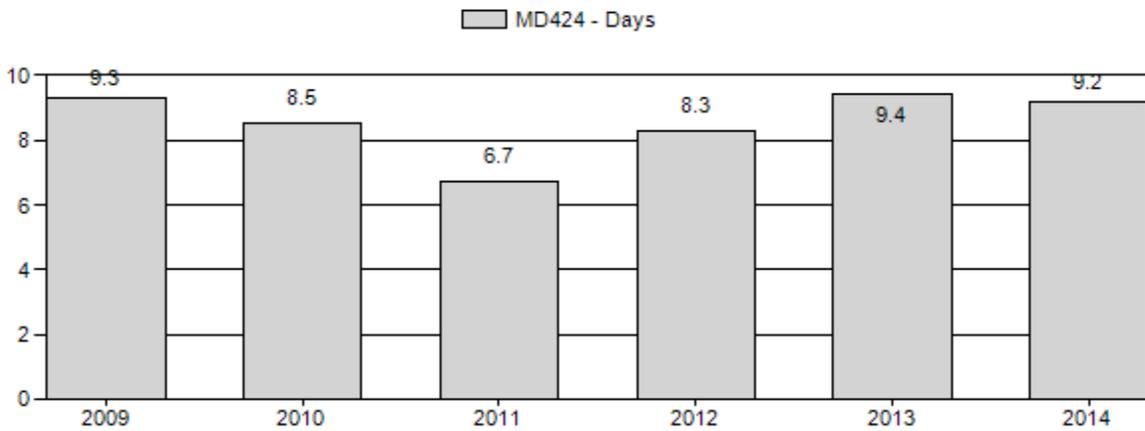
# Harvest Success



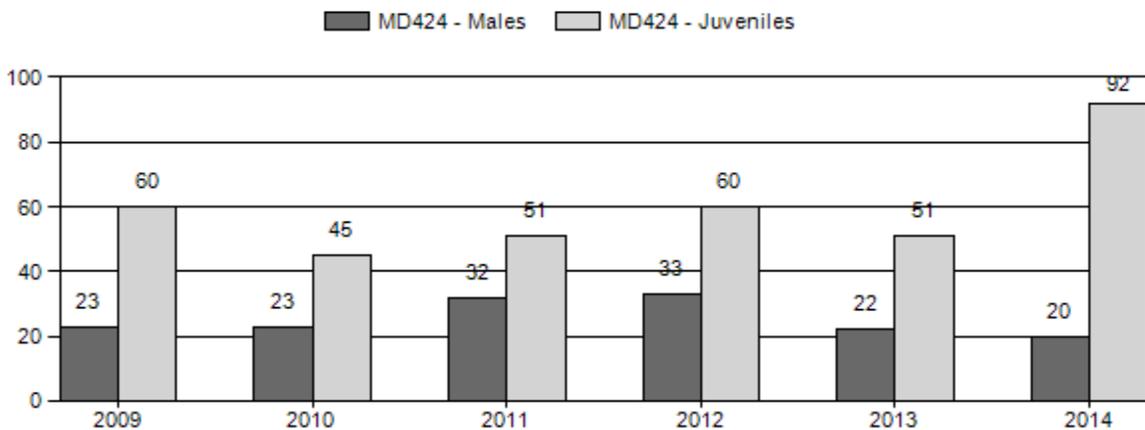
# Active Licenses



# Days per Animal Harvested



# Postseason Animals per 100 Females



### 2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD424 - SOUTH ROCK SPRINGS

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot		Males to 100 Females				Young to		
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Cls	Obj	Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	7,500	61	0	0	0	120	181	12%	798	55%	482	33%	1,461	1,048	8	15	23	± 0	60	± 0	49
2010	7,500	47	0	0	0	55	102	14%	446	60%	200	27%	748	1,048	11	12	23	± 0	45	± 0	36
2011	6,800	38	0	0	0	108	146	18%	453	55%	229	28%	828	1,030	8	24	32	± 4	51	± 5	38
2012	6,200	55	0	0	0	129	184	17%	558	52%	334	31%	1,076	680	10	23	33	± 3	60	± 5	45
2013	5,600	40	0	0	0	89	129	13%	593	58%	305	30%	1,027	767	7	15	22	± 2	51	± 4	42
2014	4,800	30	0	0	0	55	85	10%	417	47%	383	43%	885	1,242	7	13	20	± 3	92	± 8	76

**2015 HUNTING SEASONS  
SOUTH ROCK SPRINGS MULE DEER HERD (MD424)**

Hunt Area	Type	SEASON DATES		Quota	Limitations
		Opens	Closes		
101	1	Oct. 15	Oct. 31	25	Limited quota; antlered deer
102	1	Oct. 15	Oct. 31	200	Limited quota; any deer
Archery		Sept. 1	Sept. 30		Refer to license type and limitations in Section 3

Hunt Area	Type	Quota change from 2014
101	1	-25
102	1	-100
<b>Herd Unit Total</b>	<b>1</b>	<b>-125</b>

**Management Evaluation**

**Current Management Objective:** 8,500

**Management Strategy:** Special

**2014 Postseason Population Estimate:** ~4,800

**2015 Proposed Postseason Population Estimate:** ~4,300

The post-season population objective for the South Rock Springs mule deer herd is 8,500 deer under special management. The objective for this herd was changed to its current level in 2013, when it was lowered from 11,750.

## **Herd Unit Issues**

This herd has been well below this objective since South Rock Springs and Black Butte herds were combined in the 1980's and most likely will continue to remain below objective for the foreseeable future. Because of this, the objective for this herd was taken out for public review in the summer of 2013, when the objective was lowered to 8,500 deer post-season. There was some public concern over lowering the objective from where it had been, so the new objective was set at a level that would still allow for the population to grow to a level higher than it has been at in over 20 years.

Current population estimates suggest this herd may be around 5,600 deer after the 2014 hunting season. This estimate represents the third straight year of fairly significant population declines. The lack of growth in this herd despite very conservative hunting seasons can be attributed to poor fawn recruitment year after year. Observed fawn to doe ratios for this herd have averaged only 60 fawns per 100 does for the last decade, with some years generating observed ratios of only 45 to 50 fawns:100 does. This level of juvenile recruitment allows for population maintenance at best, but does not allow for population growth.

## **Weather**

The weather conditions that have had the greatest impact on the South Rock Springs deer herd are the dry summers that this population has experienced in the last three years. The summer of 2012 was the driest on record in Wyoming and the summer of 2013 was also very. While the summer of 2014 saw substantially better moisture in most of Wyoming, the portion of southwest Wyoming inhabited by this herd was still considered to be experiencing drought conditions by the National Weather Service. Since high quality summer range is the most limiting habit type in the region south of Rock Springs, the additional stress of below average summer precipitation has caused this herd to lose ground in relation to its population objective. The modeled population estimate for this herd has declined by 2,000 animals since 2011, this decline was most likely driven by the drought conditions in the herd unit. With the exception of the 2010-2011 winter, winters in the herd unit have been very mild, and should not have caused any significant mortality in the herd. Therefore, the dry summers and the resulting decreased forage production are the most likely culprits in the recent observed population decline.

The high observed fawn ratio seen in the 2014 post-season classifications gives cautious optimism that this population may have stopped its slide and will begin to grow in 2015, however the physical condition of some deer witnessed during the fall of 2014 suggest that the herd is still experiencing tough times. Numerous doe deer were encountered in HA101 this fall that were in extremely poor body condition going into winter. Entire groups of does were seen with visible ribs and scapula in the last fall. It is unlikely that these deer were able to even survive the mild winter conditions that have so far been encountered in the 2014-2015 winter. Antler production of buck deer in 2014 was also poor in the herd, which also suggests reduced habitat conditions.

## **Habitat**

The Green River aquatic habitat biologist has established six aspen regeneration monitoring transects throughout Hunt Area 102. These transects are designed to evaluate browsing impacts from ungulates on young aspen suckers. Two transects were established on Little Mountain in 2007, as well as four additional transects that were established in 2009, one each on Aspen and Miller Mountains and two in the Pine Mountain area. These transects have been read each summer since their establishment, except that one of the Pine Mountain transects was not read in 2013 due to difficulty in accessing that site caused by the amount of rain and snow received that fall and the South Pine Mountain site was not read in 2014 due to the aspen stand that it was located in dying off resulting in an insufficient number of aspen suckers left alive to measure. Because of the loss of the South Pine Mountain site, a new transect was established near the tri-state marker in 2014.

A detailed accounting of the technique and results from these monitoring efforts can be found in the aquatic habitat annual report. In general, this method compares the height of the initial growth point for the current year's terminal leader to the height of the tallest previous terminal leader branch that was killed as a result of browsing. A positive Live-Dead (LD) value suggests growth of young trees, while a negative value or value near zero suggests that browsing may be suppressing tree growth. Results of monitoring efforts are presented in the following table (Table 1) taken from the aquatic habitat annual progress report, but in general, two of the five monitored sites showed positive LD values for 2014, while four of the sites had LD values below zero. The new tri-state monitoring site, not reported in the table below had a positive LD value of +3.4 inches.

**Table 1.** Trends in aspen regeneration LD Index values (vertical inches) for the SRS herd unit 2011-2014

Monitoring site	2011	2012	2013	2014
Pine Mt/Red Ck.	-0.5	-3.0	NA	-7.8
South Pine Mt.	+0.7	-3.2	-4.3	NA
Miller Mt.	+8.7	+5.3	+6.6	+4.6
Aspen Mt.	+1.5	-6.0	+4.6	-4.5
Little Mt./Dipping Spr.	-4.1	-2.6	0	-0.9
Little Mt./West Curreant Ck.	+4.2	0	0	-1.6

## **Field Data**

This herd was classified only from the ground in mid-November 2014. A total of 885 deer were classified, with resulting ratios of 92 fawns : 100 does and 21 total bucks per 100 does, with 7 yearling bucks per 100 does. This observed fawn ratio is extremely high for this herd and should probably be regarded with some caution since the classification objective of 1,200 deer was not achieved, there is the potential that this extremely high observed ratio for the herd may be higher than the true ratio for the population. The observed buck ratio is also probably lower than the true ratio for the herd.

It was noted by all observers conducting the classifications that the number of deer available in November was noticeably less than what was seen during October. This pattern of deer apparently moving out of the herd unit during late fall or early winter has been observed since the 2010-2011 winter. It appears that winter may have triggered migratory movements than were not observed in this herd, at least the recent history. During the 2013 classification flight, only 319 deer were observed in almost a day and a half of helicopter time in late December. These movements that appear to be occurring sometime in the late fall make determining accurate population statistics for this herd difficult or impossible with the current knowledge of the seasonal movements of this herd.

### **Harvest Data**

The 2014 season saw the lowest harvest documented in this herd in quite some time. A reported total of 257 bucks and 7 doe mule deer were harvested in the herd unit. Success rates for the two hunt areas that make up this herd unit were 78% for HA101 and 81% for HA102, giving the herd unit as a whole a success rate of 81%. This herd unit usually exhibits success rates in the mid-80s, so the success rates reported in 2014 were in line with average success rates and an improvement over 2013's harvest success rate of 68% in the herd unit. The number of deer harvested in HA102 in 2014 was significantly lower than it has been in past years due to a decrease in the number of licenses issued in the hunt area by 100 licenses.

Because the South Rock Springs mule deer herd is a special management herd and because of its significant local status, successful hunters are asked to voluntarily submit tooth samples for cementum annuli ageing analysis. Successful hunters submitted 98 samples for analysis from the 2014 hunting season. Based on those samples, the average age of harvested bucks was 5.3 years old in 2014. The average age of harvested deer was 5.1 years old in 2013, 4.5 years old in 2012, and 5.0 years old in both 2010 and 2011. Based on hunter submitted tooth samples, the oldest deer harvested during the 2014 season was an 11.5-year-old buck from HA102 and a 10.5 year old buck from HA101. It should be noted that this increase in the average of harvest bucks goes contrary to what managers encountered during field checks during the 2014 season.

### **Population**

The model for this herd tracks only moderately well to poorly with observed data, in particular with observed buck ratios, and sharing this herd with Colorado and Utah continues to decrease its overall reliability.

The model selected for this herd is the time-specific juvenile survival model based it producing the most realistic estimate for this population and based on the biology of mule deer. However, the model seems to be unable to track the trend for the population. While the model will change the current years population estimate to what is probably a believable number each year, it shows that the herd is steadily growing to the current estimate instead of showing that the population was at a higher level in the past. The most likely explanation for this is the discrepancy between

what the model expects for buck ratios and what is observed in the field each year. This, along with the lack of correlation between male harvest rates and fawn ratios with subsequent buck ratios has led to speculation that bucks may be leaving the herd unit, which would reduce the functionality of the model.

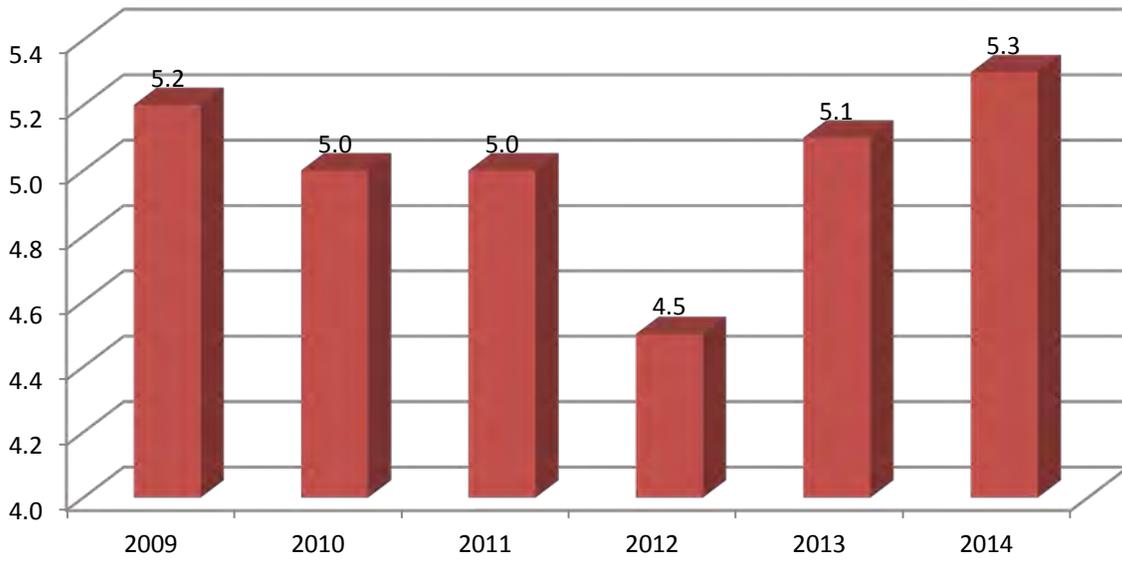
Additional information from the harvest survey, classifications, and age data from lab-aged teeth from hunter-harvested deer combined with the model help in management of this locally high profile herd.

### **Management Summary**

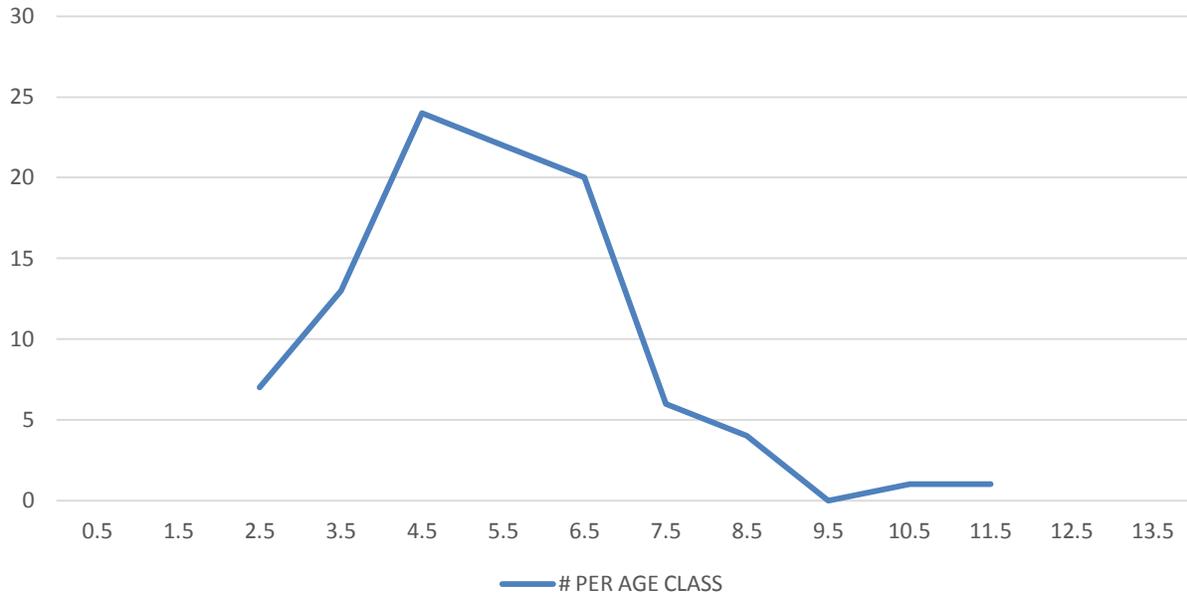
The 2015 hunting season proposal is similar in structure to how this herd has been managed for quite some time. However, changes are being proposed for 2015 in the number of licenses suggested in both HA101 & HA102. A reduction of 25 licenses is being proposed in HA101 from 50 to 25 licenses and a reduction of 100 licenses from 300 to 200 is proposed in HA102. Only two years ago 400 licenses were issued in HA102, so the current proposal is a significant reduction, and would be the fewest licenses issued in the last 20 years.

Despite the conservative seasons that have been set for this herd unit, observed buck to doe ratios are never higher than the lower end allowed for a special management herd. However, classifications compared to the number of licenses issued over the past 15 years, when there has been no issuance of doe licenses, shows little correlation between license issuance levels and post-season buck to doe ratios. The most likely explanation for this is emigration of young bucks out of the state, but that hypothesis is based on speculation and deserves study to attempt to quantify if emigration is occurring and if it is occurring, at what level. It is possible that young bucks could be moving into Utah where the average age of bucks is less than that in the Wyoming portion of the herd. This is suggested by the fact that the model does a poor job of aligning simulated and observed buck to doe ratios.

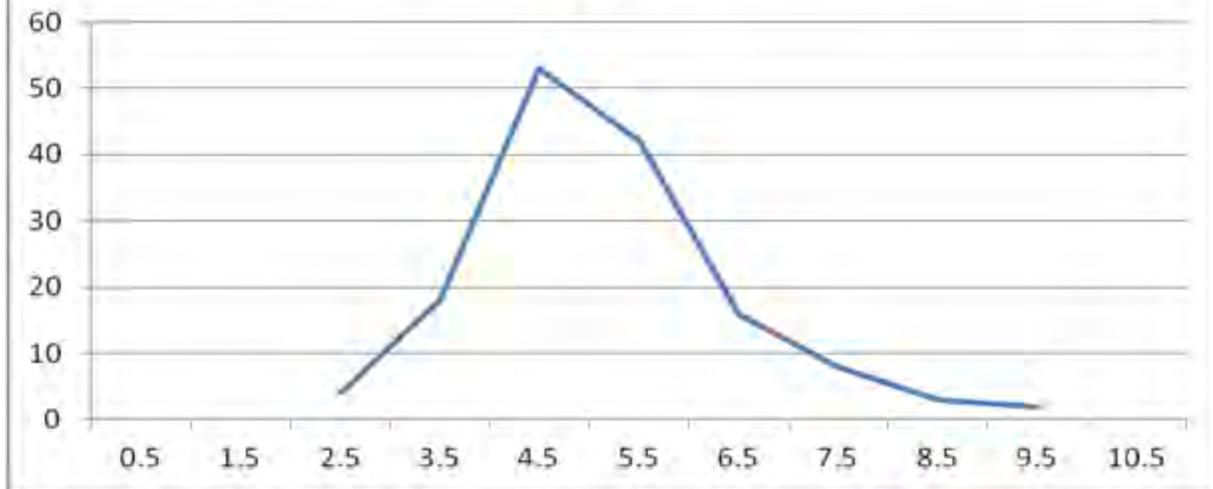
### SRS Deer Average Age of Harvested Bucks

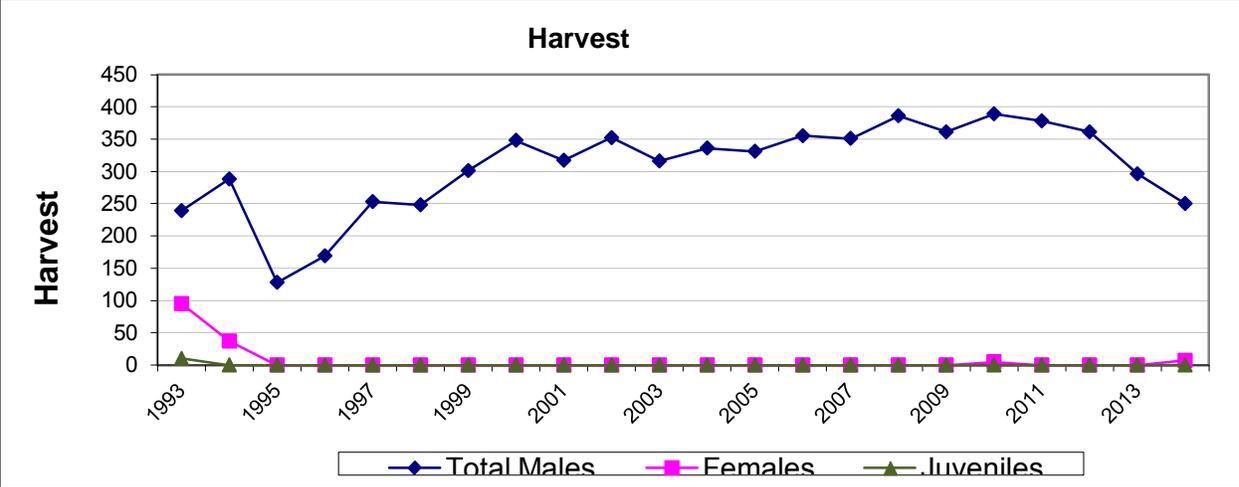
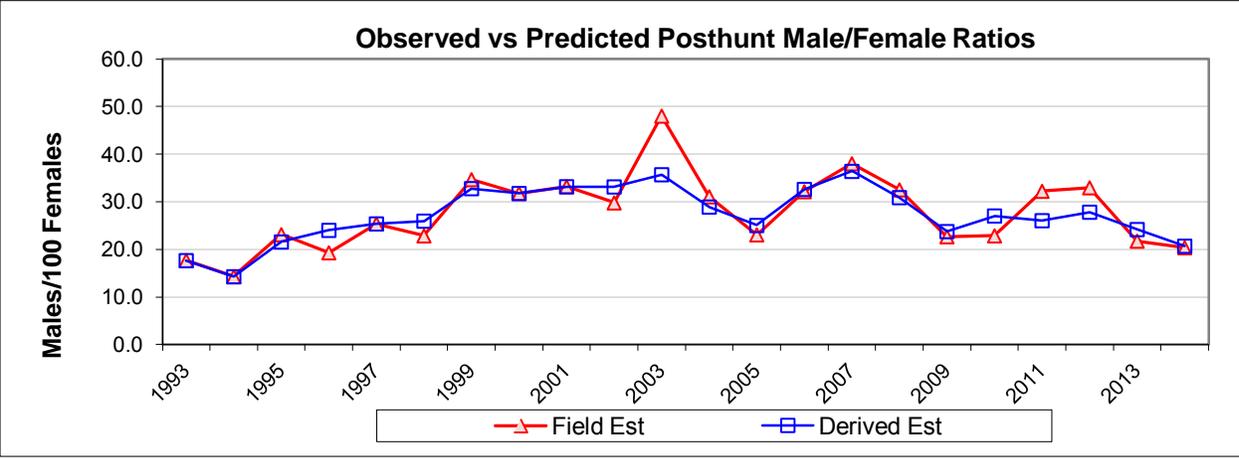
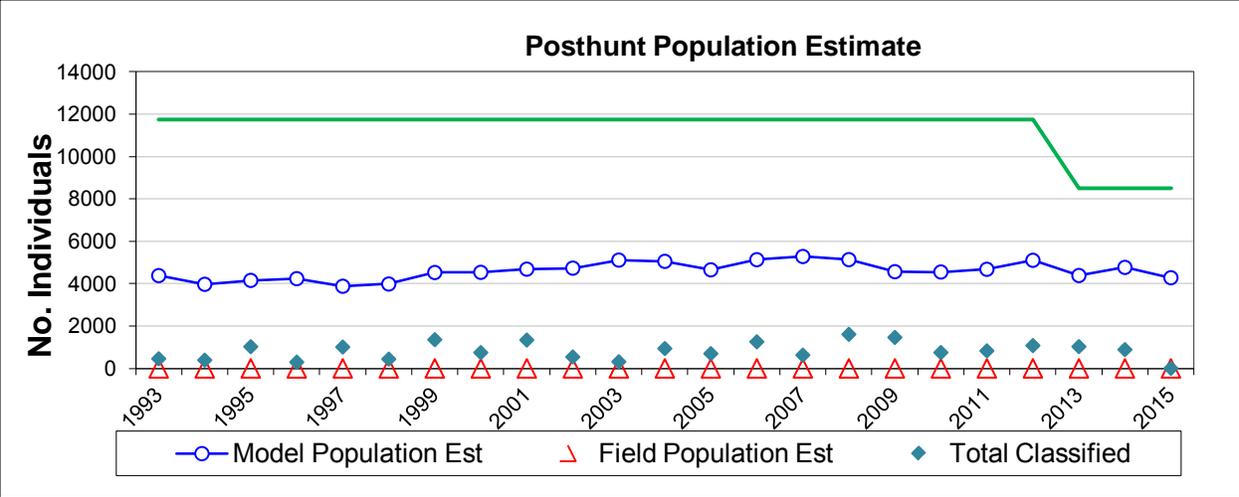


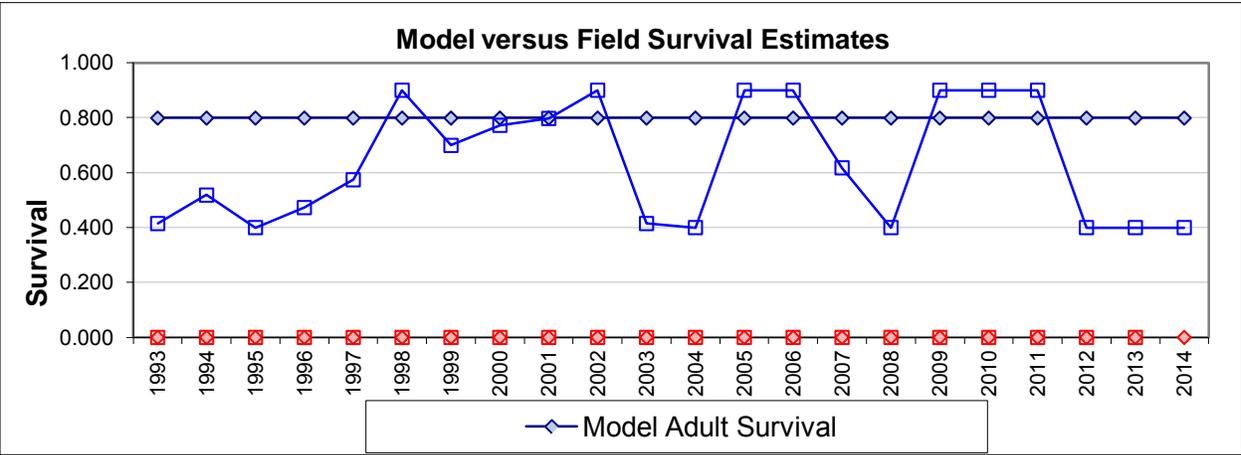
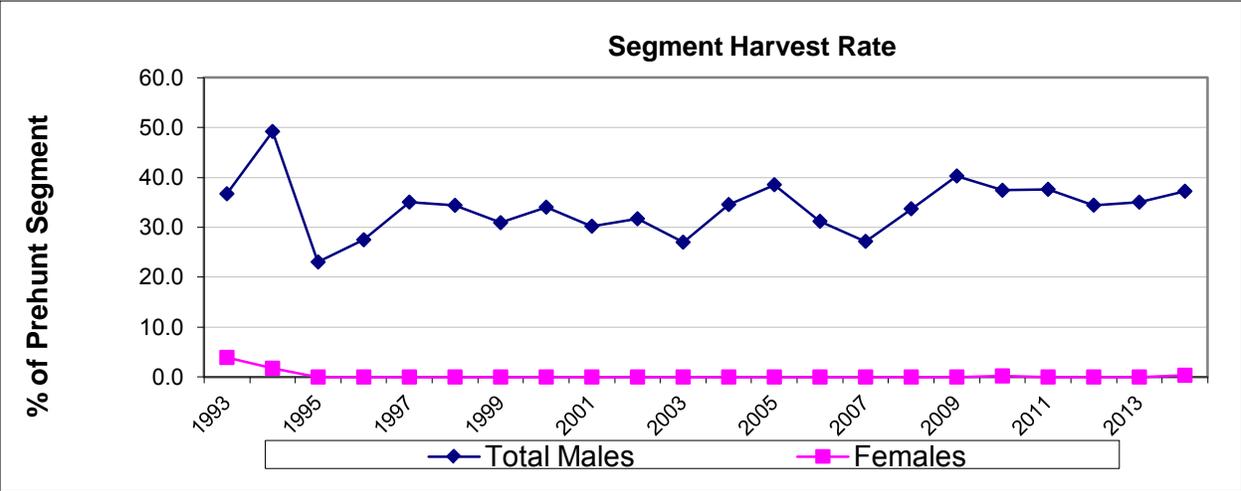
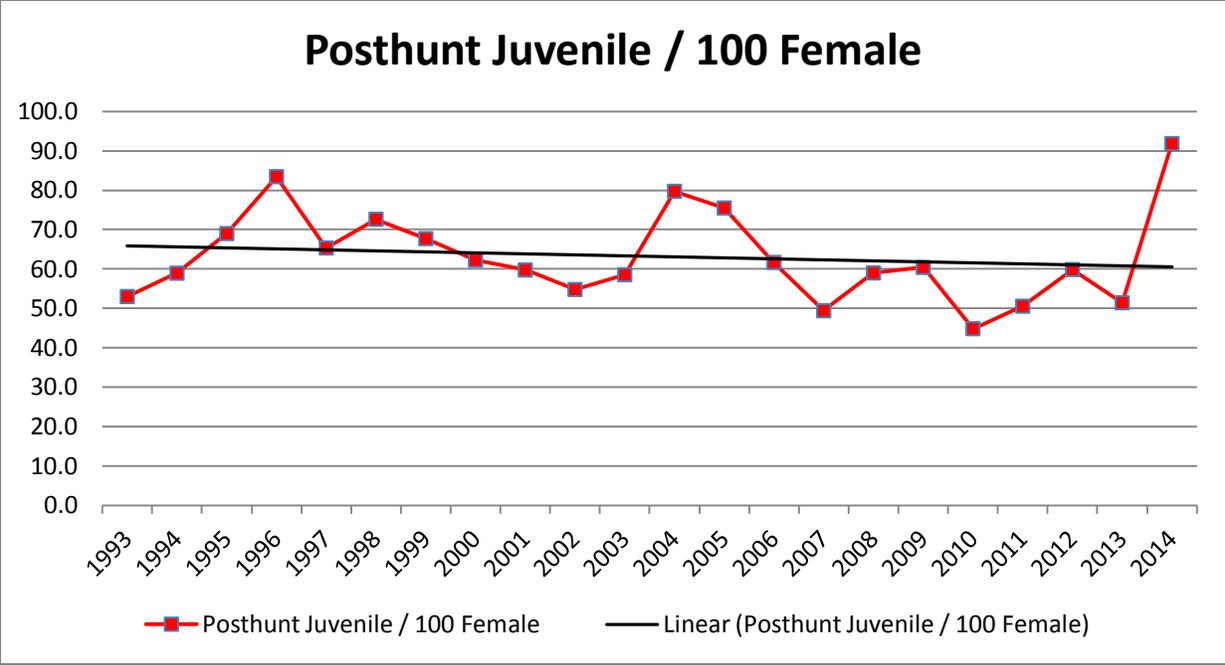
### 2014 SRS DEER # HARVESTED PER AGE CLASS

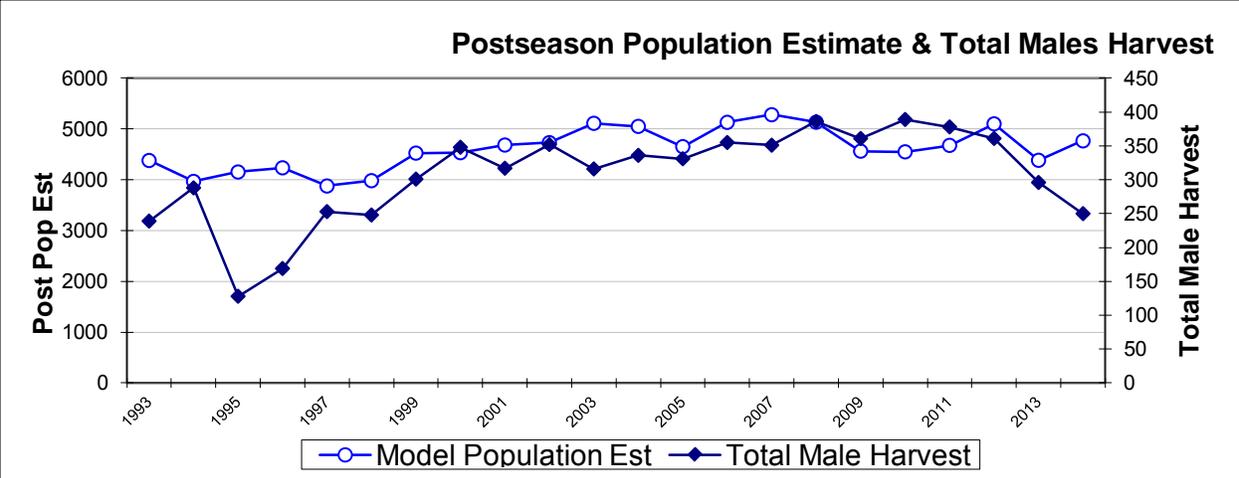


## 2013 SRS Deer # Harvested Per Age Class









<b>INPUT</b>	
Species:	Mule Deer
Biologist:	Patrick Burke
Herd Unit & No.:	MD424 SRS
Model date:	02/19/15

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	75	84	<input type="checkbox"/> CJ, CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	12	1300	<input type="checkbox"/> SCJ, SCA Model	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	21	147	<input checked="" type="checkbox"/> TSJ, CA Model	

Population Estimates from Top Model												
Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population				Predicted Posthunt Population				Objective
	Field Est	Field SE		Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	
1993				925	568	1829	3322	914	305	1725	2944	11750
1994				998	559	1734	3291	998	242	1694	2933	11750
1995				1190	523	1725	3438	1190	382	1725	3297	11750
1996				1390	555	1666	3611	1390	369	1666	3425	11750
1997				1184	738	1812	3735	1184	460	1812	3456	11750
1998				1380	780	1900	4060	1380	508	1900	3788	11750
1999				1486	1041	2194	4721	1486	710	2194	4390	11750
2000				1470	1133	2361	4964	1470	750	2361	4581	11750
2001				1504	1184	2518	5207	1504	836	2518	4859	11750
2002				1421	1201	2594	5217	1421	814	2594	4830	11750
2003				1632	1314	2787	5733	1632	966	2787	5385	11750
2004				2100	1126	2634	5860	2100	757	2634	5490	11750
2005				1963	1046	2600	5610	1963	682	2600	5246	11750
2006				1801	1332	2920	6053	1801	942	2920	5663	11750
2007				1595	1590	3228	6412	1595	1204	3228	6026	11750
2008				1765	1316	2991	6071	1765	891	2991	5647	11750
2009				1709	1091	2829	5629	1709	693	2829	5232	11750
2010				1346	1240	3008	5594	1346	812	3002	5161	11750
2011				1563	1278	3091	5932	1563	862	3091	5516	11750
2012				1953	1417	3263	6632	1953	1020	3263	6235	11750
2013				1590	1235	3091	5916	1590	909	3091	5591	8500
2014				1767	1468	3275	6510	1767	1083	3275	6125	8500
2015												8500
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	0.67			0.83		
1994	0.65			0.83		
1995	0.40			0.83		
1996	0.62			0.83		
1997	0.67			0.83		
1998	0.90			0.83		
1999	0.73			0.83		
2000	0.77			0.83		
2001	0.68			0.83		
2002	0.90			0.83		
2003	0.40			0.83		
2004	0.40			0.83		
2005	0.78			0.83		
2006	0.90			0.83		
2007	0.40			0.83		
2008	0.40			0.83		
2009	0.78			0.83		
2010	0.90			0.83		
2011	0.90			0.83		
2012	0.40			0.83		
2013	0.90			0.83		
2014	0.40			0.83		
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

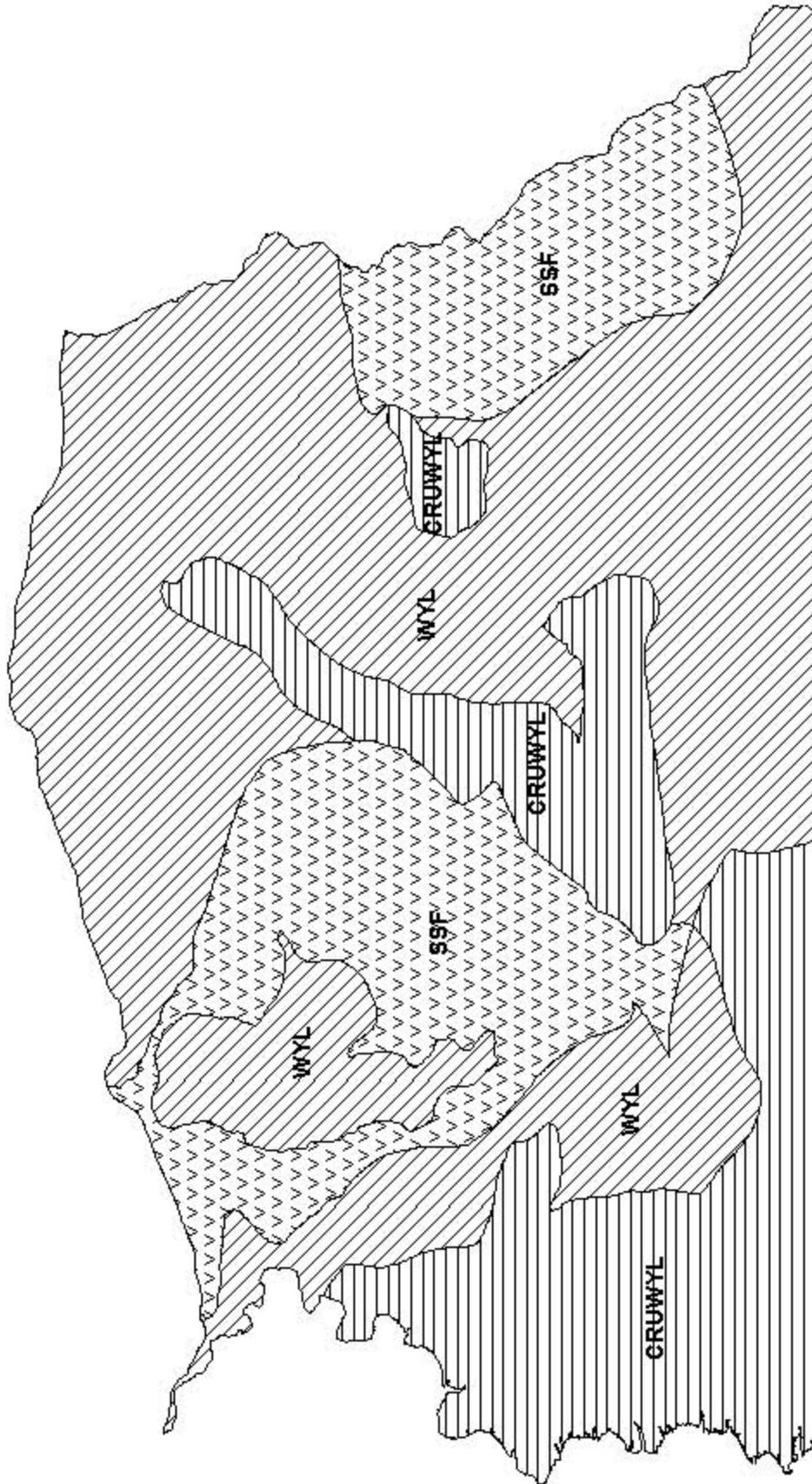
  

Parameters:		Optim cells
Adult Survival =		0.828
Initial Total Male Pop/10,000 =		0.030
Initial Female Pop/10,000 =		0.172

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%

Year	Classification Counts						Harvest								
	Juvenile/Female Ratio			Total Male/Female Ratio			Segment Harvest Rate (% of			Total Harvest					
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/o bull adj	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females			
1993		53.01	5.52	17.67	17.67	2.80	10	239	95	344	46.3	5.7			
1994		58.93	6.47	14.29	14.29	2.70	0	288	37	325	56.7	2.3			
1995		68.98	4.68	22.17	23.12	2.31	0	128	0	128	26.9	0.0			
1996		83.45	10.27	22.13	19.31	3.99	0	169	0	169	33.5	0.0			
1997		65.34	4.52	25.38	25.38	2.45	0	253	0	253	37.7	0.0			
1998		72.65	7.50	26.72	22.87	3.55	0	248	0	248	35.0	0.0			
1999		67.71	4.12	32.37	34.68	2.64	0	301	0	301	31.8	0.0			
2000		62.24	5.13	31.77	31.77	3.30	0	348	0	348	33.8	0.0			
2001		59.74	3.71	33.19	33.19	2.53	0	317	0	317	29.4	0.0			
2002		54.79	5.39	31.38	29.79	3.64	0	352	0	352	32.2	0.0			
2003		58.55	7.82	34.66	48.03	6.84	0	316	0	316	26.5	0.0			
2004		79.73	5.68	28.72	31.08	3.03	0	336	0	336	32.8	0.0			
2005		75.50	6.14	26.23	23.08	2.84	0	331	0	331	34.8	0.0			
2006		61.67	3.93	32.25	32.15	2.55	0	355	0	355	29.3	0.0			
2007		49.40	4.70	37.29	38.02	3.96	0	351	0	351	24.3	0.0			
2008		59.00	3.34	29.78	32.54	2.27	0	386	0	386	32.3	0.0			
2009		60.40	3.48	24.51	22.68	1.87	0	361	0	361	36.4	0.0			
2010		44.84	3.82	27.04	22.87	2.51	0	389	5	394	34.5	0.2			
2011		50.55	4.10	27.89	32.23	3.07	0	378	0	378	32.5	0.0			
2012		59.86	4.14	31.26	32.97	2.80	0	361	0	361	28.0	0.0			
2013		51.43	3.62	29.41	21.75	2.11	0	296	0	296	26.4	0.0			
2014		91.85	6.50	33.08	20.38	2.43	0	250	7	257	26.2	0.0			
2015		67.71	4.76		25.04	2.45	0	180	0	180					
2016															
2017															
2018															
2019															
2020															
2021															
2022															
2023															
2024															
2025															



Mule Deer (MD424) - South Rock Springs  
HA 101, 102  
Revised - 3/94

## 2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD427 - BAGGS

HUNT AREAS: 82, 84, 100

PREPARED BY: TONY MONG

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	18,169	20,000	20,000
Harvest:	1,137	1,497	1,600
Hunters:	2,457	2,441	2,600
Hunter Success:	46%	61%	62%
Active Licenses:	2,471	2,441	2,650
Active License Success:	46%	61%	60%
Recreation Days:	11,647	11,668	12,000
Days Per Animal:	10.2	7.8	7.5
Males per 100 Females	28	37	
Juveniles per 100 Females	62	54	

Population Objective ( $\pm 20\%$ ) : 18700 (14960 - 22440)

Management Strategy: Recreational

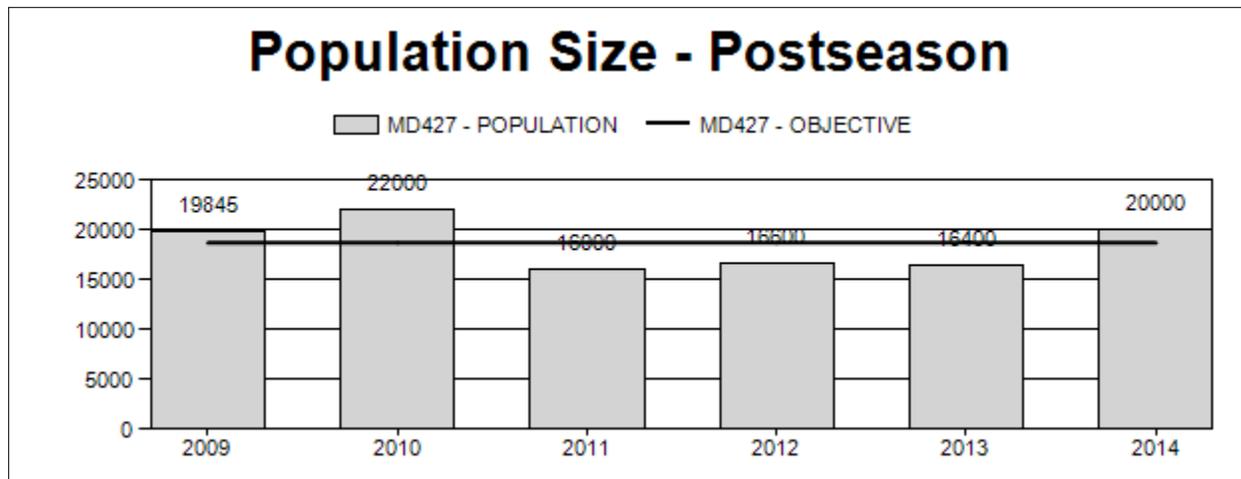
Percent population is above (+) or below (-) objective: 7%

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

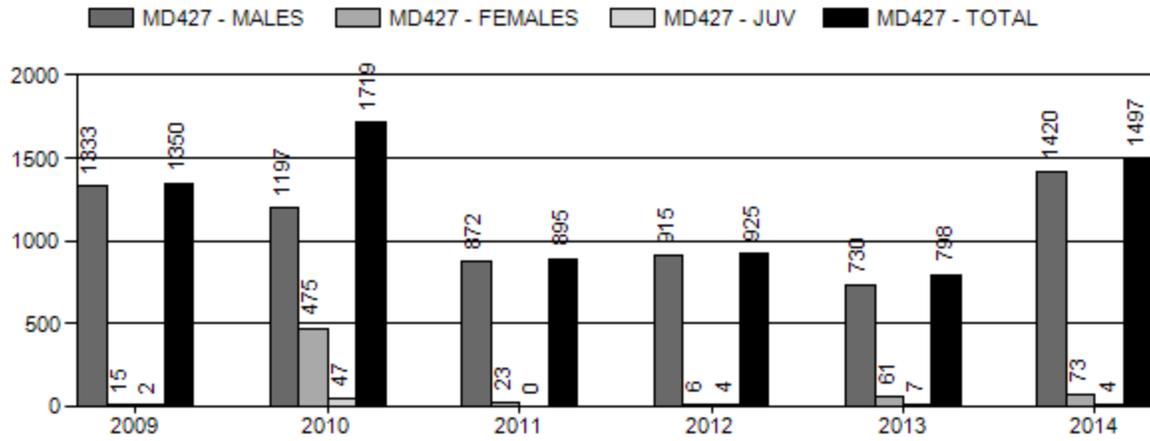
Model Date: 03/03/2015

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

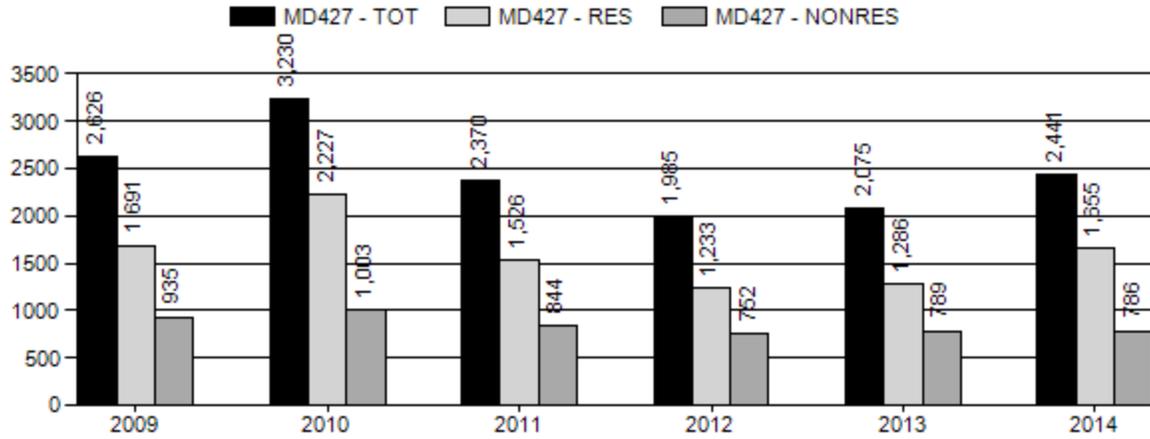
	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	0.2%	0.8%
Males $\geq 1$ year old:	36%	27.3%
Juveniles ( $< 1$ year old):	0%	0.1%
Total:	3%	7%
Proposed change in post-season population:	1%	0%



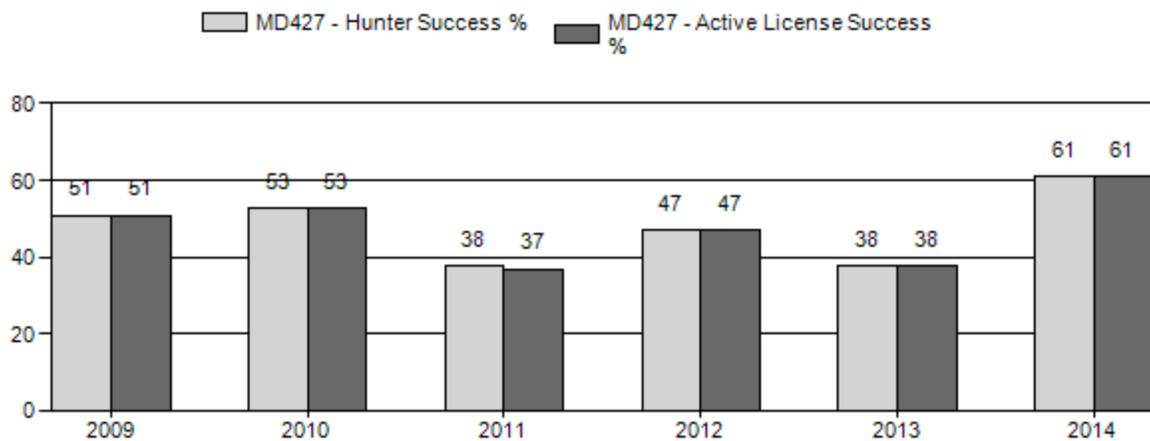
# Harvest



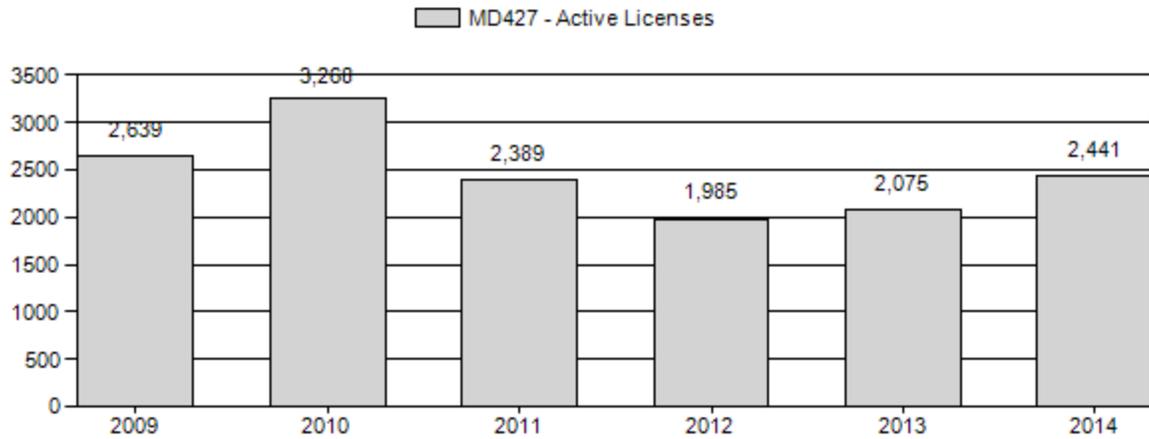
# Number of Hunters



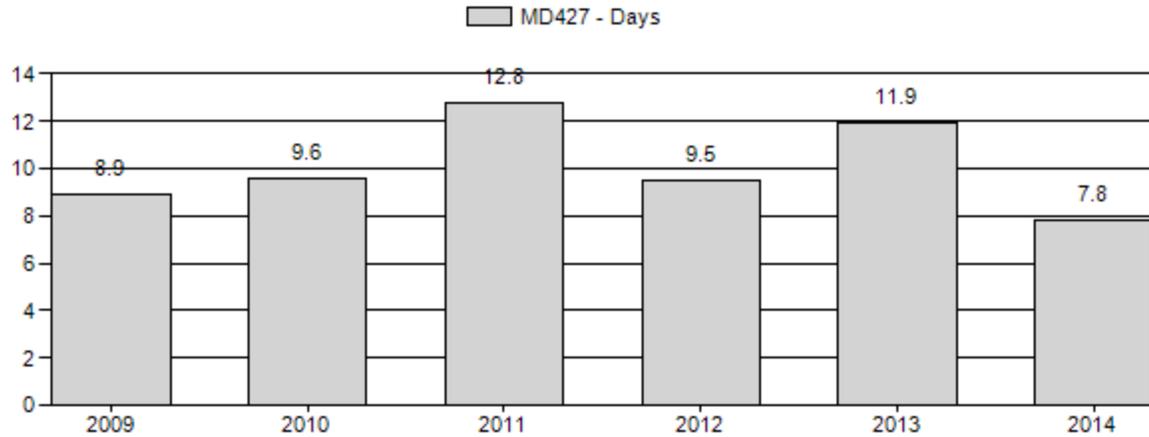
# Harvest Success



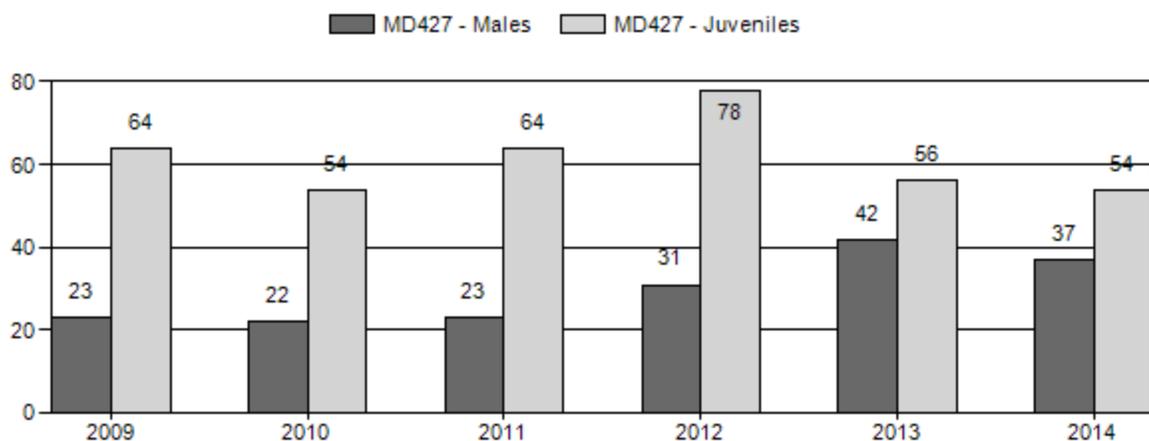
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



## 2015 HUNTING SEASONS

SPECIES : **Mule Deer**

HERD UNIT : **Baggs (427)**

HUNT AREAS: **82, 84, 100**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
82		Oct. 1	Oct. 10		General	Antlered mule deer or any white-tailed deer
		Oct. 1	Oct. 14		General youth	Any deer
		Oct. 1	Oct. 10	100	Limited quota	Doe or fawn valid south of the East Fork of Savery Creek; south and east of Savery Creek; and north and east of the Little Snake River
84	1	Oct. 1	Oct. 9	50	Limited quota	Antlered mule deer or any white-tailed deer
100		Oct. 1	Oct. 5		General	Antlered mule or any white-tailed deer
		Oct. 1	Oct. 7		General youth	Any deer
82, 84, 100	Archery	Sep. 1	Sep. 30			Refer to Section 3

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2014</i>
<i>Region W</i>	<i>Gen</i>	<i>0</i>
<i>82</i>	<i>7</i>	<i>+100</i>
<i>84</i>	<i>1</i>	<i>0</i>
<b><i>Herd Unit Total</i></b>	<i>1</i>	<i>0</i>
	<i>7</i>	<i>+100</i>
	<b><i>Region W</i></b>	<b><i>0</i></b>

### **Management Evaluation**

**Current Management Objective:** 18,700

**Management Strategy:** Recreational

**2014 End-of-bio-year Estimate:** 22,000

**2015 Proposed Postseason Population Estimate:** 20,000

**Region W Quota - 900**

The Baggs Mule Deer herd is at the current established population objective of around 19,000 (18,700) (established in 1986) and our current management strategy is to maintain the current population size through similar management.

## **Herd Unit Issues**

This herd unit consists of three disparate hunt areas; 82, 84, and 100. Area 82 is the most productive, and supports the bulk of hunters and mule deer in this herd. Access in this area is good throughout most of the area. Area 84 contains a mixture of good to marginal deer habitats, but is under checkerboard ownership and access is very limited for deer hunting; most areas are leased by outfitters. Area 100 has good access, but few deer during the hunting season due to limited suitable habitat (Area 100 supports the bulk of this herd unit during the winter).

Throughout the Baggs mule deer herd unit, oil and gas fields associated with the Atlantic Rim Project continue to expand, and we expect construction of the largest wind energy project in North America to begin within two years, the Chokecherry-Sierra Madre Wind Energy Project. In addition to the Atlantic Rim and Chokecherry-Sierra Madre Wind projects many parcels of public land on the west side of the Sierra Madre Mountain Range have been leased for oil and gas development, as well as the majority of winter ranges west of Baggs. Uranium leases also occur on this winter range complex in the Powder Rim area, but these are currently not being developed.

We have documented a dramatic decline in the number of deer using the Dad/Sandhills winter range area (2004-2007 average total count 762, 2010-2013 average total count 224) due to increased human activity associated with the Atlantic Rim Development.

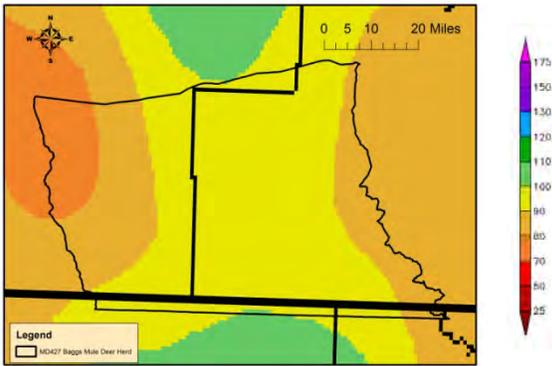
Mule deer numbers have been responding favorably to improved precipitation and mild winters in this herd unit, particularly in Area 82 and the southernmost portion of 84. In hunt area 100 we are not seeing the same population response as we see in hunt area 82 or in parts of 84 due to significant differences in habitats and ability to produce deer. Area 100 supports the bulk of this mule deer population during the winter, but has significantly fewer resident deer. Although hunt area 100 has never had the same success rates or hunting season density of deer as hunt area 82 or 84, it appears the divergence has become exceedingly evident over the last 4 years.

## **Weather**

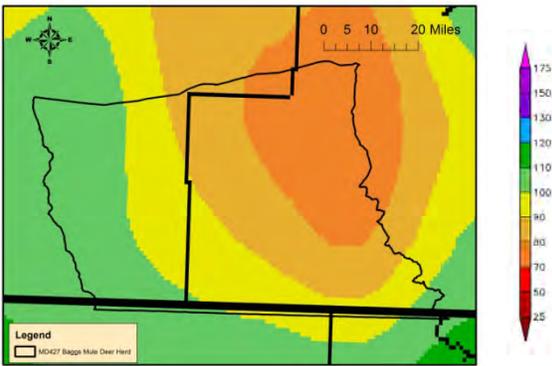
The weather conditions have been quite variable over the last several years. Overall the herd unit has seen higher than normal percent of precipitation when comparing 2013 to 2014 (Figure 1). Increased moisture throughout the entire herd unit, particularly in the higher, more productive habitats, should equate to better vegetation for 2015. The 2014-15 winter was extremely mild with low levels of snowfall, higher than average temperatures, and very limited winter mortality of all age classes. Although the lack of winter precipitation was initially concerning, spring moisture levels seem to have compensated for low winter moisture levels.

Figure 1. A) Percent of normal precipitation for the herd unit from January 2013 to December 2013, B) Percent of normal precipitation for the herd unit from January 2014 to December 2013.

A)



B)



## Habitat

2014-15 precipitation levels have resulted in improved habitat conditions in this herd unit. Increased precipitation during the 2014 fall resulted in a late growth opportunity for most vegetation in the herd unit, and mule deer were able to capitalize on this for increased winter fat stores. An early warming trend following the 2014-15 winter, coupled with regular precipitation during the 2015 spring months resulted in an early green up that continues to this day. Some areas in the herd unit have received significantly more moisture than has been observed in many years, and will equate to continued improvement in habitats for mule deer.

There is some concern regarding the condition of winter habitats on the large winter complex west of Baggs. Significant hedging of mixed mountain shrubs and sagebrush, and highlining of junipers is apparent. This issue will need to be addressed in the future if deer numbers at current levels are to persist. Local Game and Fish personnel will need to work closely with land managers, Game and Fish habitat biologists, sportsmen, and livestock permittees to address competition issues, habitat projects, and population management to address some of these concerns.

## **Field Data**

Long-term drought, severe winters, and increasing human activity has been a challenge for the mule deer in this herd unit. Despite these challenges, we have seen deer numbers increase over the last 3 years, and the population is now at objective. Initiation of an antler point-restriction for two years (coupled with good fawn production and survival during those years, which is key), followed by subsequent removal of this-restriction resulted in increased buck ratios (from a low of 22:100 in 2010 to 37:100 in 2014). Despite lower fawn ratios over the past 2 years, data from Colorado Parks and Wildlife indicate that fawn survival has been very high over the same period (~88% survival in 2013, pers. comm.. Darby Finley, CPW).

We do not have separate data for those resident mule deer in hunt area 100 to provide a better indication of the issues facing this portion of the population. Hunter comments, field observations and local knowledge lead us to believe this portion of the herd is not responding the same way as the portion in hunt area 82. It is likely this exceptionally dry (5-7 inch precipitation zone), unproductive habitat, will see some improvement in 2015 due to improved precipitation and habitat conditions, but a response in deer in this area similar to a montane hunt area (e.g. 82) with significant amounts of productive habitat is not realistic and cannot be expected.

## **Harvest Data**

The 2014 hunting season saw a return to pre-2007/08 levels (2003 to 2007 average buck harvest, 1600, 2014 buck harvest, 1,420). The 2014 hunting season resulted in a higher than average hunter success rate (61%), as compared to the previous 10 year average of 55%. These statistics led to an increase in hunter satisfaction from 53% in 2013 to 72% in 2014 (combined satisfied and very satisfied). Despite the opportunity provided during the youth-only portion of the season (any deer and antlerless elk combination hunt), we observe limited participation during this period. Youth hunter contacts suggest they and their parents are appreciative of the season. Since doe fawn licenses have not been issued in the past few years (including 2014), doe harvest reported in the harvest survey is from the youth season and/or archery hunters. A total of 73 doe deer were harvested in 2014, an insignificant amount in a herd of ~19,000 mule deer.

## **Population**

The current post-season population model suggests we are now above the objective but within the objective range (14,960 – 22,440) at 20,000 animals. Despite the SCJ, SCA model having the lowest relative AICc value (152), we chose the TSJ, CA model (189) based on what we believe to be a better representation of the actual population trend, simulated versus observed buck ratios, plausibility, and field observations. The SCJ, SCA model shows a population that is nearly 300% above objective, and makes little sense and is not biologically feasible. Within the TSJ, CA model we constrained adult survival to lower levels during the 2007-08 and 2010-11 winters to match observed difficult winter conditions and increased deer mortality.

The spreadsheet model seems to be a useful tool for this herd. However, the model should be viewed as a tool to predict trend and relative abundance, only, barring an independent estimate of the population size to calibrate the model. Additionally, based on recent research in Colorado and Wyoming, there appears to be significant interchange between the two states, resulting in unknown effects on harvest management and population.

## **Management Summary**

Since this herd is currently at objective, seasons are becoming less conservative in the primary hunt area (hunt area 82) in 2015. This will shift management from population growth strategy to one of population maintenance, accomplished by increasing season length and offering a limited number of doe/fawn licenses in the portion of highest deer density. Continued high buck ratios (especially in Area 82) and continued “any antlered deer” hunting will spread harvest across all age classes, resulting in opportunity for more bucks to make it into the older age classes. In order to maintain current population level without a corresponding increase in hunter numbers in this area of high hunter density, we are issuing a limited number of (100) additional, reduced price doe/fawn licenses, valid only in the southeastern portion of Area 82. Using the spreadsheet model as a predictor of next year’s population based on increased doe harvest we should see a “flattening” of the population growth curve. Seasons will remain more conservative in both of our “desert” hunt areas (84 and 100) until deer numbers in these areas are at more acceptable levels.

A Baggs Mule Deer Working group was formed in the Summer/Fall of 2014 to bring multiple interest groups together for the management of mule deer in this herd unit. This group has met multiple times and made the initial recommendations to lengthen the season by one day and to add doe/fawn licenses if the spreadsheet model predicted a continued increase in the population to objective levels. The group came to the consensus on these recommendations on January 6, 2015.

<b>INPUT</b>	
Species:	Deer
Biologist:	Tony Mong
Herd Unit & No.:	Baggs Herd, 427
Model date:	03/03/15

<b>MODELS SUMMARY</b>		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	197	206	<input type="checkbox"/> CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	132	152	<input type="checkbox"/> SCJ, SCA Mo	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	37	189	<input type="checkbox"/> TSJ,CA Model	

<b>Population Estimates from Top Model</b>											
Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population		Predicted Posthunt Population		Total	Objective	Notes	
	Field Est	Field SE		Juveniles	Total Males	Females	Total			Juveniles	Total Males
1993			2951	2291	6605	11847	2783	1053	5436	9272	18700
1994			3483	2087	5896	11466	3483	1343	5896	10722	18700
1995			4043	2703	6660	13406	4043	1624	6660	12327	18700
1996			5324	3231	7607	16162	5324	2084	7607	15016	18700
1997			6427	3409	8208	18044	6427	2068	8173	16668	18700
1998			5399	3725	9030	18154	5386	2315	8685	16386	18700
1999			5341	4435	9971	19747	5264	2380	9430	17074	18700
2000			6386	4437	10564	21387	6350	2201	10283	18634	18700
2001			5143	3818	10841	19802	5143	2339	10840	18322	18700
2002			5702	4143	11530	21374	5702	2231	11530	19463	18700
2003			5329	4254	12336	21919	5308	2563	12109	19979	18700
2004			6881	4257	12553	23691	6860	2684	12244	21788	18700
2005			6850	4505	12812	24167	6806	3119	12534	22459	18700
2006			6964	5512	13694	26169	6932	3536	13064	23533	18700
2007			7043	5469	13749	26281	7002	3307	13056	23366	18700
2008			4198	3185	9426	16809	4195	2083	9419	15698	18700
2009			6403	3698	10073	20174	6400	2232	10057	18689	18700
2010			5334	3540	10340	19213	5282	2223	9817	17322	18700
2011			4356	2580	6882	13818	4356	1614	6857	12827	18700
2012			6143	3363	7919	17425	6138	2343	7913	16394	18700
2013			5426	4799	9638	19863	5418	3996	9571	18985	18700
2014			5934	5710	10556	22200	5930	4148	10475	20553	18700
2015			6563	5087	10586	22236	6559	3525	10395	20479	18700

Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.84		0.87	
1994	0.88		0.87	
1995	0.90		0.87	
1996	0.60		0.87	
1997	0.60		0.87	
1998	0.90		0.87	
1999	0.90		0.87	
2000	0.60		0.87	
2001	0.82		0.87	
2002	0.81		0.87	
2003	0.76		0.87	
2004	0.63		0.87	
2005	0.82		0.87	
2006	0.69		0.87	
2007	0.30		0.64	
2008	0.90		0.87	
2009	0.50		0.87	
2010	0.50		0.57	
2011	0.90		0.87	
2012	0.90		0.87	
2013	0.83		0.87	
2014	0.50		0.87	
2015	0.50		0.87	

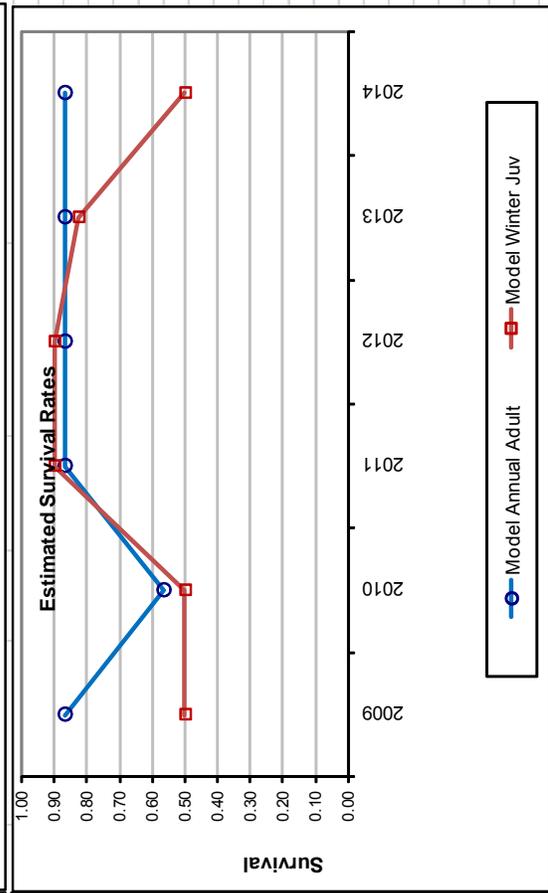
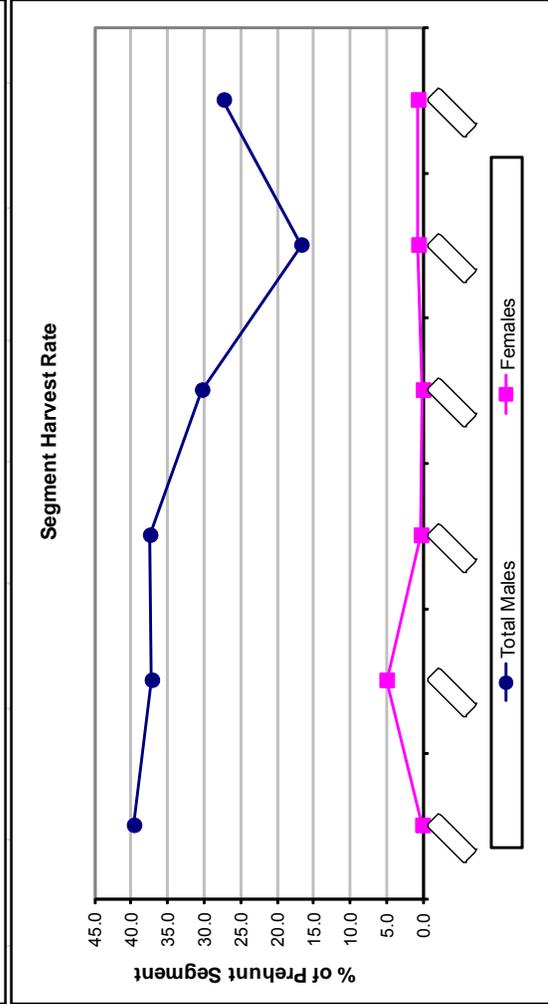
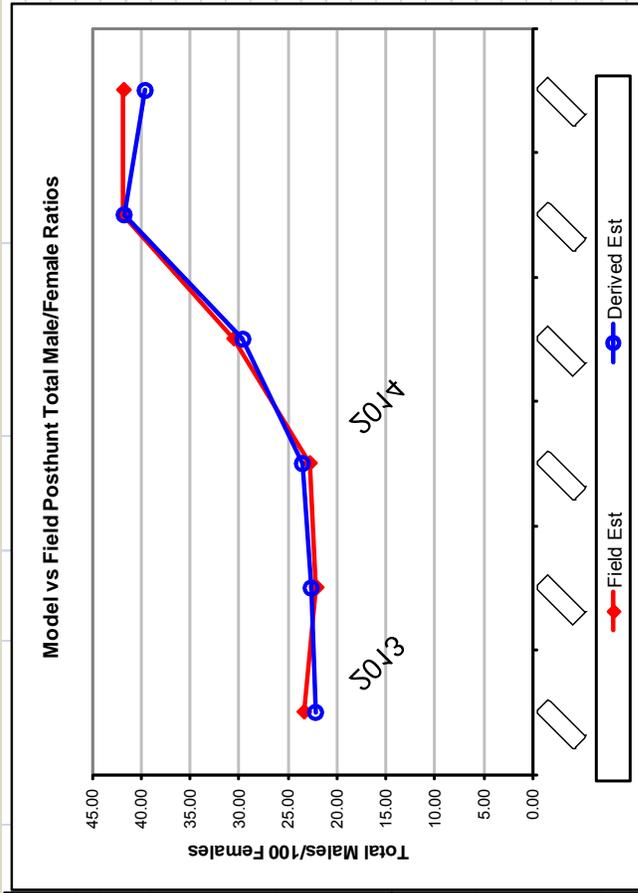
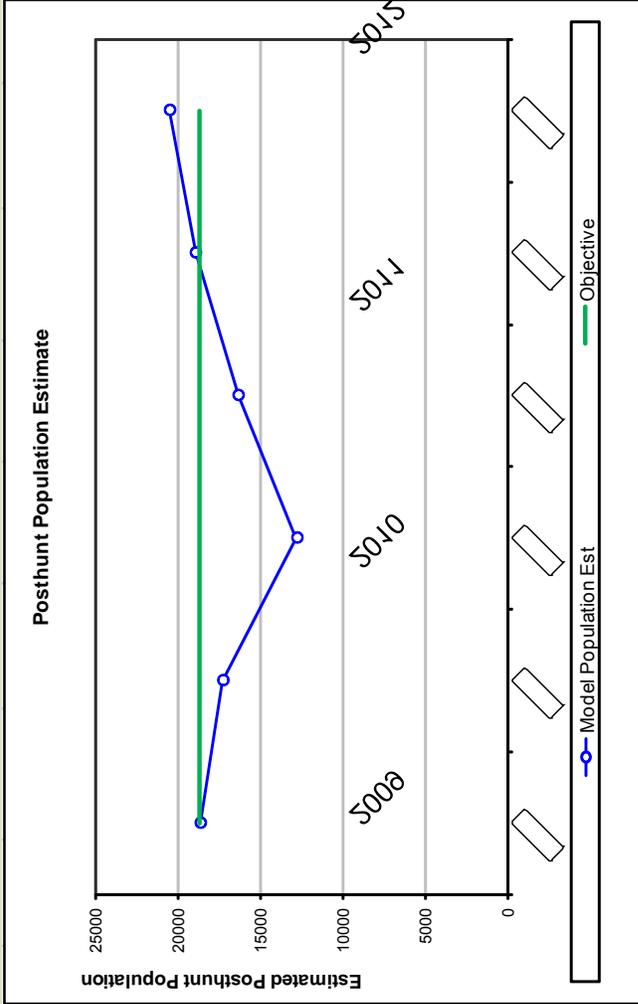
<b>Parameters:</b>		<b>Optim cells</b>
Adult Survival =		0.869
Initial Total Male Pop/10,000 =		0.105
Initial Female Pop/10,000 =		0.544

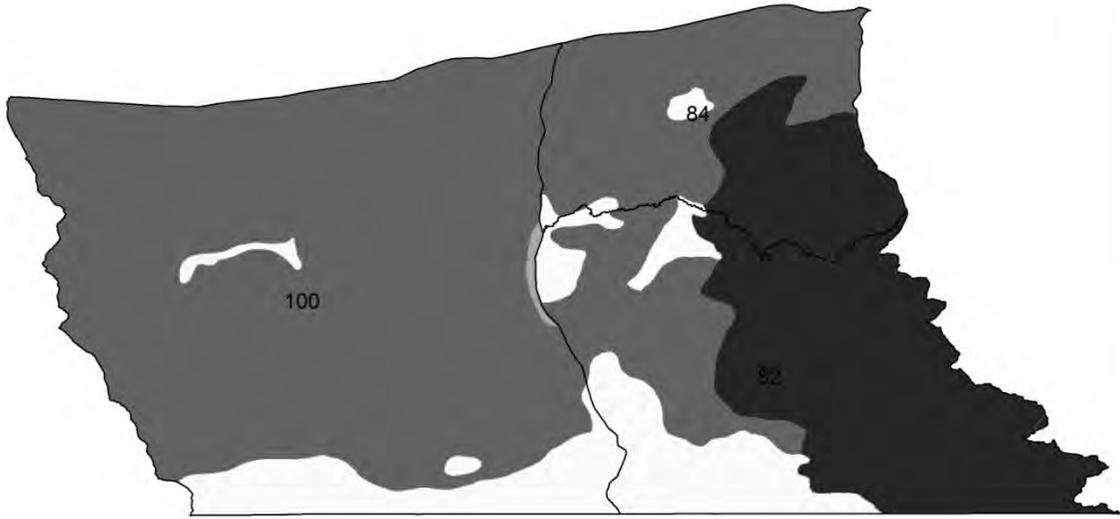
<b>MODEL ASSUMPTIONS</b>	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%

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	Derived Est.	Field Est.	Field SE	Derived Est.	Field Est.	Field SE	Total Harvest	Total Males	Females	Total Harvest
51.20	1.65	19.37	19.37	0.90	153	1125	1063	2341	54.0	17.7					
59.08	2.01	22.77	22.77	1.09	0	677	0	677	35.7	0.0					
60.71	2.11	24.38	23.56	1.15	0	981	0	981	39.9	0.0					
69.99	2.32	27.40	30.28	1.34	0	1042	0	1042	35.5	0.0					
78.65	2.84	25.30	26.64	1.39	0	1219	32	1251	39.3	0.4					
62.01	2.39	26.65	23.11	1.27	12	1282	314	1608	37.9	3.8					
55.82	2.07	25.24	23.29	1.19	70	1868	492	2430	46.3	5.4					
61.75	2.29	21.41	26.50	1.33	33	2033	255	2321	50.4	2.7					
47.44	1.39	21.58	20.84	0.83	0	1344	1	1345	38.7	0.0					
49.45	1.77	19.35	19.35	0.99	0	1738	0	1738	46.1	0.0					
43.83	1.67	21.16	21.16	1.07	19	1538	206	1763	39.8	1.8					
56.03	1.67	21.92	21.92	0.92	19	1430	281	1730	37.0	2.5					
54.30	1.51	24.88	24.88	0.92	40	1260	253	1553	30.8	2.2					
53.06	1.70	27.07	27.07	1.11	29	1796	572	2397	35.8	4.6					
53.63	1.55	25.33	25.33	0.96	37	1965	630	2632	39.5	5.0					
44.54	1.51	22.12	21.70	0.97	3	1001	6	1010	34.6	0.1					
63.64	2.13	22.20	23.41	1.12	2	1333	15	1350	39.6	0.2					
53.81	2.09	22.65	22.15	1.20	47	1197	475	1719	37.2	5.1					
63.53	2.25	23.54	22.83	1.17	0	878	23	901	37.4	0.4					
77.58	2.94	29.62	30.59	1.58	4	927	6	937	30.3	0.1					
56.61	2.08	41.75	41.84	1.70	7	730	61	798	16.7	0.7					
56.61	2.08	39.60	41.84	1.70	4	1420	73	1497	27.4	0.8					
63.09	2.33	33.91	32.33	1.50	4	1420	173	1597	30.7	1.8					

FIGURES

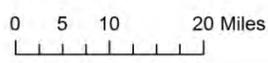


# MD427 Baggs Mule Deer Herd Seasonal Ranges



**Baggs Mule Deer Seasonal Range**

Dark Gray	Winter/Year long	White	Crucial Winter/Year long	Black	Spring/Summer/Fall	Medium Gray	Crucial Winter
-----------	------------------	-------	--------------------------	-------	--------------------	-------------	----------------



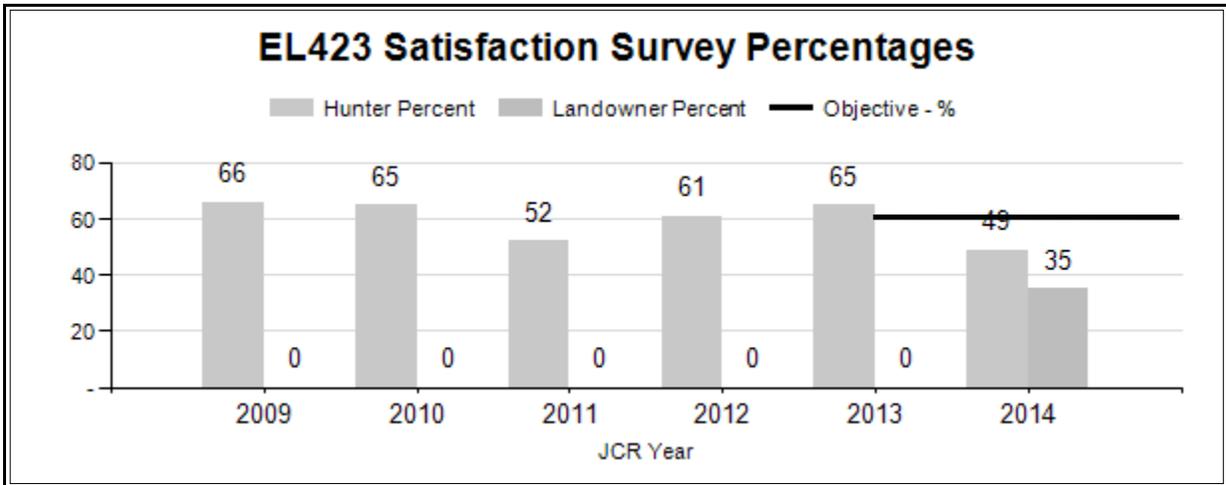


## 2014 - JCR Evaluation Form

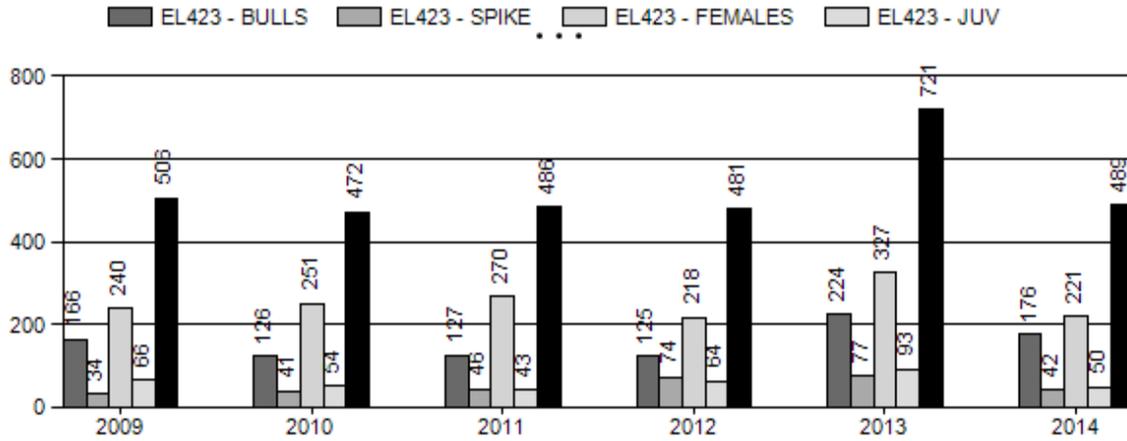
SPECIES: EIK  
 HERD: EL423 - UINTA  
 HUNT AREAS: 106-107

PERIOD: 6/1/2014 - 5/31/2015  
 PREPARED BY: JEFF SHORT

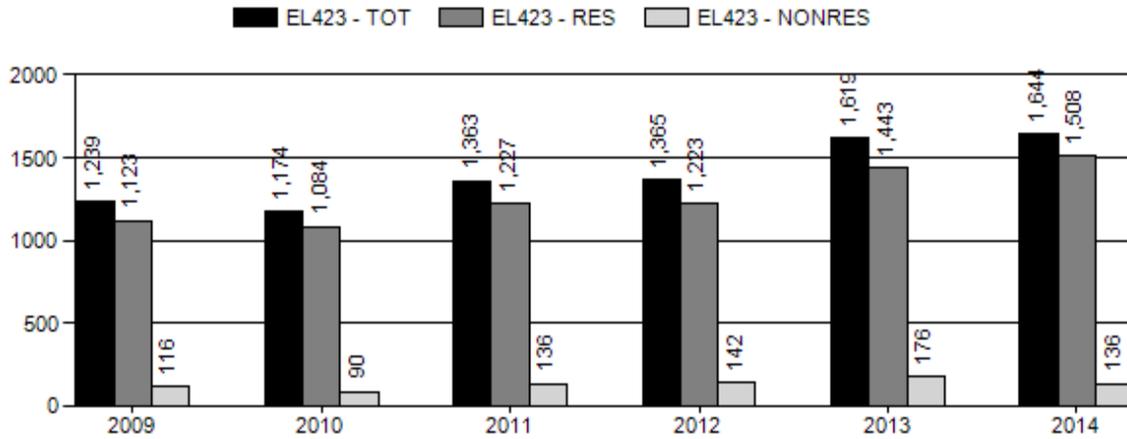
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Hunter Satisfaction Percent	62%	49%	60%
Landowner Satisfaction Percent	0%	35%	60%
Harvest:	533	489	500
Hunters:	1,352	1,644	1,500
Hunter Success:	39%	30%	33%
Active Licenses:	1,381	1,687	1,550
Active License Success:	39%	29%	32%
Recreation Days:	7,772	13,886	13,000
Days Per Animal:	14.6	28.4	26
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			-18%
Number of years population has been + or - objective in recent trend:			0



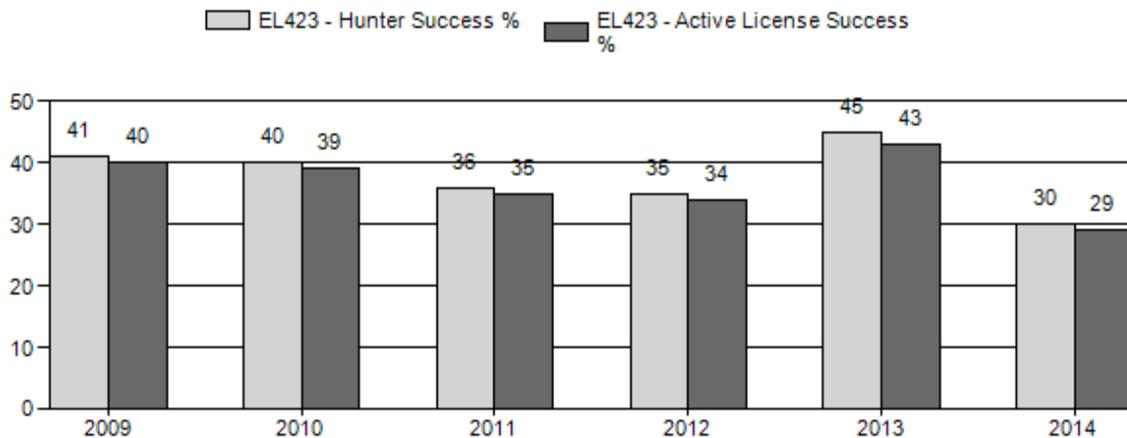
# Harvest



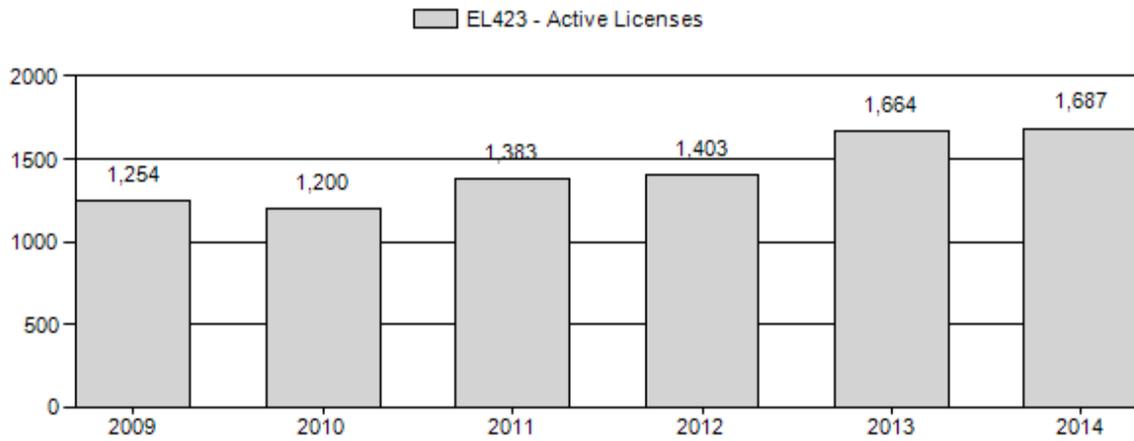
# Number of Hunters



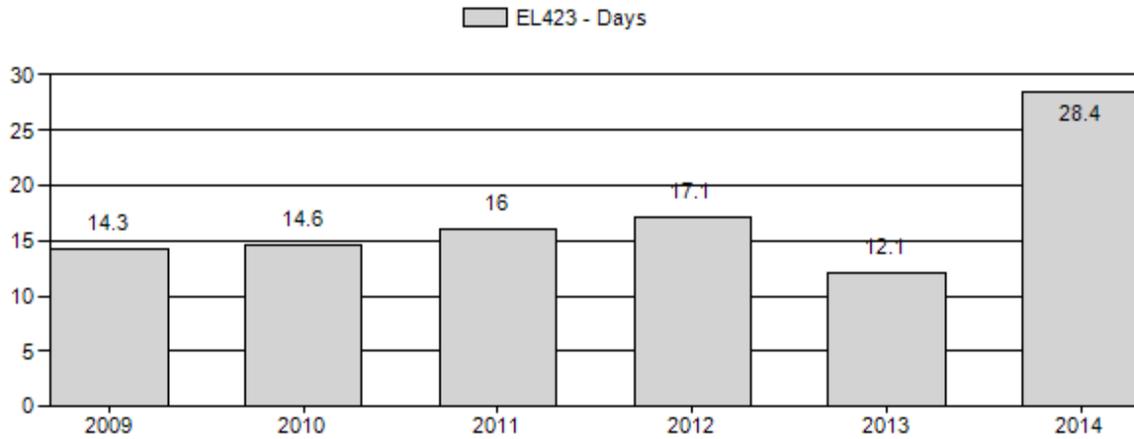
# Harvest Success



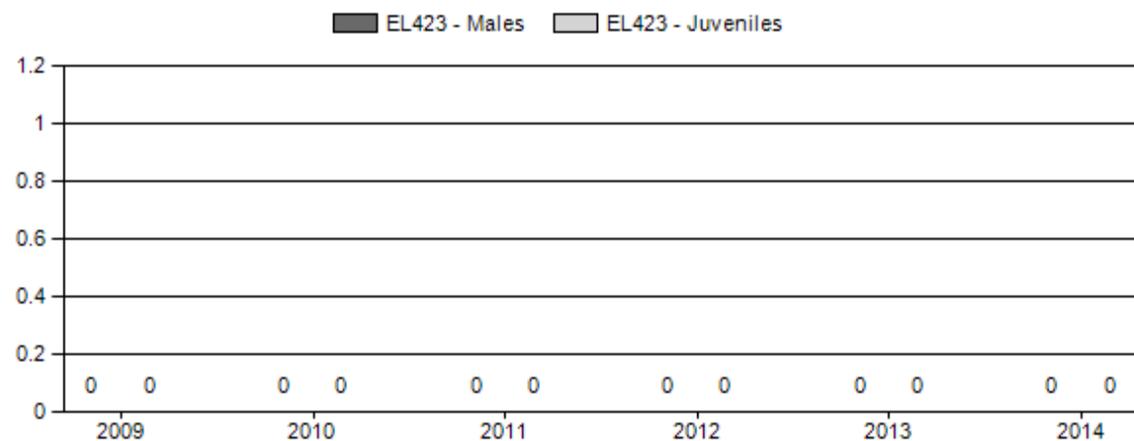
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



**No classification data for this herd**

**2015 HUNTING SEASON**

SPECIES : **Elk**

HERD UNIT : **Uinta (423)**

HUNT AREAS: **106, 107**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
106		Oct. 15	Oct. 31	50	General	Any elk
		Nov. 1	Nov. 14		General	Antlerless elk
	1	Nov. 15	Dec. 31	Limited quota	Any elk valid west of the Blacks Fork River or north of Wyoming Highway 410	
	4	Nov. 15	Dec. 31	Limited quota	Antlerless elk	
		Jan. 1	Jan. 31			Unused Area 106 Type 4 licenses; valid on private land or west of the Blacks Fork River or north of Wyoming Highway 410
	7	Aug. 15	Jan. 31	300	Limited quota	Cow or calf valid on private land or west of the Blacks Fork River or north of Wyoming Highway 410
107		Oct. 15	Oct. 31	150	General	Any elk
		Nov. 1	Nov. 14		General	Antlerless elk
	4	Nov. 15	Dec. 31	Limited quota	Antlerless elk	
			Jan. 1	Jan. 31		
	7	Dec. 15	Jan. 31	50	Limited quota	Cow or calf valid off national forest and within the Henrys Fork River drainage
106, 107	Archery	Sept. 1	Sept. 30			Refer to Section 3 of this chapter

Hunt Area	License Type	Quota change from 2014
<b>Herd Unit Total</b>		

**Management Evaluation**

**Current Postseason Population Management Objective:** Satisfaction

**Management Strategy:** Recreational

**2014 Postseason Population Estimate:** ~1300

**2015 Proposed Postseason Population Estimate:** ~1100

## **Herd Unit Issues**

This is an interstate herd shared with Utah. Elk summering in the Uinta Mountains in Utah come to Wyoming to winter. Limited winter range is the main issue for this herd. With winter range in short supply conflict with agriculture producers becomes an issue. Damage complaints occur on bad winters. Summer damage also occurs on crops in limited areas. Significant efforts have been made by field personnel to alleviate these problems. Perceived reduction in livestock forage due to elk grazing is an issue brought up by livestock producers.

Local ranchers set up a meeting through the county Farm Bureau Agency in February 2013 to discuss elk management in this herd. During the meeting ranchers expressed significant dissatisfaction with elk in areas of the herd unit. In difficult winters problems have occurred in parts of HA 106 with elk comingling with livestock along the Bear River and Blacks Fork River where cattle feeding operations occur. However, hunters feel that elk numbers in the southeast part of the hunt area are too low and would like that segment to increase. That area is largely public land and historically draws large hunter numbers due to its easy access. We direct pressure onto the northern and western portions of the hunt area with type 7 permits. The Hunt Area 106 Type 7 licenses also help deal with an early damage problem on growing crops.

The HA 107 antlerless licenses are used to maintain pressure on elk on the Wyoming side of the state boundary during a hunt on the Utah side. Damage complaints on the HA 107 side of the herd unit are typically low even during the severe winter of 2010/11. However, ranchers will complain about elk numbers and the herd has been over objective. The late portions of antlerless hunts are designed to target elk that have potential to cause depredation problems while protecting elk in those areas where they can winter with low probability of problems. Hunters would like to see more elk in accessible public land areas in HA 107. These areas and a small portion of public land in HA 106 are the main areas for elk hunter access in the herd unit.

The strategy in this herd unit has been to ultimately minimize elk damage problems. However, it is difficult to manage a herd for limiting damage based solely on a number. Elk damage changes relative to many other factors. In 2014 the objective was reviewed and a new Satisfaction based objective was approved. This objective is to have a landowner satisfaction of 60% and a hunter satisfaction of 60%. In the first year of this objective we are not meeting either of those objective parameters; however, the five year average for hunter satisfaction is 62%. There is also a secondary objective of having  $\geq 60\%$  branch-antlered bulls in the harvest. We are meeting that objective. The objective and management strategy were last revised in 2014.

## **Weather**

Weather during 2014 and into 2015 was highly variable. In the early part of 2014 the winter was very mild and dry. A moist spring and summer followed. In late August and into September precipitation continued. The winter of 2014-2015 has been very mild to this point. The winters of 2011/12, 2012/13 and 2013/14 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. Conditions were better at the higher elevations. The mild winters we have experienced recently have kept wintering elk at higher elevations and away from problem situations for the most part.

## **Habitat**

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

## Field Data

Elk surveys are flown in cooperation with Utah DNR, most recently in February 2013. The results are shown below. No classification data is available. The 2011 count in Wyoming was higher than previous counts, the result of severe winter weather. The winter of 2012/13 was very mild but forage availability was a problem due to severe drought conditions. Damage involving elk has occurred but has not been a large problem. However, the 2013 count was still very high indicating we needed to increase harvest.

	YEAR								
	1992	1994	1996	1998	2001	2004	2007	2011	2013
Utah West Daggett	920	970	1408	919	923	716	863	No data	1055
Utah Summit	332	131	200	80	101	215	228	268	1006
Wyoming	298	238	635	299	512	446	746	1723	1810
<b>Total</b>	<b>1550</b>	<b>1339</b>	<b>2243</b>	<b>1298</b>	<b>1536</b>	<b>1377</b>	<b>1837</b>	<b>1991</b>	<b>3871</b>

## Harvest Data

Antlerless harvest opportunity was increased for several years in this herd unit. The 2010, 2011 and 2012 season structures offered substantially increased antlerless harvest opportunity to reduce the possibility of damage in the herd unit. Those seasons allowed significant antlerless harvest with increases in permits and season lengths. These hunts had good success rates if weather conditions resulted in elk movement out of Utah and were largely successful at reducing damage issues. In 2013 we again made significant increases in antlerless hunting opportunity to further reduce elk numbers and damage concerns. Harvest numbers responded to the increased opportunity. Success rates were high at 45%. That combined with higher hunter numbers produced a harvest of 732 elk in the herd unit. That was well above the previous five year average of 450. In 2014 we continued the harvest strategy used in 2013 however weather conditions made elk hunting more difficult and harvest was lower at 489 animals harvested. For 2015 we will continue this hunting strategy to maintain harvest pressure on this herd.

## Population

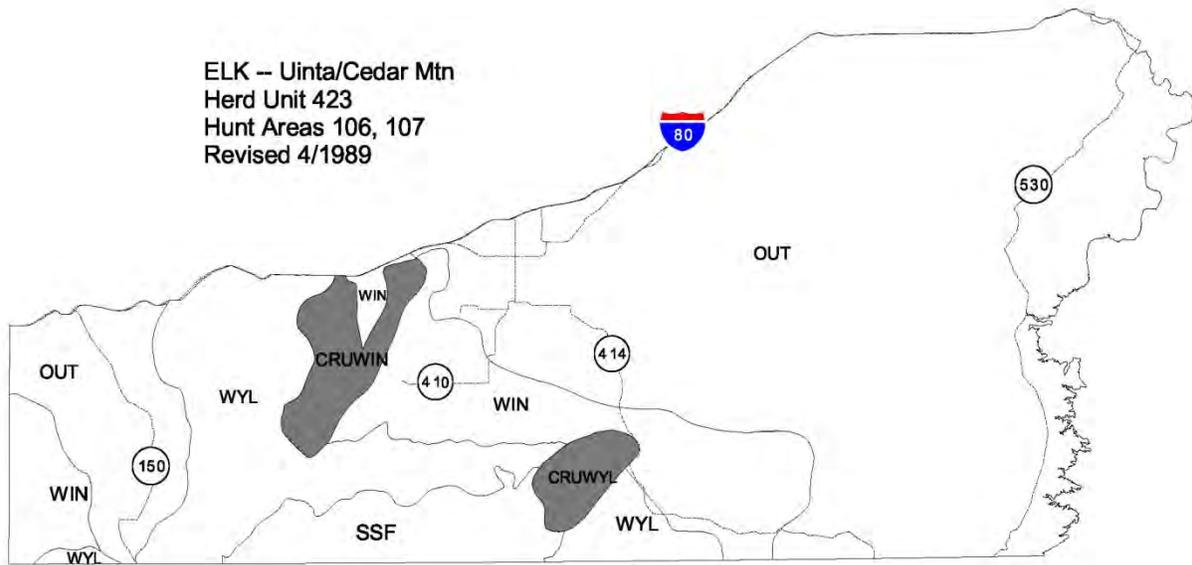
There is no population model for this interstate herd. Weather severity and forage availability are the determining factors in the number of elk that come into Wyoming from Utah during the winter. This and other factors make data collected in Wyoming inconsistent and unreliable.

Since data is very limited in this herd it is very difficult to look at data trends. It is not possible to model this interstate herd. Classification data is not collected. Harvest rates are highly variable due to weather conditions pushing elk into the state from Utah. Harvest survey data indicate that we have likely had adequate harvest in recent years to reduce this herd.

## Management Summary

Starting in 2013 we greatly increased hunter opportunity for antlerless elk. Comments from landowners in areas around Lonetree and in the north and western portions of area 106 are that elk numbers are still an issue. We will continue with hunt timing and license management to maximize elk harvest opportunities throughout the season to target elk causing problems in those areas. It appears that these new season structures will reduce this elk herd. The objective and management strategy were last revised in 2014.

ELK -- Uinta/Cedar Mtn  
Herd Unit 423  
Hunt Areas 106, 107  
Revised 4/1989





## 2014 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2014 - 5/31/2015

HERD: EL424 - SOUTH ROCK SPRINGS

HUNT AREAS: 30-32

PREPARED BY: PATRICK BURKE

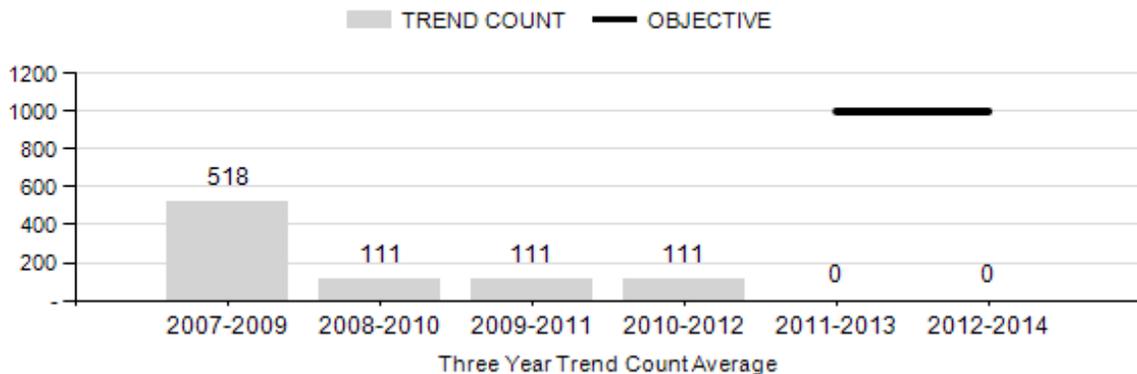
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Trend Count:	67	0	1,000
Harvest:	379	176	180
Hunters:	559	274	300
Hunter Success:	68%	64%	60%
Active Licenses:	559	274	300
Active License Success	68%	64%	60%
Recreation Days:	4,197	2,119	2,200
Days Per Animal:	11.1	12.0	12.2
Males per 100 Females:	47	0	
Juveniles per 100 Females	40	0	

Trend Based Objective ( $\pm 20\%$ ) 1,000 (800 - 1200)  
 Management Strategy: Special  
 Percent population is above (+) or (-) objective: N/A%  
 Number of years population has been + or - objective in recent trend: 0

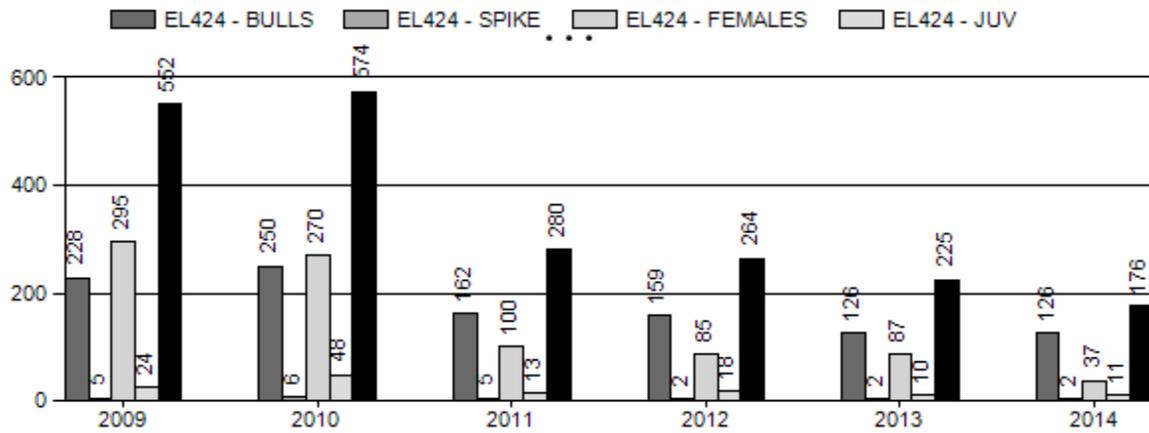
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	13%	0%
Males $\geq 1$ year old:	90%	0%
Juveniles (< 1 year old):	4%	0%
Total:	20%	0%
Proposed change in post-season population:	-5%	0%

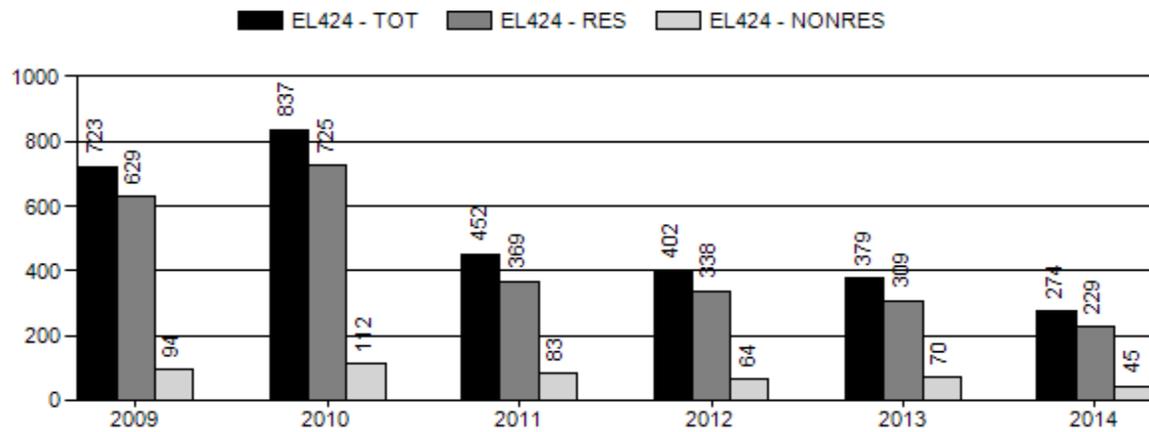
### EL424 Trend Count



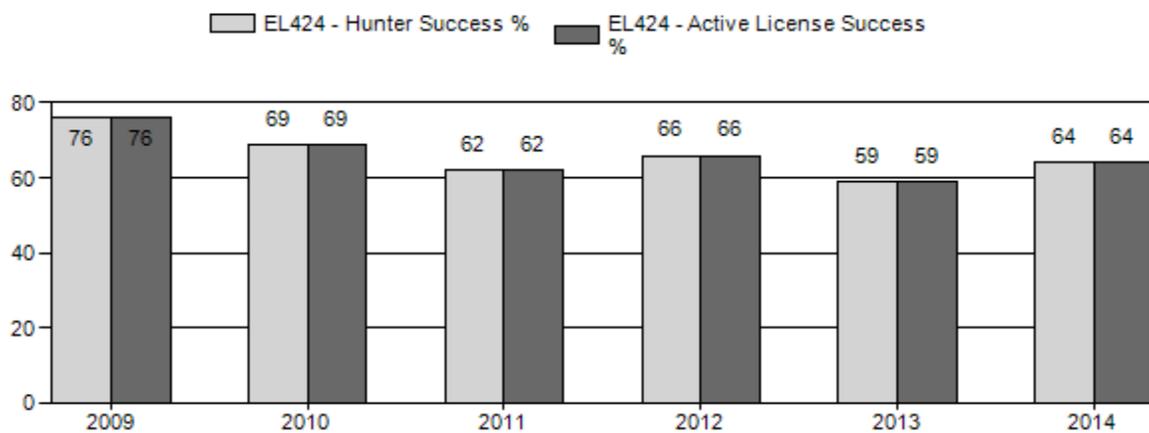
# Harvest



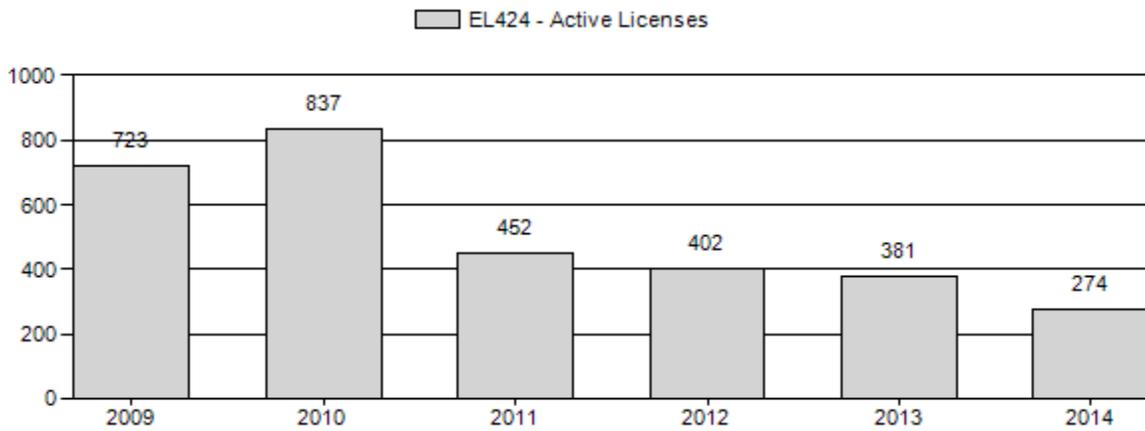
# Number of Hunters



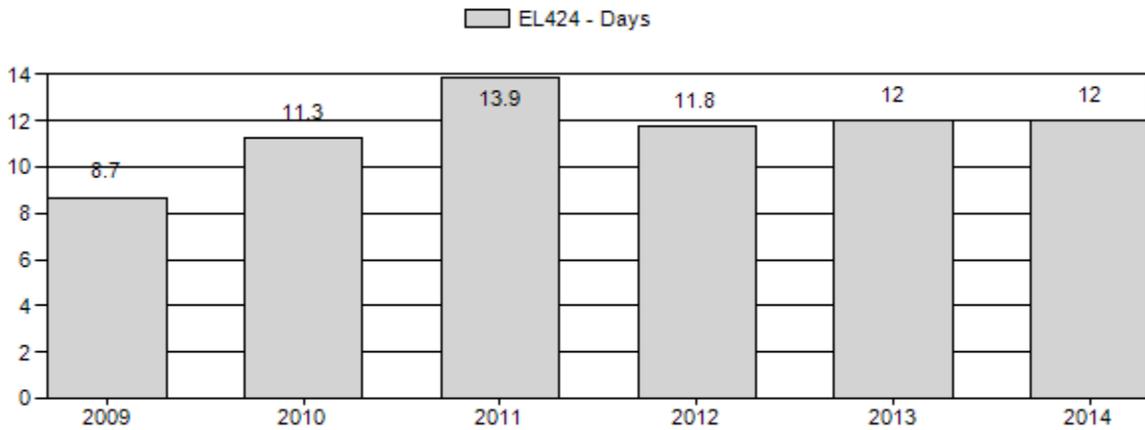
# Harvest Success



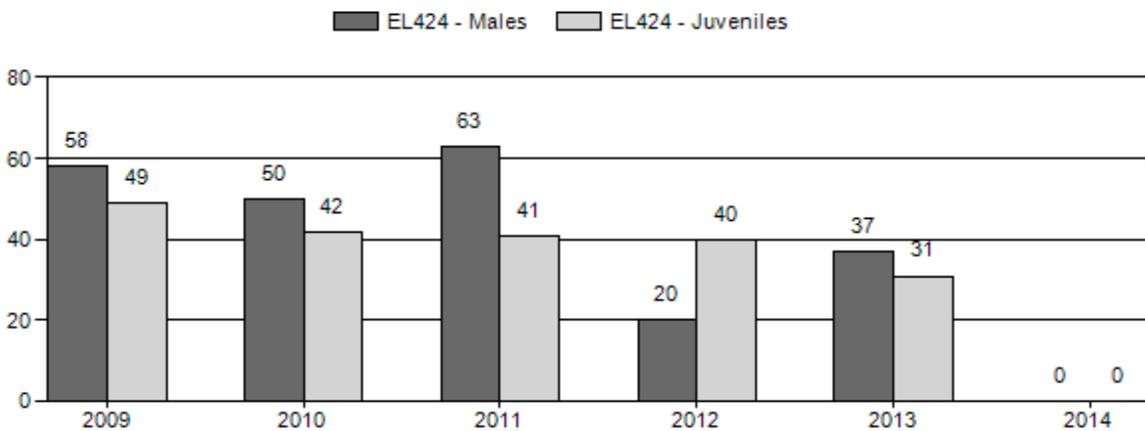
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



### 2009 - 2014 Postseason Classification Summary

for Elk Herd EL424 - SOUTH ROCK SPRINGS

Year	Post 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
2009	1,150	81	95	176	28%	306	48%	149	24%	631	529	26	31	58	± 0	49	± 0	31
2010	625	106	156	262	26%	525	52%	222	22%	1,009	379	20	30	50	± 19	42	± 22	28
2011	1,100	60	116	176	31%	280	49%	116	20%	572	485	21	41	63	± 5	41	± 4	25
2012	799	18	7	25	12%	126	62%	51	25%	202	361	14	6	20	± 5	40	± 7	34
2013	0	78	135	213	22%	582	60%	181	19%	976	398	13	23	37	± 0	31	± 0	23
2014	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

**2015 HUNTING SEASONS  
SOUTH ROCK SPRINGS ELK HERD (EL424)**

Hunt Area	Type	SEASON DATES		Quota	Limitations
		Opens	Closes		
30	1	Oct. 1	Oct. 31	30	Limited quota; any elk
30	4	Oct. 1	Oct. 31	20	Limited quota; antlerless elk
31	1	Oct. 1	Oct. 31	75	Limited quota; any elk
31	4	Oct. 1	Oct. 31	75	Limited quota; antlerless elk
32	1	Oct. 1	Oct. 31	50	Limited quota; any elk
32	4	Oct. 1	Oct. 31	50	Limited quota; antlerless elk
32	9	Sept. 1	Sept 30	25	Limited quota; antlerless elk archery only
Archery		Sept. 1	Sept. 30		Refer to license type and limitations in Section 3.

Hunt Area	Type	Quota change from 2014
30	4	+20
32	9	+25
<b>Herd Unit Total</b>	<b>4</b>	<b>+20</b>
	<b>9</b>	<b>+25</b>

## **Management Evaluation**

**Current Management Objective:** 1,000

**Management Strategy:** Special

**2014 Postseason Population Estimate:** N/A

**2015 Proposed Postseason Population Estimate:** N/A

The South Rock Springs elk herd is a special management herd and has a mid-winter trend count objective of 1,000 elk. This objective was set in 2013, when the objective was changed from a population based objective to a trend count based objective. This change was made due to the difficulty and unreliability of attempting to model an interstate population.

## **Herd Unit Issues**

This herd is shared between the states of Wyoming, Colorado, and Utah, with the largest segment of the population probably residing in Colorado. Because of the interstate nature of this population, the number of elk actually residing in Wyoming has been difficult to estimate since it probably changes on a day-to-day basis especially during hunting season since significant interchange has been documented between the three states, especially between Wyoming and Colorado. Because of the interstate nature of this herd, the management scheme for Hunt Areas 30, 31, and 32 for many years has relied on significant immigration of elk into Wyoming from Colorado and Utah in order to support the level of harvest that has been occurring in the Wyoming segment of the population.

In order to learn more about the amount of interchange between the three states that this herd occupies, the states of Colorado and Utah have placed GPS collars on cow elk in their portions of this herd. Colorado deployed collars in the 2011-2012 winter and Utah put out collars during the 2012-2013 winter. Early results from these studies have documented use of Wyoming by elk collared in both Utah and Colorado with more interchange occurring between Colorado and Wyoming than between Wyoming and Utah or between Utah and Colorado. Most of the collared elk appear to be frequenting the areas between Middle Mountain in Colorado and the Little Red Creek, 4-J Basin areas in Wyoming with some of the elk using areas further south in Colorado and Utah. Most of the elk collared in Utah left that state after being collared and have been spending most of their time in either Colorado or Wyoming.

## **Weather**

The summers of 2012 and 2013 were both extremely dry with little summer precipitation, especially the summer of 2012. This lack of moisture was especially evident in areas of the herd unit below 8,000 ft. The drought conditions at the lower elevation winter ranges of the herd unit have had some minor impacts on this in the form of elk choosing to winter at higher elevations than normal which may result in more use of already stressed summer parturition ranges that are used by this herd and the South Rock Springs mule deer herd. During December 2013 classification flights, some elk were seen wintering at over 9,000 ft. and other groups were observed at higher elevations than typically occupied despite substantial snow depths in those areas. The summer of 2014 saw substantially better moisture in most of Wyoming, however the portion of southwest Wyoming inhabited by the this elk herd did not receive as much increased

moisture as the rest of the state, although it was better than what was received during the previous two years. Three summers in a row of less than desired precipitation certainly had a negative impact on the vegetation in the area, but do not appear to have had a negative impact on this herd. So far the 2014-2015 winter has been very mild with little precipitation. Hopefully, 2015 will see some spring moisture that will lead to better plant growth than has been seen in recent years.

## **Habitat**

The Green River aquatic habitat biologist has established six aspen regeneration monitoring transects throughout the herd unit. These transects are designed to evaluate browsing impacts from ungulates on young aspen suckers, especially elk. Two transects were established on Little Mountain in 2007, as well as four additional transects that were established in 2009, one each on Aspen and Miller Mountains and two in the Pine Mountain area. These transects have been read each summer since their establishment, except that one of the Pine Mountain transects was not read in 2013 due to difficulty in accessing that site caused by the amount of rain and snow received that fall and the South Pine Mountain site was not read in 2014 due to the aspen stand that it was located in dying off resulting in an insufficient number of aspen suckers left alive to measure. Because of the loss of the South Pine Mountain site, a new transect was established near the tri-state marker in 2014.

A detailed accounting of the technique and results from these monitoring efforts can be found in the aquatic habitat annual report. In general, this method compares the height of the initial growth point for the current year's terminal leader to the height of the tallest previous terminal leader branch that was killed as a result of browsing. A positive Live-Dead (LD) value suggests growth of young trees, while a negative value or value near zero suggests that browsing may be suppressing tree growth. Results of monitoring efforts are presented in the following table (Table 1) taken from the aquatic habitat annual progress report, but in general, two of the five monitored sites showed positive LD values for 2014, while four of the sites had LD values below zero. The new Tri-state monitoring site, not reported in the table below had a positive LD value of +3.4 inches.

**Table 1.** Trends in aspen regeneration LD Index values (vertical inches) for the SRS herd unit 2011-2014

Monitoring site	2011	2012	2013	2014
Pine Mt/Red Ck.	-0.5	-3.0	NA	-7.8
South Pine Mt.	+0.7	-3.2	-4.3	NA
Miller Mt.	+8.7	+5.3	+6.6	+4.6
Aspen Mt.	+1.5	-6.0	+4.6	-4.5
Little Mt./Dipping Spr.	-4.1	-2.6	0	-0.9
Little Mt./West Currant Ck.	+4.2	0	0	-1.6

## **Field Data**

The South Rock Springs elk herd is classified in conjunction with the South Rock Springs deer herd alternating between ground classifications and aerial classifications every other year. This herd was classified from a helicopter in 2013, which meant that 2014 was a ground classification year for the South Rock Springs herds. During the ground classification efforts, insufficient numbers of elk were observed to obtain classification ratios for the herd. This was most likely because during November, when the counts were conducted, the elk were probably in areas that were inaccessible from the ground. This situation is often encountered during years when monies are not available for aerial classifications. The average ratios from the last three years when adequate sample sizes were obtained are 36 calves per 100 cows and 32 bulls per 100 cows with an average sample of 583 elk.

## **Harvest Data**

In 2014 there was a total of 274 active licenses in the herd unit. The overall harvest success rate for those 274 licenses across all hunt areas and license types in the herd unit in 2014 was 65% and it took the average hunter just under 12 days to harvest an elk in the herd unit. A total of 178 elk were harvested during the 2014 season, with 128 two year or older bulls, two spike bulls, 37 cows and 11 calves harvested. The hunt area with the highest harvest success rate was HA30, with reported a 100% success rate, although the number of licenses issued in that hunt area was relatively small with only 32 Type 1 licenses and no Type 4 licenses in the hunt area. Hunt area 31 reported an 86% success rate for the Type 1 licenses and a 53% success rate for Type 4 license holders. Hunt area 32 reported a 61% success rate for Type 1 license holders and a 21% success rate for Type 4 license holders with an average of 48 days of hunting per cow harvested.

Because of the special management status and the local prominence of the South Rock Springs elk herd, successful Type 1 license holders are asked to voluntarily submit tooth samples from harvested elk for cementum annuli analysis. In 2014, tooth samples were submitted from 72 bull elk. Based on these submissions, the average age of harvested bulls in 2014 was 6.2 years old. This compares with an average age of 5.7 in both 2013 and 2012, and 6.1 years old in 2011. One 10.5 year old bull was harvested and aged from the herd unit in 2014. This bull came from HA30. In past years, the oldest age class of bull harvested was 9.5 in 2013, 7.5 in 2012, and 11.5 in 2011. Teeth from two cow elk were also submitted in 2014, one yearling cow from HA31 and one 6.5 year old cow from HA32.

## **Population**

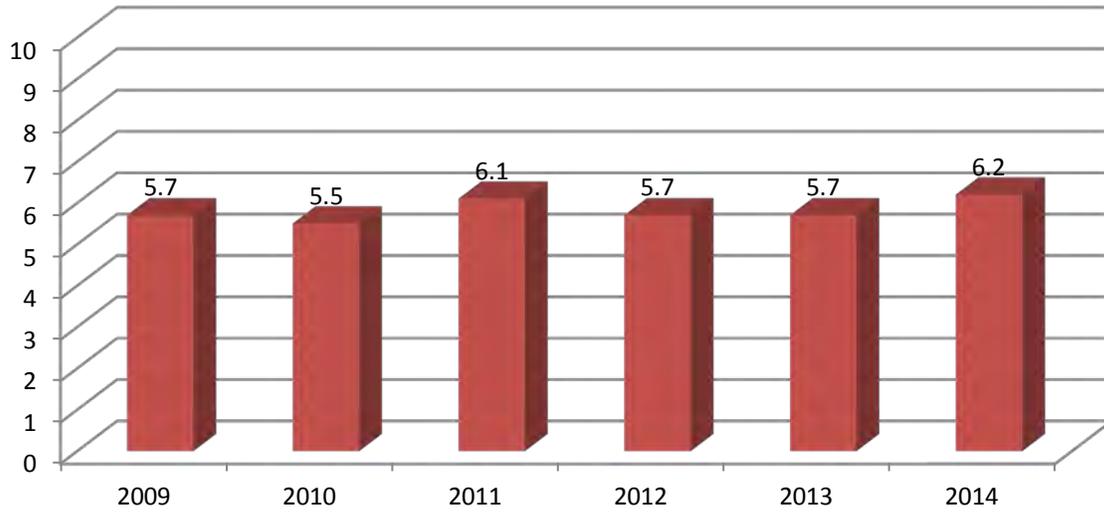
Since collar data from studies being conducted in Colorado and Utah have demonstrated that at least portions of this herd move freely between Wyoming, Colorado, and Utah; attempting to model this herd is not feasible because it violates the fundamental assumption of a closed population. Therefore, there is no population estimate for this herd and classification numbers are probably the best approximation for the number of animals in the herd in years when trend-

counts are not conducted. The most recent year that had an adequate classification sample size for consideration was 2013 when 976 animals were observed in Wyoming with 536 of those elk probably residing in Wyoming year-round, since the other 440 elk classified that year were within one mile of the state line and contained at least nine cows that were collared in other states. The last trend count flown on this herd was conducted in 2010, when 334 elk were counted.

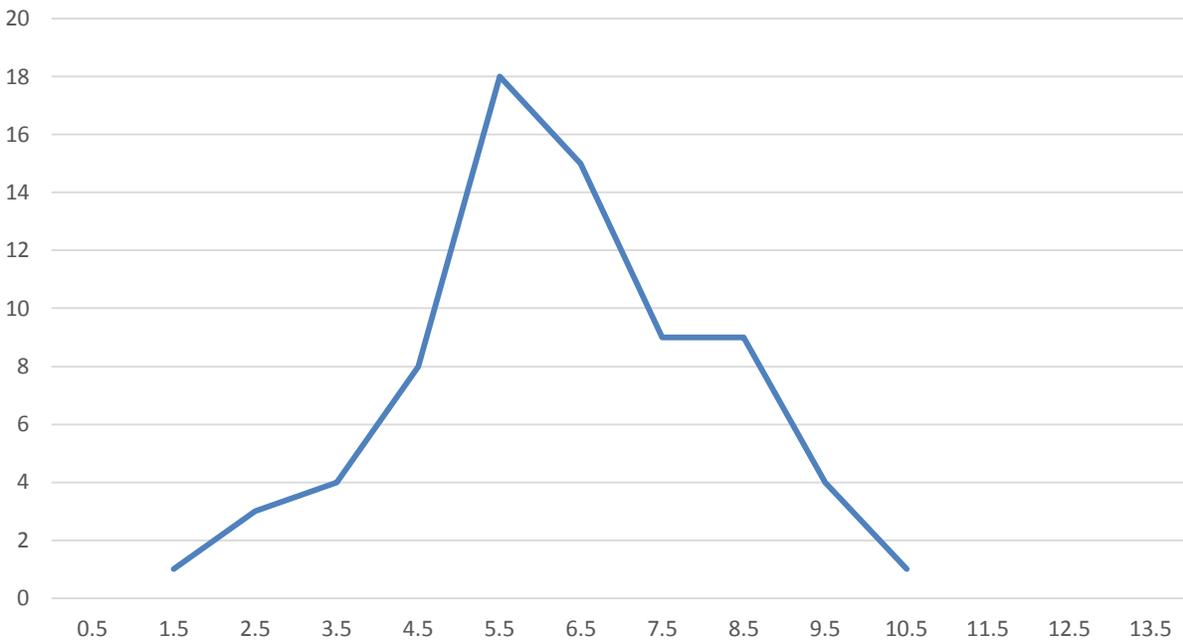
### **Management Summary**

The 2015 season proposal is generally similar to season structures from the past few years. Some changes are being proposed for 2015 in Hunt Areas 30 and 32 however. The first of these proposed changes is the addition of the Type 4 licenses in HA30. This change is being proposed since the alleviation of drought conditions in 2014 meant that more cow elk were seen in HA30 than were seen in 2013, so some cow hunting opportunity can again be allowed in that hunt area. The second proposed modification is to add a Type 9 license in HA32 valid in September for cow elk only. This change is being suggested since the interstate elk are more likely to be present in Wyoming during September than after the rifle seasons start on October 1<sup>st</sup>. It is hoped that putting archery only cow hunters out in the field in September when elk are still in the state, that some harvest pressure can be applied to the interstate segment of this herd.

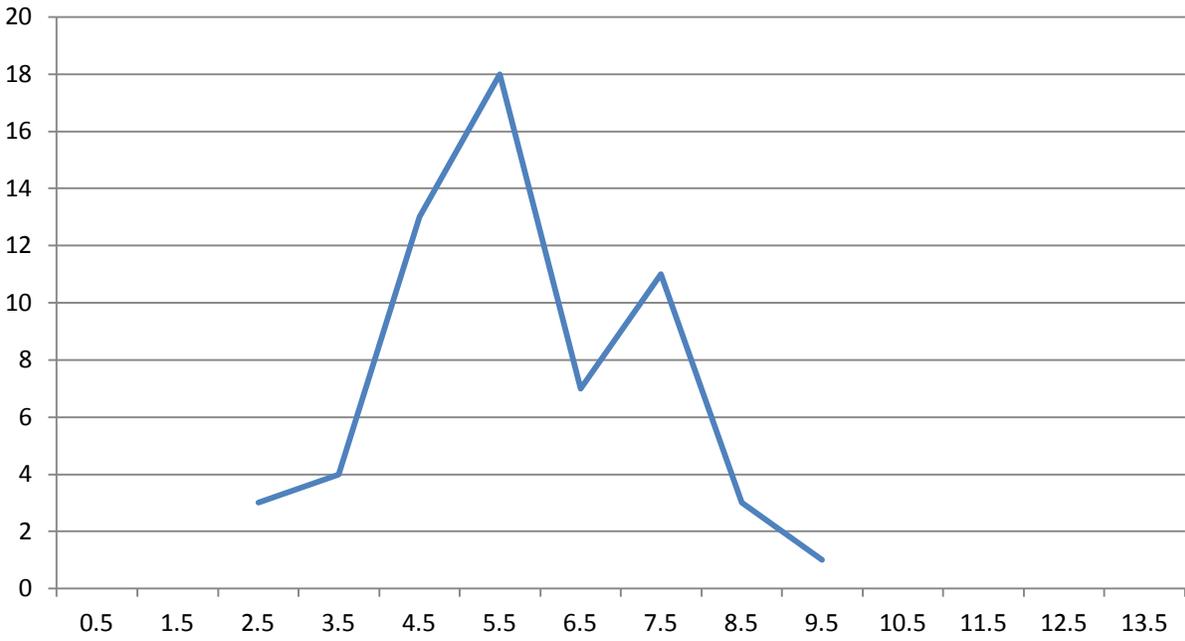
### SRS Elk Average Age of Harvested Bulls



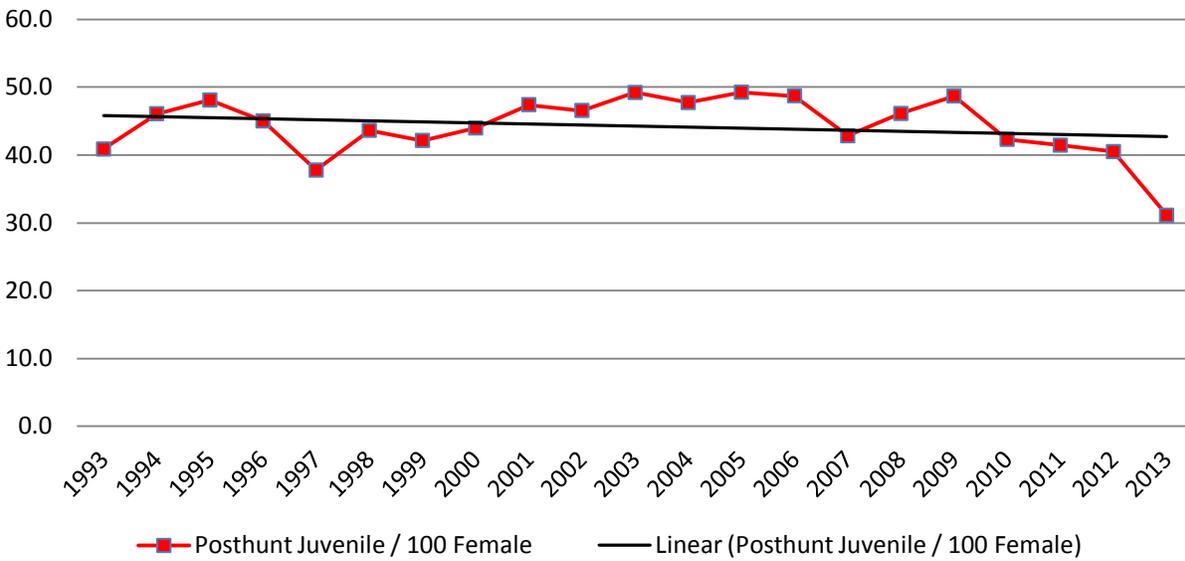
### 2014 SRS BULL ELK HAVESTED # PER AGE CLASS



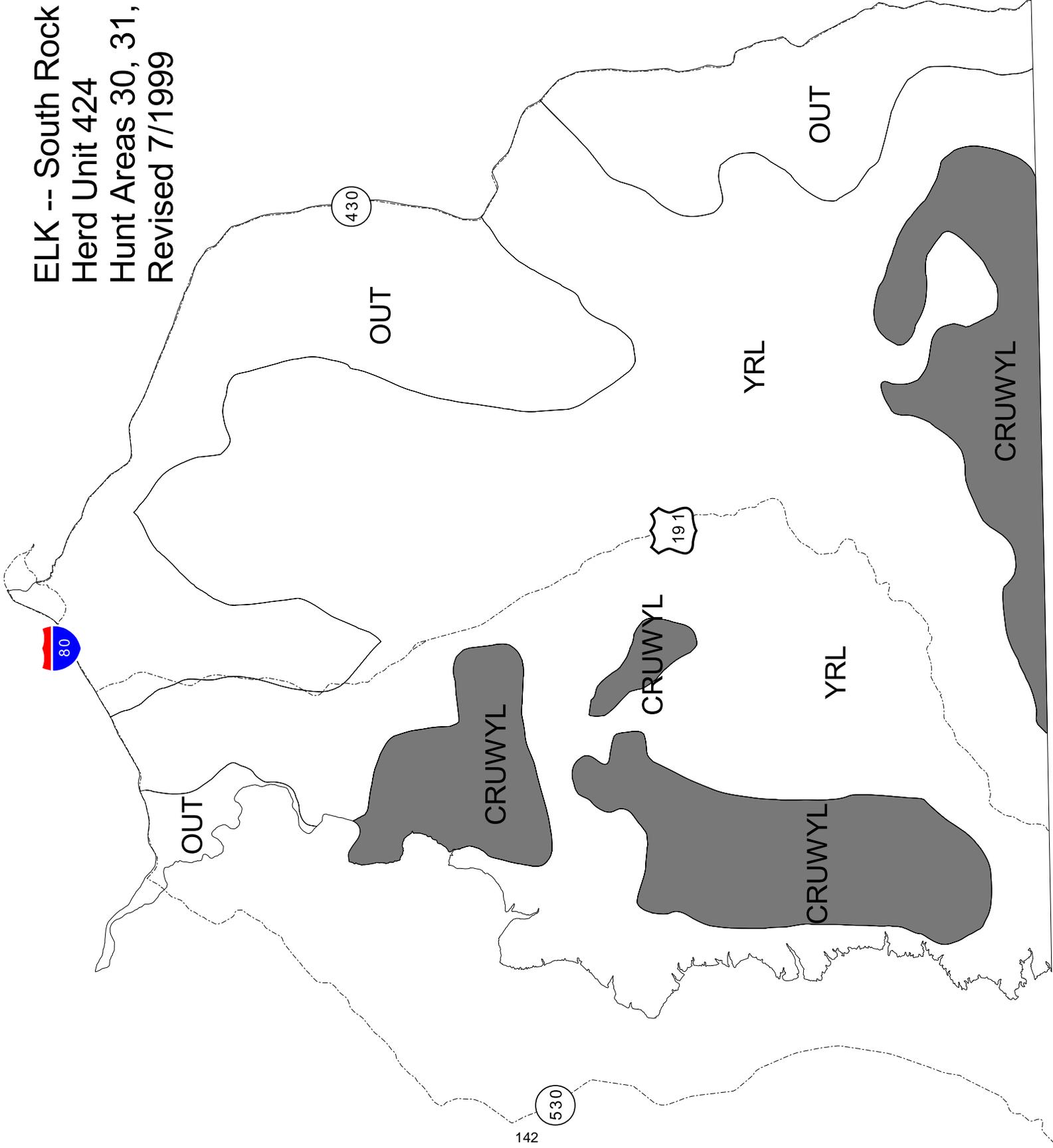
### 2013 SRS BULL ELK # HARVESTED PER AGE CLASS



### Posthunt Juvenile / 100 Female



ELK -- South Rock Springs  
Herd Unit 424  
Hunt Areas 30, 31, 32  
Revised 7/1999



## 2014 - JCR Evaluation Form

SPECIES: EIK

PERIOD: 6/1/2014 - 5/31/2015

HERD: EL425 - SIERRA MADRE

HUNT AREAS: 13, 15, 21, 108, 130

PREPARED BY: TONY MONG

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	12,762	8,850	7,800
Harvest:	2,236	2,367	2,200
Hunters:	5,308	6,130	6,000
Hunter Success:	42%	39%	37%
Active Licenses:	5,508	6,363	6,400
Active License Success:	41%	37%	34%
Recreation Days:	34,266	45,688	46,000
Days Per Animal:	15.3	19.3	20.9
Males per 100 Females	26	28	
Juveniles per 100 Females	36	40	

Population Objective (± 20%) : 5000 (4000 - 6000)

Management Strategy: Recreational

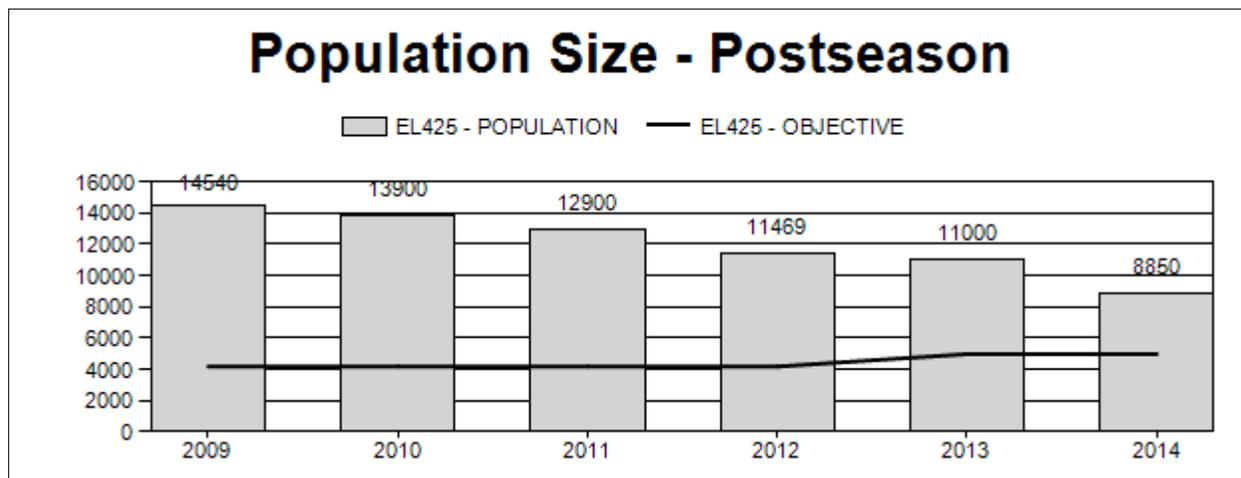
Percent population is above (+) or below (-) objective: 77%

Number of years population has been + or - objective in recent trend: 15

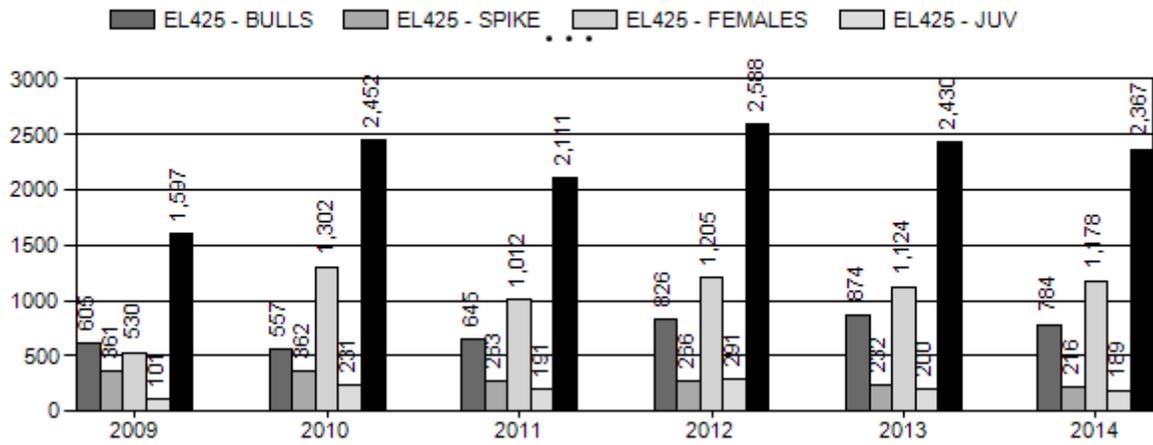
Model Date: 03/02/2014

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

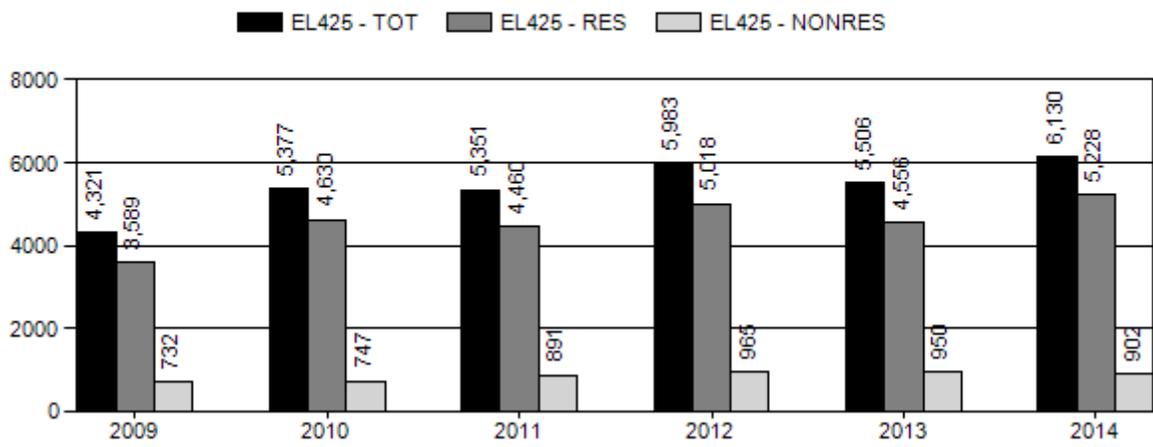
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	18%	15%
Males ≥ 1 year old:	31%	62%
Juveniles (< 1 year old):	7%	9%
Total:	20%	22%
Proposed change in post-season population:	10%	9%



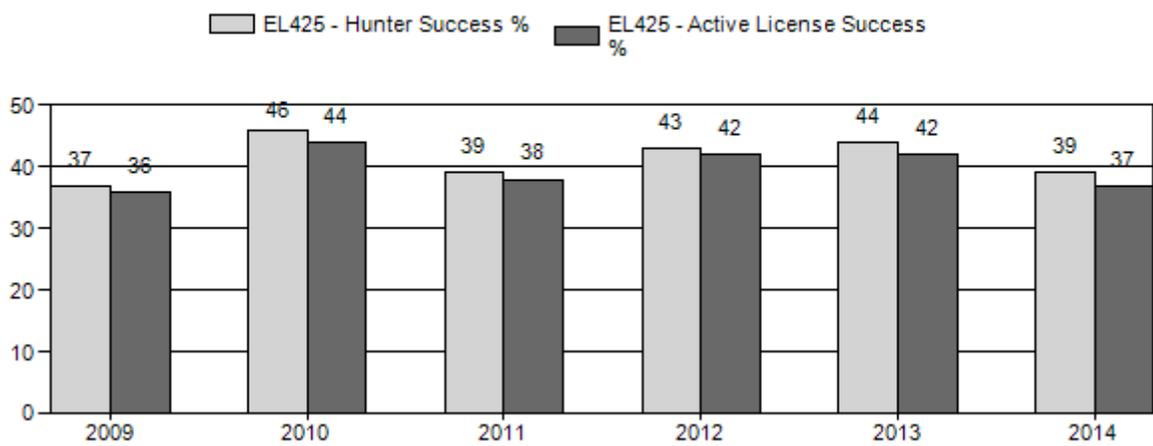
## Harvest



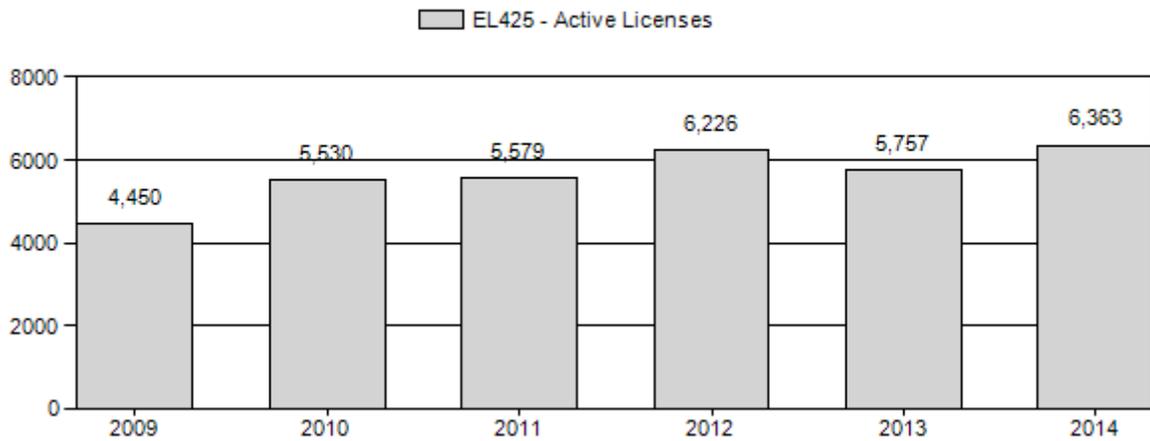
## Number of Hunters



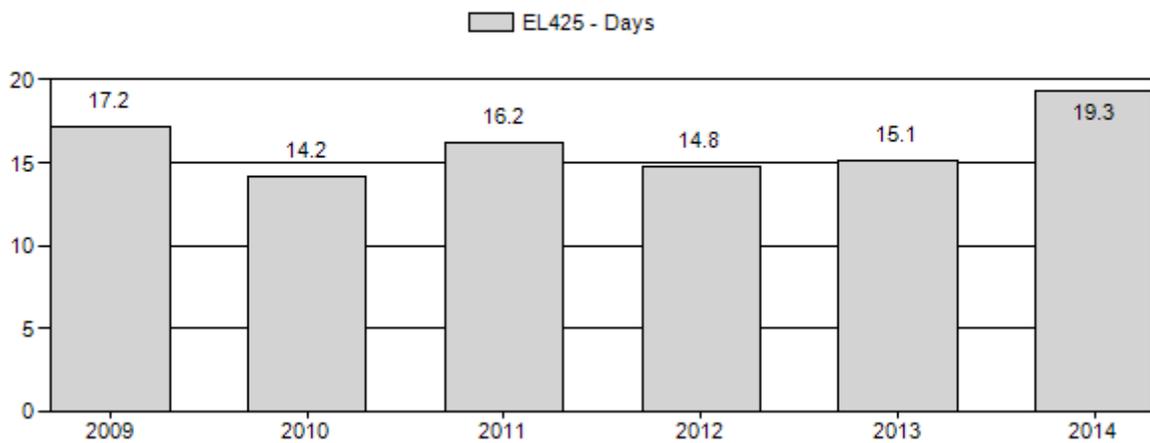
## Harvest Success



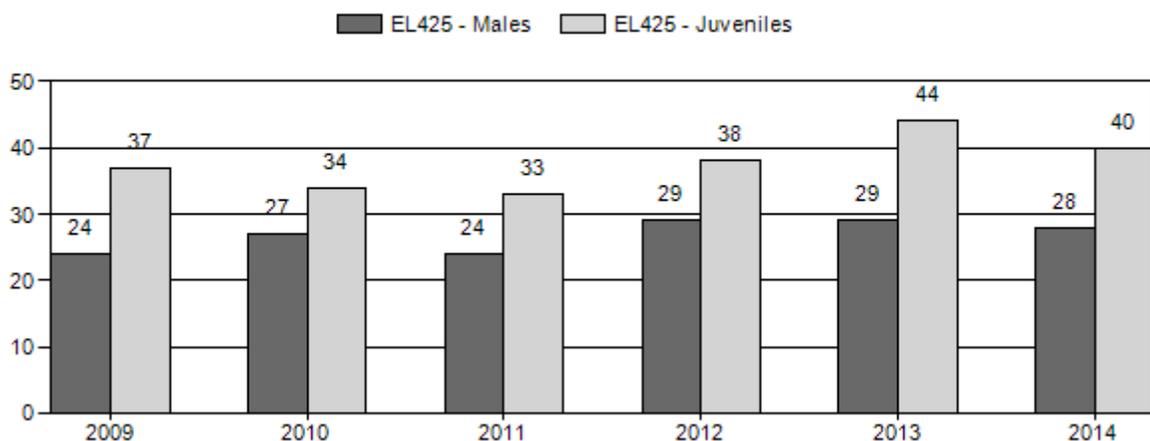
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



## 2015 HUNTING SEASON

SPECIES : **Elk**

HERD UNIT : **Sierra Madre (425)**

HUNT AREAS: **13, 15, 21, 108, 130**

Hunt Area	Type	Date of Seasons		Quota	Licenses	Limitations
		Opens	Closes			
13		Oct. 15	Oct. 31		General	Any elk, spikes excluded
	6	Oct. 15	Nov. 14	100	Limited quota	Cow or calf
15		Oct. 15	Oct. 31		General	Any elk, spikes excluded
	6	Oct. 1	Nov. 14	100	Limited quota	Cow or calf
21		Oct. 11	Oct. 14		General youth	Antlerless elk
		Oct. 15	Oct. 25		General	Any elk
		Oct. 26	Nov. 15		General	Antlerless elk
	6	Oct. 15	Nov. 30	450	Limited quota	Cow or calf
	7	Sept. 1	Dec. 31	50	Limited quota	Cow or calf valid on private land
108	1	Oct. 11	Oct. 31	75	Limited quota	Any elk
	4	Oct. 11	Nov. 30	50	Limited quota	Antlerless elk
	6	Oct. 11	Nov. 30	150	Limited quota	Cow or calf
	7	Dec. 1	Jan. 31	200	Limited quota	Cow or calf
			Dec. 1	Jan. 31		
130		Oct. 1	Oct. 23		General	Any elk
13, 15, 21, 108, 130	Archery	Sep. 1	Sep. 30		General	General license; any elk; Limited quota license refer to Section 3

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2014</i>
<i>13</i>	<i>6</i>	<i>0</i>
<i>15</i>	<i>6</i>	<i>0</i>
<i>21</i>	<i>6</i>	<i>0</i>
	<i>7</i>	<i>-75</i>
<i>108</i>	<i>1</i>	<i>0</i>

	4	-50
	6	+50
	7	-300
<b>Herd Unit Total</b>	<b>1</b>	<b>0</b>
	<b>4</b>	<b>-50</b>
	<b>6</b>	<b>+50</b>
	<b>7</b>	<b>-375</b>
	<b>Total</b>	<b>-375</b>

### **Management Evaluation**

**Current Management Objective: 5,000 (2013)**

**Management Strategy: *Recreational***

**2014 postseason Estimate: 9,000**

**2015 Proposed Postseason Population Estimate: 7,800**

The Sierra Madre elk herd (SMEH) is above the objective of 5,000 (set in 2013). Our current management strategy is to decrease herd size but in a slightly more conservative method than the previous 4 years.

### **Herd Unit Issues**

This herd continues to be productive, and has shown limited negative impacts from the increased oil and gas activities in the herd unit, primarily due to locations of those activities. The large Choke Cherry-Sierra Madre wind project may impact SMEH negatively because this project could impact both wintering elk and migrating elk. Another landscape wide impact to the SMEH will be the progression of beetle kill through the Sierra Madre range, but this may in fact result in positive effects for elk and mule deer. Currently, trees have begun to fall at alarming rates, which may lead to disruption in traditional movement patterns. It is far more likely to impact our ability to manage elk through hunter harvest as access to the forest becomes increasingly difficult.

Elk and hunter distribution throughout the herd unit have been, and remain, issues for managers in the three different Game and Fish regions that hold management responsibilities for the herd. The three general hunt areas (Areas 13, 15, and 21) possess major differences in elk and hunter numbers, as well as differences in harvest success, hunter effort, and classification survey results. The two northern areas (Areas 108 and 130) have significant hunter access and elk distribution concerns, impacting their overall contribution to elk harvest and management options in this herd. A continuing challenge is increasing our understanding of elk distribution in each of these hunt areas during the hunting season, and how best to manage hunters to maximize both opportunity and hunting experience in future years.

An emerging issue, that will become more apparent as we approach objective, is maintaining the high level of opportunity for residents and non-residents, and maintaining bull ratios at acceptable levels. Maintaining hunter expectations and bull ratios is likely an impossibility as

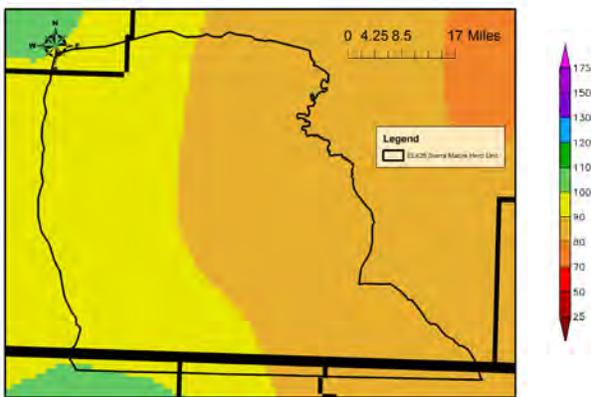
elk numbers are further reduced. Complaints from sportsmen will increase and hunter success statistics will worsen as we draw closer to the current objective.

## Weather

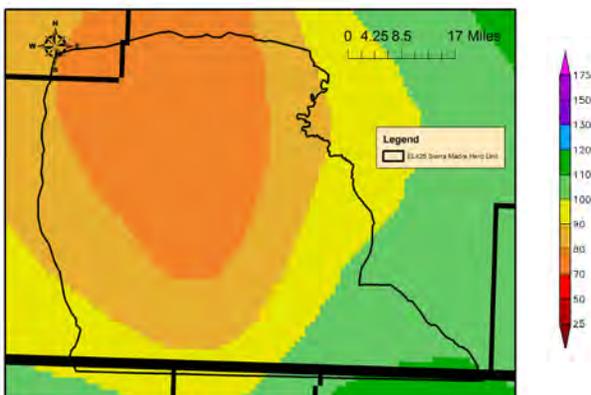
Weather conditions have been quite variable over the last several years. Overall the herd unit has seen higher than normal precipitation from 2013 to 2014 (Figure 1). This increased moisture should equate to better vegetation for 2015. The 2014-15 winter was an extremely mild winter, with low levels of snow fall and higher than average temperatures throughout winter. Although reduced winter moisture was a growing concern, spring moisture levels have more than made up for reduced snowfall. Mild winter temperatures will have a positive impact on insect abundance, as well, and we can expect to see additional insect damage to forested habitats.

Figure 1. A) Percent of normal precipitation for the herd unit from January 2013 to December 2013, B) Percent of normal precipitation for the herd unit from January 2014 to December 2013.

A)



B)



## **Habitat**

Precipitation in 2014 and early 2015 have allowed for greatly improved habitat conditions. Increased precipitation in the early fall months of 2014 induced a late growth opportunity for most vegetation in the herd unit, providing additional forage opportunities and increased animal condition prior to winter. An early warming trend following the 2014-15 winter, coupled with consistent moisture through the spring months, has resulted in an early green up and continued green up through this day. Some areas in the herd unit have received more precipitation than seen in many years, resulting in some of the best habitat conditions observed in many years across the herd unit.

## **Field Data**

In March 2015 we conducted an extensive helicopter survey (24 hours) in the herd unit, collecting classification and distribution data. During those surveys we counted nearly 6,000 elk and coverage of the herd unit was increased when compared to previous survey attempts (Appendix A). Calf ratios, on average, have been higher over the last 3 years, while the population model predicts population levels have decreased during that same period. This is consistent with field observations and hunter comments. Calf ratios are expected to increase as elk numbers are reduced below carrying capacity. Dramatically increased antlerless elk harvest also tends to artificially increase cow:calf ratios, as more cows are harvested.

Historically this herd has had low bull ratios and low bull quality due to heavy hunting pressure on bulls. However, with the recent focus on increased cow harvest and any elk seasons we are seeing an increase in branch antlered bull ratios (10 year average during “antlered elk” general seasons = 9; average following implementation of “any elk” general seasons = 13). This is most likely a combination of artificial inflation due to increased antlerless harvest, and actual increases in the number of bulls that survive the season due to hunter selection of an antlerless elk.

Among the general hunt areas in this herd (which support the vast majority of hunters and harvest), there remains a divergence in data between hunt area 21 (west side of Sierra Madres) and areas 13 and 15 (east side) regarding harvest data, habitat type and condition, and classification survey results. Traditionally, hunt area 21 has contributed ~60% of the total harvest for the herd unit, which drives harvest data for the herd unit. Hunt areas 13 and 15 tend to run 10%-15% lower in harvest success rates when compared to hunt area 21. Additionally, classification data for elk in hunt areas 13 and 15 have shown much lower total bull ratios over the last 3 years (Areas 13 and 15 3-year average = 14; Area 21 3-year average = 29) which has led to the implementation of a spikes excluded season in 2015. This should result in a boost to total bull ratios in future years due to protection of the yearling bull cohort (the largest in the herd unit) in these areas. Removal of this antler point restriction should occur as ratios improve.

## **Harvest Data**

The SMEH continues to receive some of the highest hunter numbers and harvest in Wyoming. Over the past 5 years, 28,000+ hunters have harvested an excess of 12,000 elk in the SMEH. The trend in hunters and harvest has been upward in recent years due to liberalized seasons. The 2014 hunting season resulted in a new high for hunter participation for the herd unit (6,192 hunters), but resulted in a slightly decreased elk harvest. This season was one of the warmest on

record with an opening day high temperature at the Battle Mountain weather station of 67° F, and an average high temperature for the entire general season of 61° F. Warm weather conditions result in poor elk hunting, and coupled with fewer elk, negatively impacted total harvest, hunter success (down from 45% to 40%), and increased hunter effort (from 15 days per elk harvested in 2013, to 19 days in 2014). The decrease in success, increased effort, warm weather conditions, and higher hunter numbers had a negative impact on hunter satisfaction (combined “very satisfied” or “satisfied”) in the herd unit, with satisfaction decreasing from 72% in 2013 to 65% in 2014. We can expect hunter satisfaction to continue to decline as elk numbers are reduced to reach the herd unit objective.

## **Population**

The current post-season model estimate for the SMEH indicates we remain above the current objective of 5,000, at around 9,000 elk, with a downward trend since 2009. The TSF, CA, MSC model was selected due to a lower AICc value, indicating best model fit. Additionally, this model tracks observed bull ratios better than other model options. An independent estimate of the population was created from a sightability flight conducted in March 2013 (WGFD JCR 2012), but results of this trial survey are of limited value due to flight budget shortfalls, elk distribution issues, and the resulting exceptionally wide confidence intervals. The spreadsheet estimate is higher than the estimate from the sightability flights in 2013, but again the results should be viewed with caution. We believe the current model can be considered “good” based on field observations, 2015 classification flights, and harvest statistics, and presents a reasonable estimate of population size and trend.

## **Management Summary**

Despite the discrepancies between model estimates, total number of elk classified and local personnel sense of population size, all indications are that elk numbers have decreased in this herd unit, but remain above the current objective. Overall, the 2015 season is designed to continue to reduce elk numbers toward the established objective.

<b>INPUT</b>	
Species:	Elk
Biologist:	Tony Mong
Herd Unit & No.:	EL425 Sierra Madre
Model date:	03/03/15

<b>MODELS SUMMARY</b>		Fit	Relative AICc	Notes
CF,CA	Constant Juvenile & Adult Survival	249	258	<input type="checkbox"/> CF,CA Model
SCF,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	210	219	<input type="checkbox"/> SCF,SCA Mo
TSF,CA	Time-Specific Juvenile & Constant Adult Survival	406	492	<input type="checkbox"/> TSJ,CA Model
TSF,CA,MSC	Time-Specific Juv, Constant Adult Survival, Male survival coefficient	51	185	<input type="checkbox"/> TSJ,CA,MSC Model

Year	Posthunt Population Est.		Trend Count	Population Estimates from Top Model				Objective				
	Field Est	Field SE		Predicted Prehunt Population Total	Juveniles	Females	Predicted Posthunt Population Total		Juveniles	Females		
1993				2883	2087	7032	12002	2775	1220	6406	10402	4200
1994				3109	2475	7394	12978	2979	1135	6838	10952	4200
1995				3442	1970	7378	12790	3343	1071	6835	11249	4200
1996				3298	2024	7490	12812	3188	1525	6829	11542	4200
1997				2937	2402	7433	12772	2831	1237	6705	10773	4200
1998				3057	2476	7662	13196	2987	1578	6883	11448	4200
1999				3160	2665	7697	13522	2927	1506	6817	11249	4200
2000				3006	2554	7590	13150	2832	1517	6561	10909	4200
2001				3001	2650	7433	13084	2827	1356	6597	10780	4200
2002				3191	2629	7599	13420	2937	1514	6553	11004	4200
2003				3167	2831	7610	13607	3017	1600	6743	11360	4200
2004				3131	2890	7768	13789	3051	1520	7163	11733	4200
2005				3622	2890	8242	14754	3471	1794	7457	12722	4200
2006				3443	2904	8276	14623	3230	1825	7523	12579	4200
2007				3251	3200	8603	15054	3119	2038	7952	13109	4200
2008				2811	2869	8477	14156	2721	1959	7926	12605	4200
2009				3190	3150	8809	15149	3079	2087	8226	13392	4200
2010				2901	3307	9128	15337	2644	2323	7739	12706	4200
2011				2625	3252	8389	14266	2415	2254	7276	11944	4200
2012	7900	1225		2829	3284	8047	14160	2506	2049	6679	11234	4200
2013				2960	3133	7525	13618	2735	1895	6264	10893	5000
2014				2149	2640	6783	11572	1932	1485	5433	8850	5000
2015				2043	2326	6070	10439	1826	896	5135	7857	5000

### Survival and Initial Population Estimates

Year	Winter Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.95		0.95	
1994	0.60		0.95	
1995	0.60		0.95	
1996	0.60		0.95	
1997	0.92		0.95	
1998	0.78		0.95	
1999	0.77		0.95	
2000	0.86		0.95	
2001	0.95		0.95	
2002	0.95		0.95	
2003	0.91		0.95	
2004	0.95		0.95	
2005	0.69		0.95	
2006	0.91		0.95	
2007	0.60		0.95	
2008	0.95		0.95	
2009	0.86		0.95	
2010	0.79		0.95	
2011	0.95		0.95	
2012	0.95		0.95	
2013	0.62		0.95	
2014	0.95		0.95	
2015	0.60		0.95	

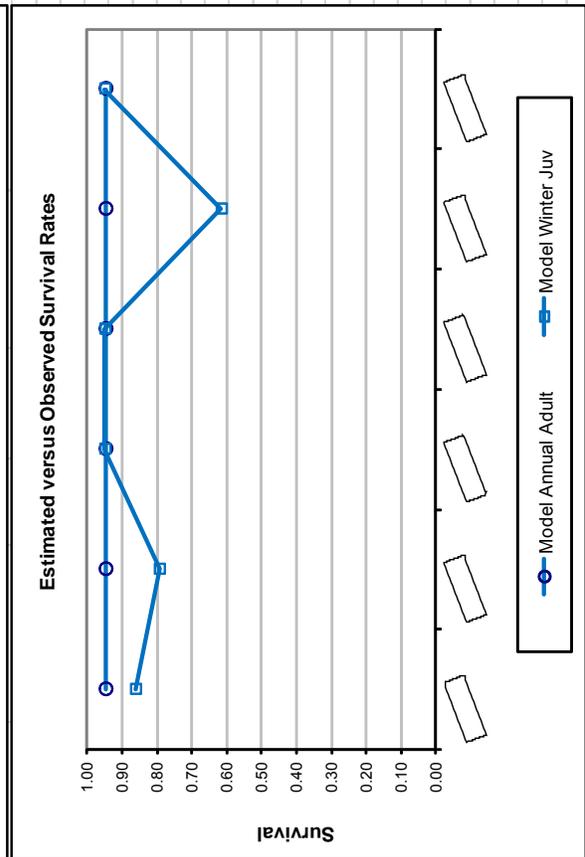
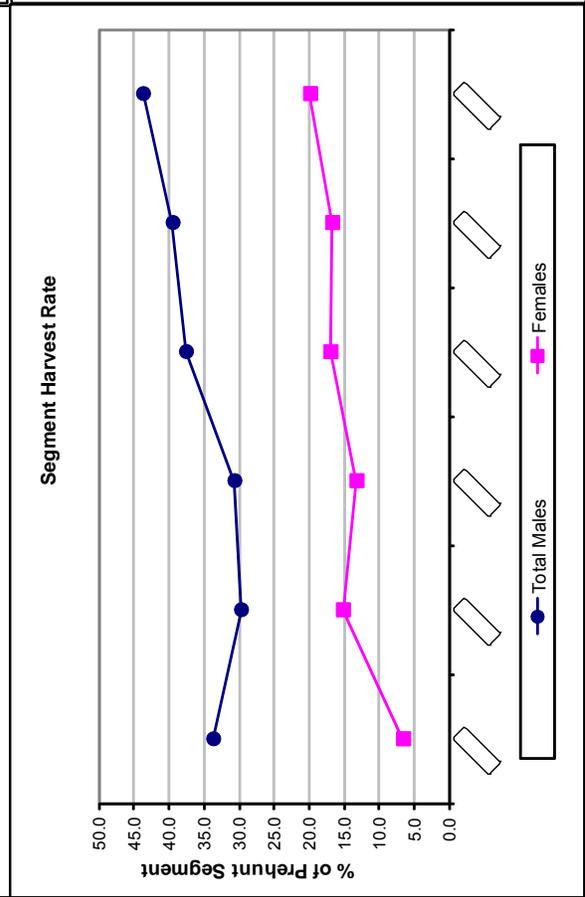
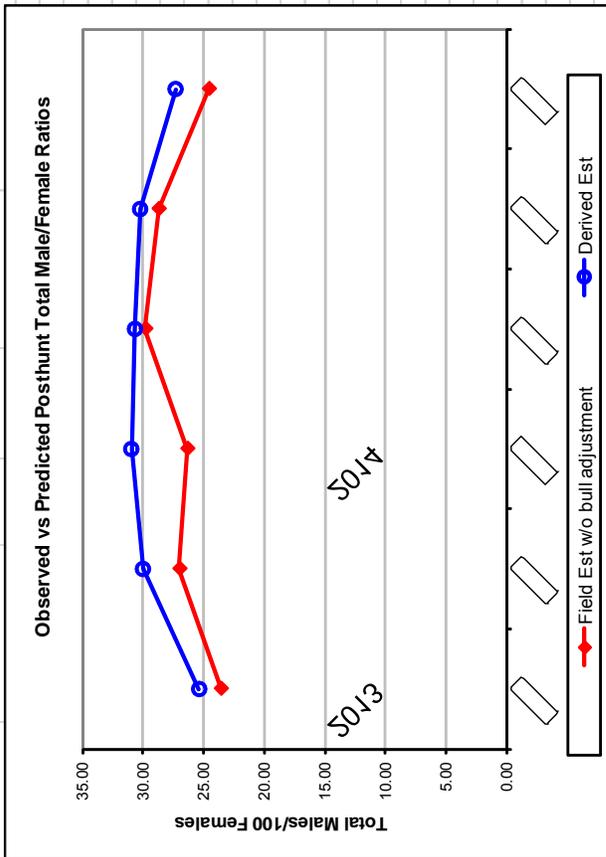
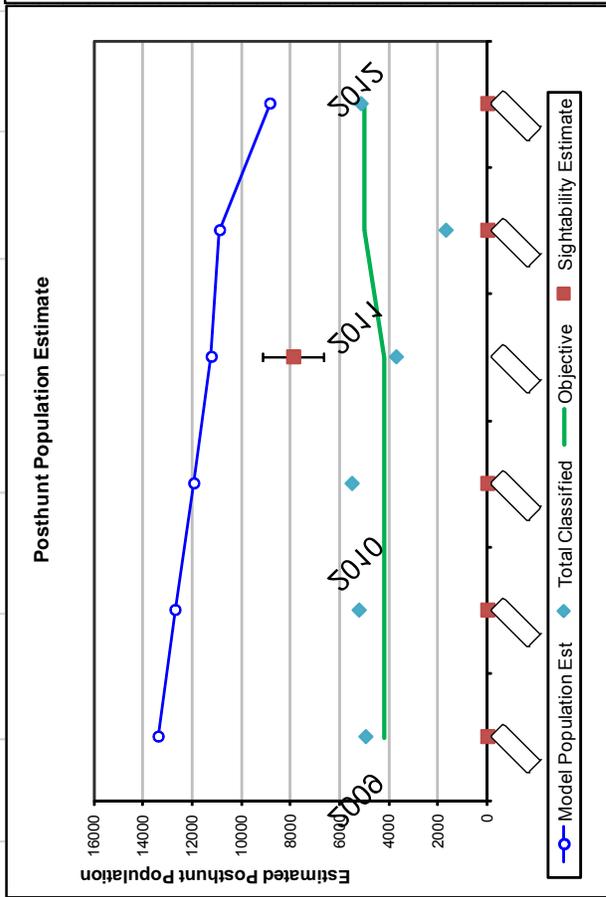
  

<b>Parameters:</b>	<b>Optim cells</b>
Male Survival Coefficient	1,000
Adult Survival =	0.948
Initial Total Male Pop/10,000 =	0.122
Initial Female Pop/10,000 =	0.641

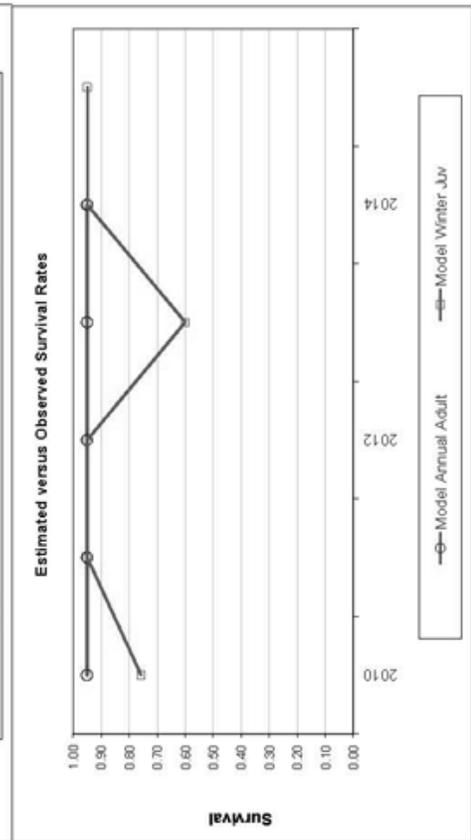
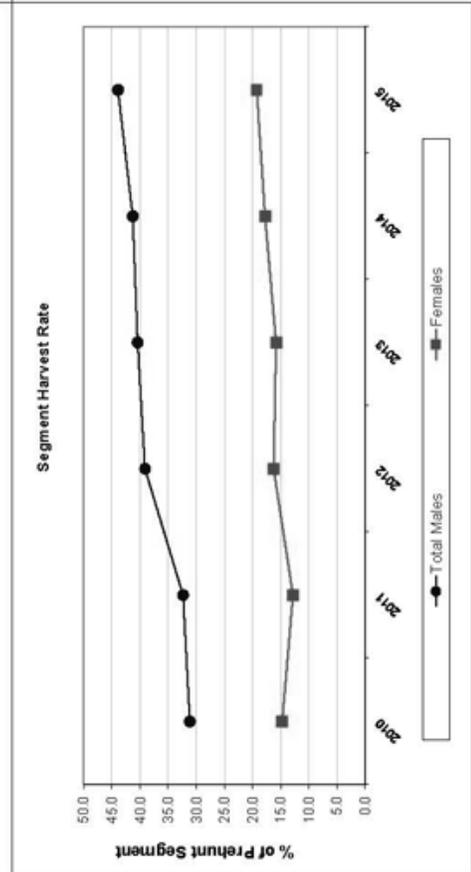
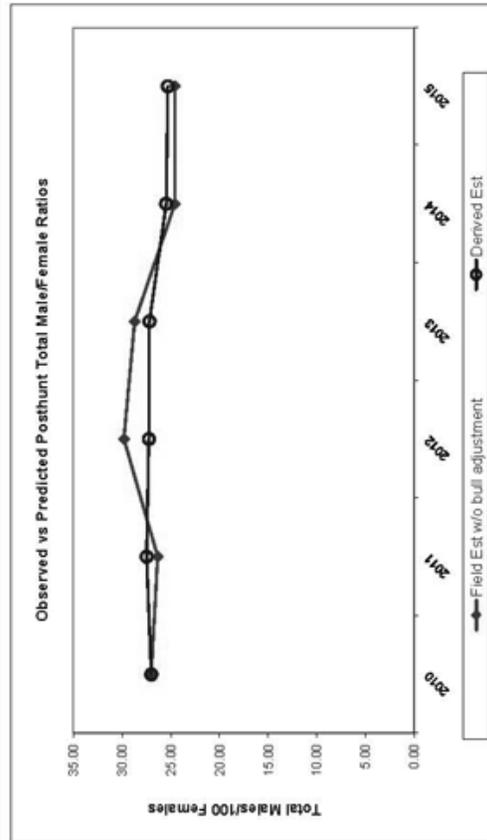
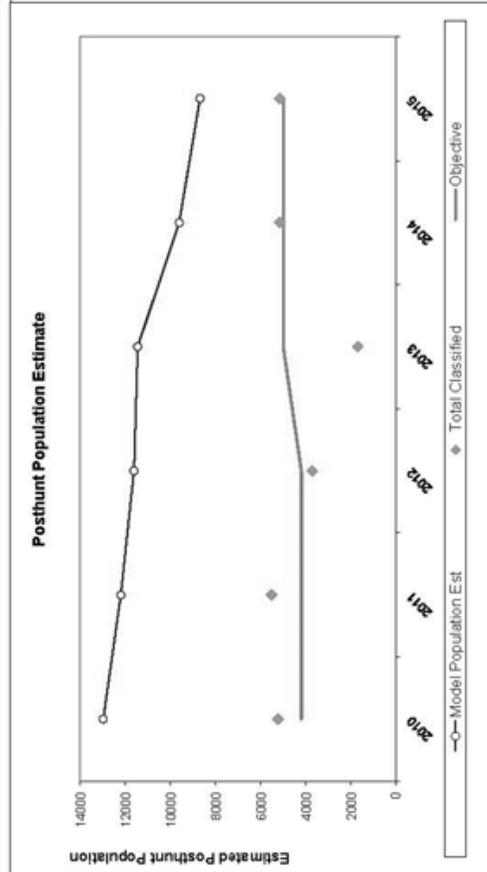
  

<b>MODEL ASSUMPTIONS</b>	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
<b>Total Bulls Adjustment Factor</b>	90%

FIGURES

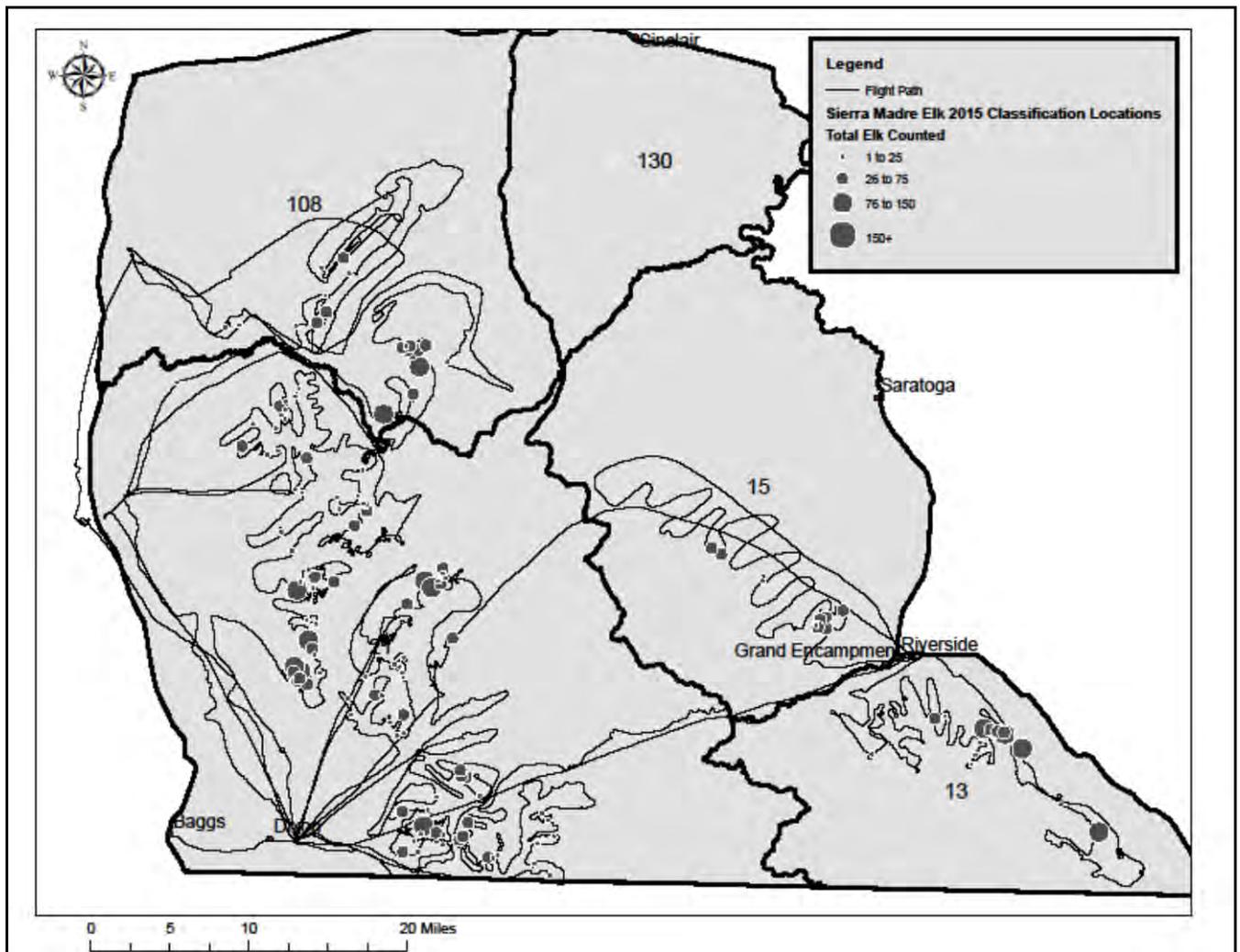


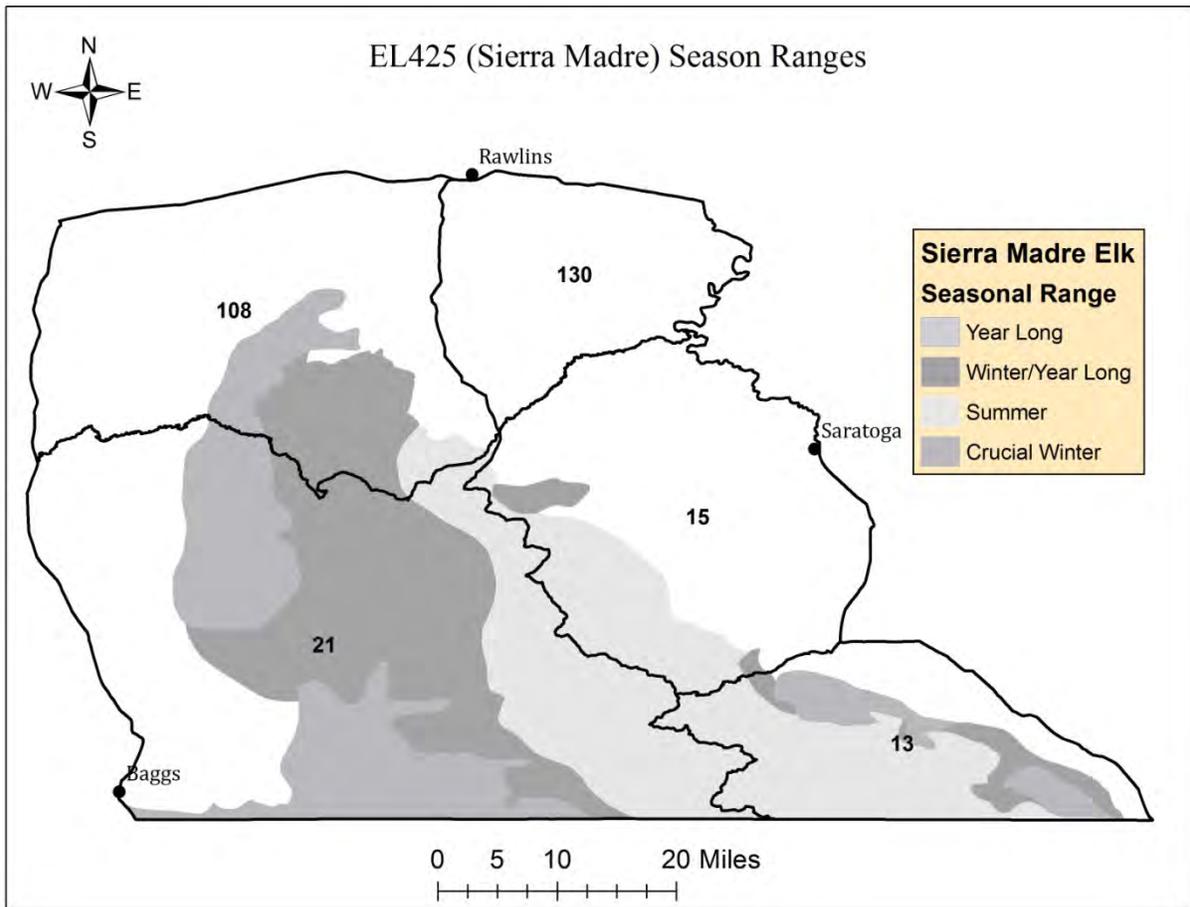
FIGURES



Comments:

Appendix A. 2015 Sierra Madre elk herd classification flight path and classification locations.





## 2014 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2014 - 5/31/2015

HERD: EL426 - STEAMBOAT

HUNT AREAS: 100

PREPARED BY: PATRICK BURKE

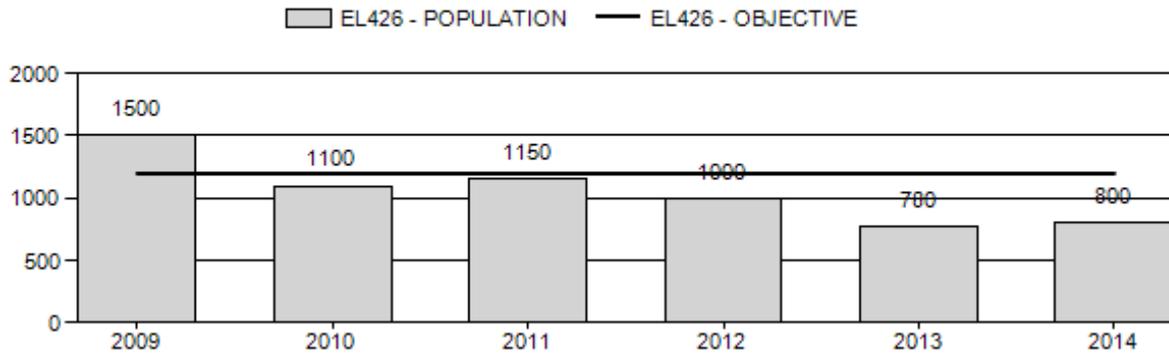
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	1,106	800	800
Harvest:	328	211	140
Hunters:	398	245	150
Hunter Success:	82%	86%	93%
Active Licenses:	403	249	150
Active License Success:	81%	85%	93%
Recreation Days:	1,709	1,055	1,000
Days Per Animal:	5.2	5.0	7.1
Males per 100 Females	58	0	
Juveniles per 100 Females	40	0	

Population Objective ( $\pm 20\%$ ) :	1200 (960 - 1440)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-33.3%
Number of years population has been + or - objective in recent trend:	4
Model Date:	02/11/2015

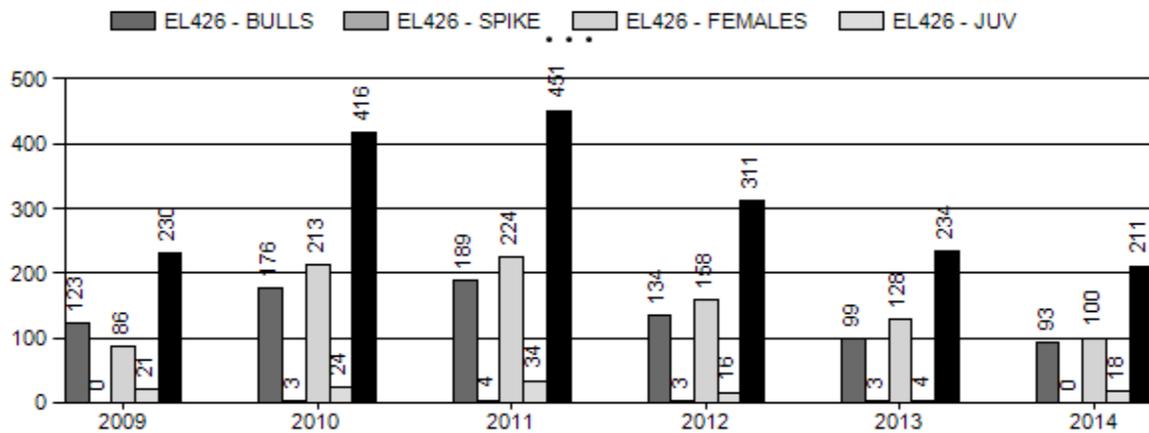
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	11%	11%
Males $\geq 1$ year old:	41%	41%
Juveniles ( $< 1$ year old):	0%	0%
Total:	17%	17%
Proposed change in post-season population:	0%	0%

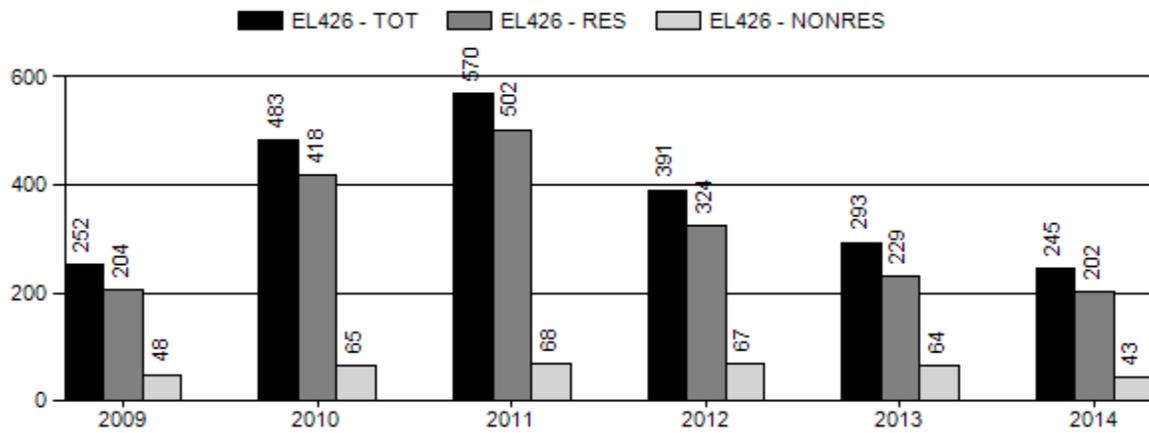
## Population Size - Postseason



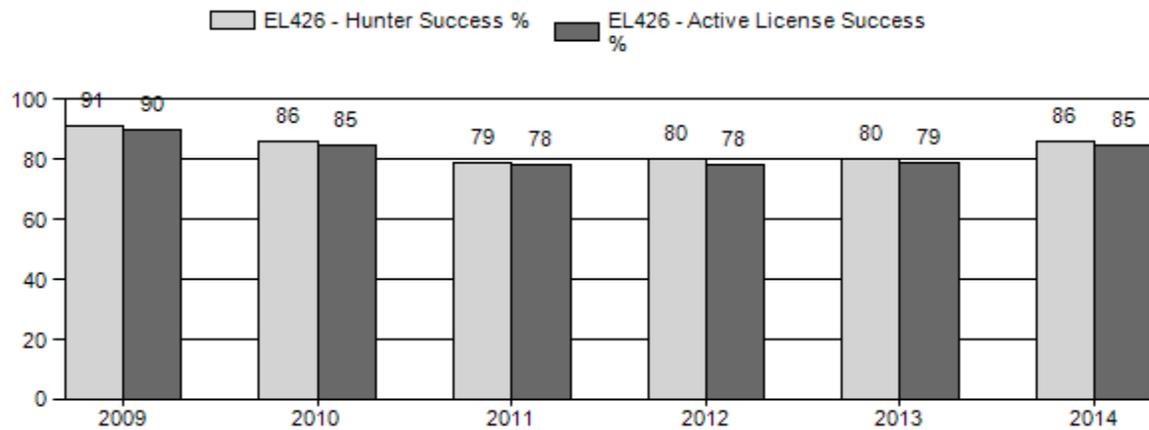
# Harvest



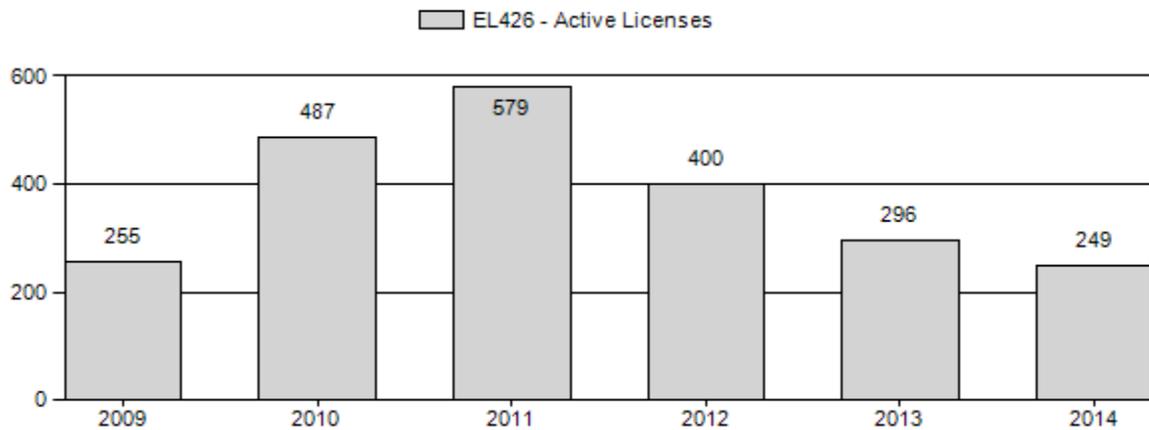
# Number of Hunters



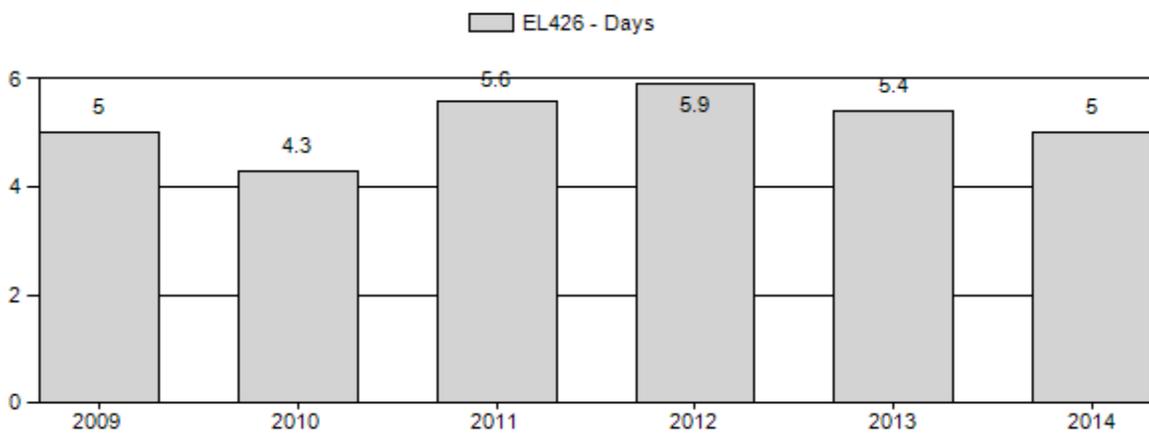
# Harvest Success



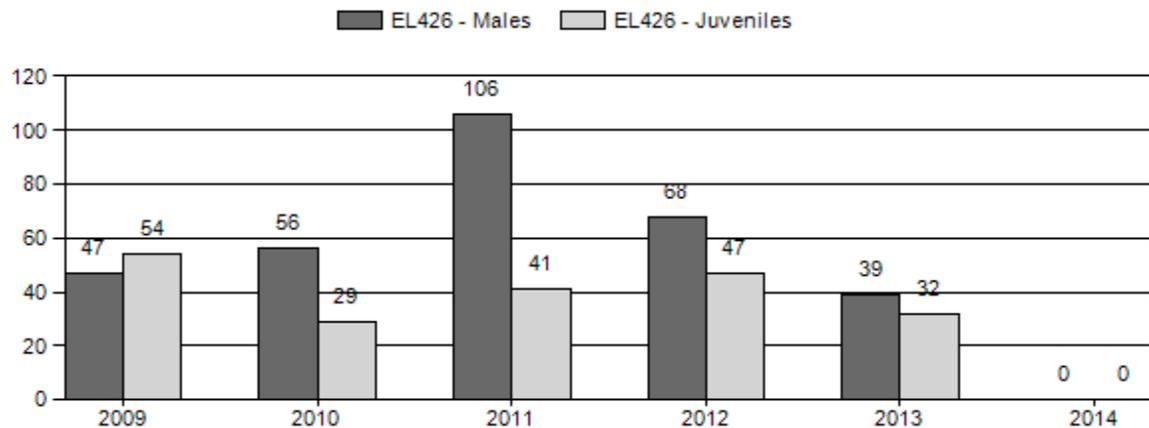
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



## 2009 - 2014 Postseason Classification Summary

for Elk Herd EL426 - STEAMBOAT

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	1,500	78	158	236	23%	504	50%	274	27%	1,014	519	15	31	47	± 0	54	± 0	37
2010	1,100	168	243	411	30%	739	54%	217	16%	1,367	657	23	33	56	± 0	29	± 0	19
2011	1,150	45	131	176	43%	166	40%	68	17%	410	505	27	79	106	± 12	41	± 6	20
2012	1,000	102	171	273	32%	403	47%	189	22%	865	485	25	42	68	± 3	47	± 2	28
2013	780	34	76	110	23%	280	58%	90	19%	480	432	12	27	39	± 4	32	± 3	23
2014	800	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

**2015 HUNTING SEASONS  
STEAMBOAT ELK HERD (EL426)**

Hunt Area	Type	SEASON DATES		Quota	Limitations
		Opens	Closes		
100	1	Oct. 15	Oct. 31	75	Limited quota; antlered elk
	4	Oct. 15	Oct. 31	25	Limited quota; antlerless elk
	7	Oct. 1	Oct. 31	50	Limited quota; cow or calf elk valid in that portion of Area 100 east of U.S. Highway 191, south of Sweetwater County Road 17 and Sweetwater County Road 15 and west of Sweetwater County Road 19
Archery		Sept. 1	Sept. 30		Refer to license type and limitations in Section 3.

Hunt Area	Type	Quota change from 2014
100	1	-25
	4	-25
	6	-50
<b>Herd Unit Total</b>	<b>1</b>	<b>-25</b>
	<b>4</b>	<b>-25</b>
	<b>6</b>	<b>-50</b>

## **Management Evaluation**

**Current Management Objective:** 1,200

**Management Strategy:** Special

**2014 Postseason Population Estimate:** ~800

**2015 Proposed Postseason Population Estimate:** ~800

The population objective for the Steamboat elk herd of 1,200 elk post-season was set in 2002 and was reviewed in 2014, when no changes were made. This special management herd has been above objective for much of its history with the population probably peaking around the year 2000. Since then increased harvest levels and decreased calf ratios have caused the population to decline to the point that estimates for the last several years have placed this herd 33% below its population objective.

## **Herd Unit Issues**

The 2014 post-season modeled population estimate for the Steamboat elk herd is approximately 800 elk with a declining trend. During the past several years, post-season classifications have indicated that a large proportion of the post-season bull population is made up of yearling bulls. Some years, the yearling bull segment of the population makes up as much as 40% of the total bull population. This has caused some concern about how much harvest pressure is being applied to the older age-class bulls of this herd in the name of bringing down total bull to cow ratios. This continued high proportion of yearlings in the post-hunt population can probably be explained by the open nature of the area this herd occupies and a preference for harvesting larger branch antlered bulls by the hunting public. This can be evidenced by the fact that no spike bulls were harvested in this herd unit in 2014. If this trend is allowed to continue, the size class of harvested bulls will be significantly reduced to a level that the hunting public will find simply unacceptable.

## **Weather**

The summers of 2012 and 2013 were extremely dry with little summer precipitation, especially the summer of 2012. The summer of 2014 saw substantially better moisture in most of Wyoming, however the portion of southwest Wyoming inhabited by the Steamboat elk herd did not receive as much increased moisture as the rest of the state, although it was better than what was received during the previous two years. Three summers in a row of less than desired precipitation certainly had a negative impact on the vegetation in the area, but due to the hardy nature of elk and the relatively low densities of elk in the herd unit, the drought conditions will probably not have any population level impacts on this herd. So far the 2014-2015 winter has been very mild with little precipitation. Hopefully, 2015 will see some spring moisture that will lead to better plant growth than has been seen in recent years.

## **Habitat**

No habitat transects targeting elk habitat were conducted within the Steamboat herd unit since the Green River Region lacks a terrestrial habitat biologist. However, the last several summers have seen limited precipitation during the growing season which probably resulted in limited plant growth. The drought conditions during the 2012 and 2013 summer and to a lesser extent 2014, while not likely to have any population level impacts on the Steamboat elk herd, will certainly have negative consequences for habitat conditions since little plant growth has occurred in recent years.

## **Field Data**

At the time of this proposal, there are no post-season classification data for the Steamboat elk herd. Three year averages of population statistics were used to create the 2014 model. Those average values are 40 calves per 100 cows and 51 total bulls per 100 cows.

## **Harvest Data**

Harvest statistics for the Steamboat herd from the 2014 hunting season are generally in line with normal values for this herd. The overall harvest success rate for the herd was 88% and the days per animal harvested was 5 days per animal harvested. Both statistics are in the normal range for this herd. Due to the open nature of the country that this herd inhabits, harvest success rates and days per harvest will certainly always remain fairly constant for this herd. Since this herd lives only in open sagebrush habitat largely on public land, this population exhibits harvest statistics more similar to a pronghorn population than a typical Wyoming elk herd.

During the 2014 hunting season, Type 1 license holders in HA100 enjoyed a 92% success rate harvesting a total of 95 adult bulls and no spike bulls. The Type 4 license holders had 81% success, harvesting 36 cows and 10 calves, while the Type 6 & 7 license holders had 78% and 94% success rates respectively. The total number of elk harvested in the herd unit in 2014 was 217 elk - 95 adult bulls, 0 spikes, 104 cows, and 18 calves.

Because of the special management status of the Steamboat elk herd, hunters who draw a Type 1 license are asked to voluntarily submit tooth samples from harvested bulls for cementum annuli analysis. Based on the 34 bull elk tooth samples submitted from the 2014 hunting season, the average age of harvested bulls was 5.9 years old. It should be noted that is a fairly small sample size of lab-aged teeth and therefore could be biased, which might explain the unexpectedly high average age of harvest bulls reported from the 2014 season. The 2014 average age of 5.9 compares to 5.7 years old in 2013, 4.9 years old in 2012, and 5.4 years old in 2011. Based on the teeth that were submitted for ageing, the oldest bull harvested in 2014 was one 9.5 year old bull. This compares with 10.5 in 2013, 7.5 in 2012, 9.5 in 2011, 10.5 in 2010, 12.5 in 2009, and 13.5 in 2008. This general decline in the oldest age class harvested can probably be attributed to an overall smaller population and to the increased bull harvest rates of the last several years. The model for this herd is estimating that over 40% of the male segment of the population is being harvested annually, with most of that harvest being directed towards the older aged males. One 13.5 year old cow harvested on a Type 7 license was also submitted for tooth age analysis.

## **Population**

The 2014 post-season population estimate for this herd is a little over 800 elk with a slightly declining trend. This estimate is based on average herd unit statistics however for seven of the 22 years in the model and could change slightly if better data become available in the future. The season proposal for 2015 should slow this decline to an almost stable population, but further reductions in harvest will be required to allow this herd to increase back towards its population objective.

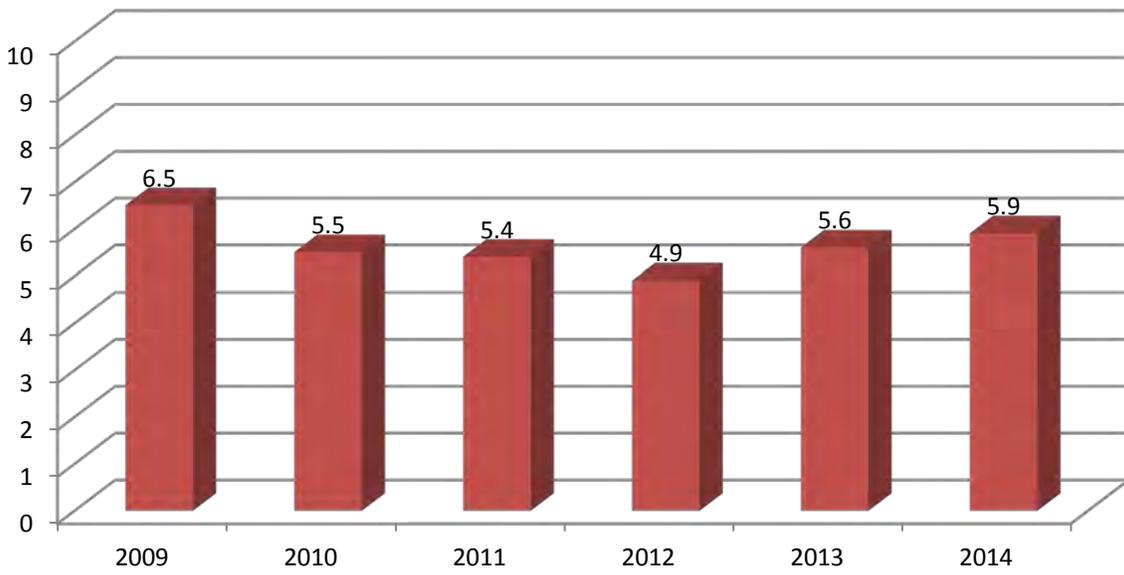
The population model for this herd tracks moderately well with observed data. The general post-season population estimate trend however does tracks reasonably well with trend count numbers with the exception of the outlier post-hunt population size point observed during a trend count flown in the severe winter of 2010. The model does have a hard time accommodating the high bull ratios that are sometimes observed during difficult data collection years in this population.

## **Management Summary**

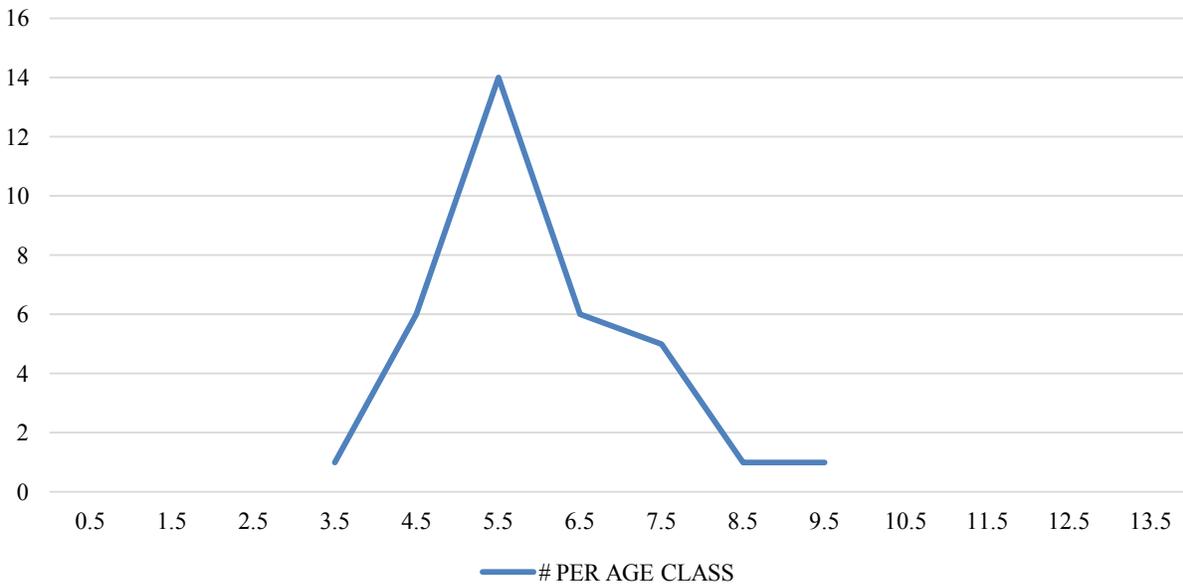
The 2015 season proposal includes decreases in the Type 1 and Type 4 licenses and a removal of the Type 6 license type. The decrease in the Type 1 and Type 4 licenses is being proposed because the current population model is estimating this herd as being under its population objective and the reduction is needed to stop the decline and stabilize the population. The removal of the Type 6 licenses is being proposed because of some hunt area boundary changes that will take effect in 2015. The Type 6 licenses were originally created to direct some cow harvest to the northeast corner of HA100 to make sure that elk from HA24 & HA25 could not use HA100 as a refuge from hunters in those areas. But starting in 2015, the portion of HA100 that was covered by the Type 6 licenses will be moved into areas 24 & 25, so the license type is no longer necessary.

It is anticipated that the proposed season for 2015 will result in the harvest of approximately 70 bulls, 50 cows and 10 sub-adult elk. The proposed seasons will also result in a projected 2015 post-hunt population of roughly 800 elk, which is still 33% below its population objective of 1,200 elk post-season.

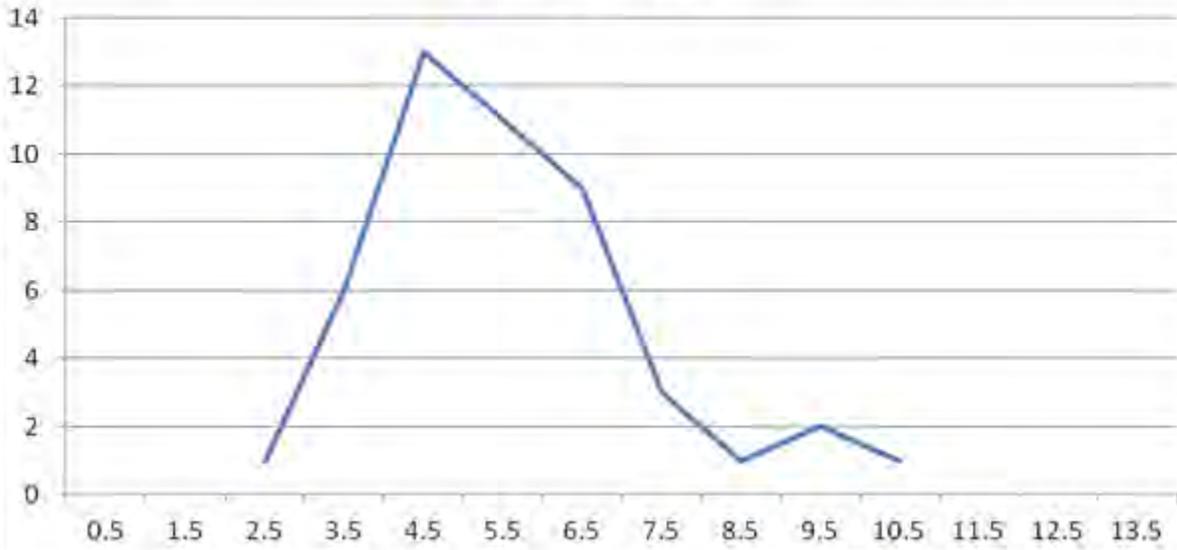
### Steamboat Elk Average Age of Harvested Bulls

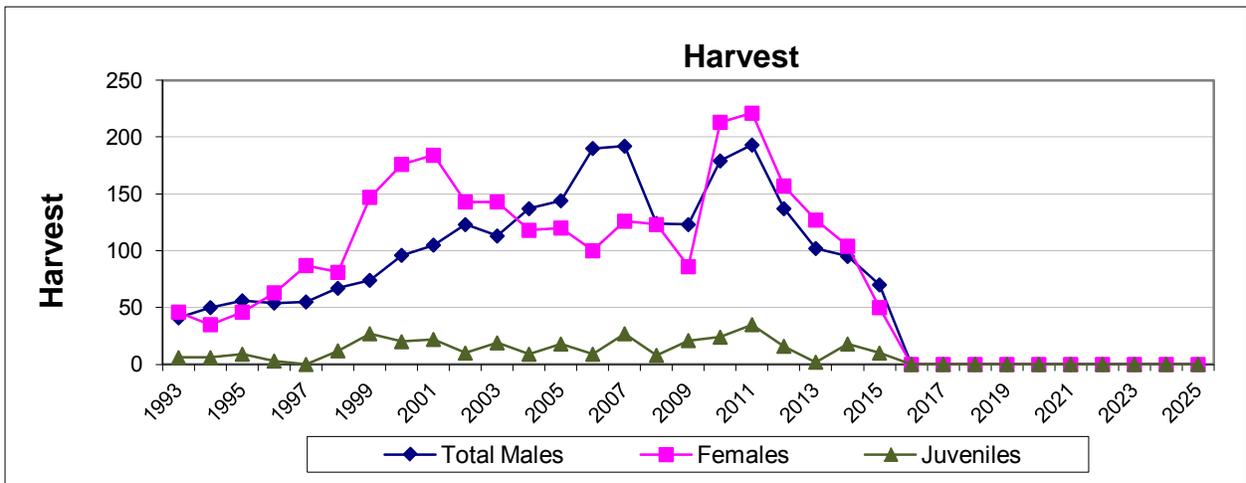
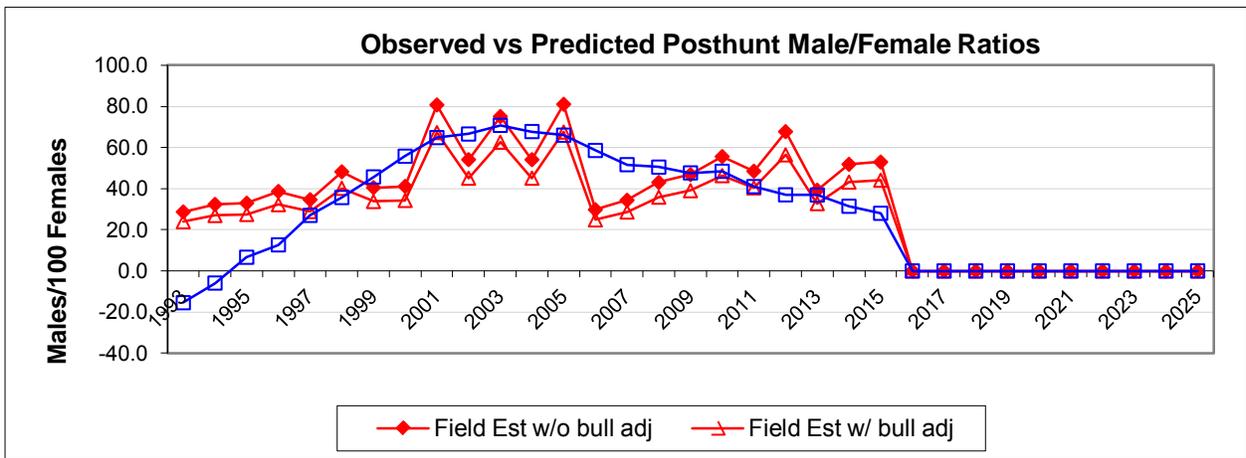
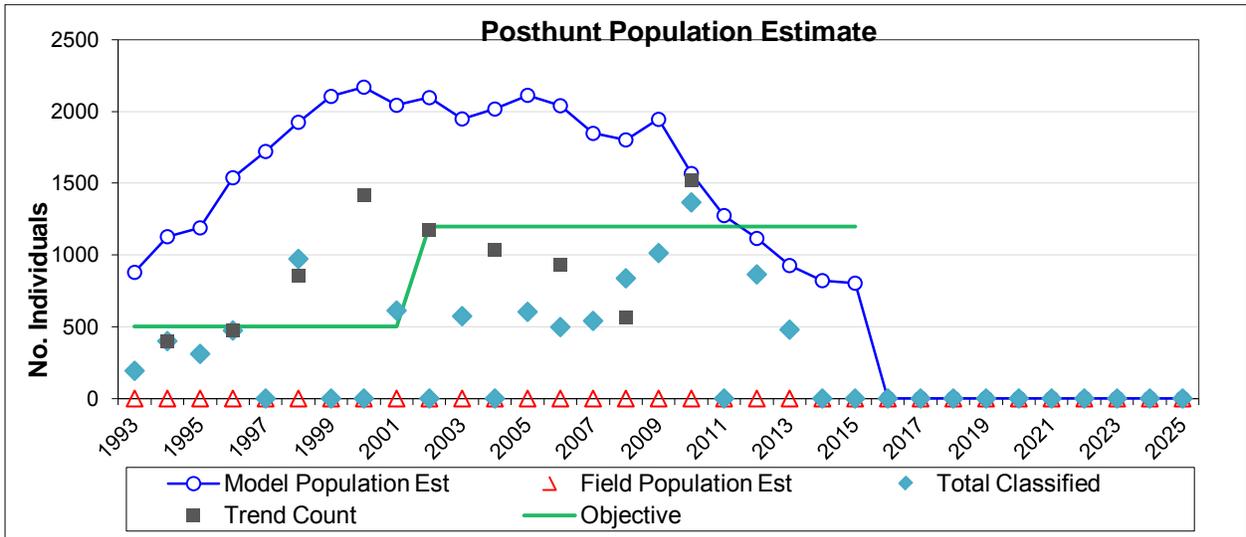


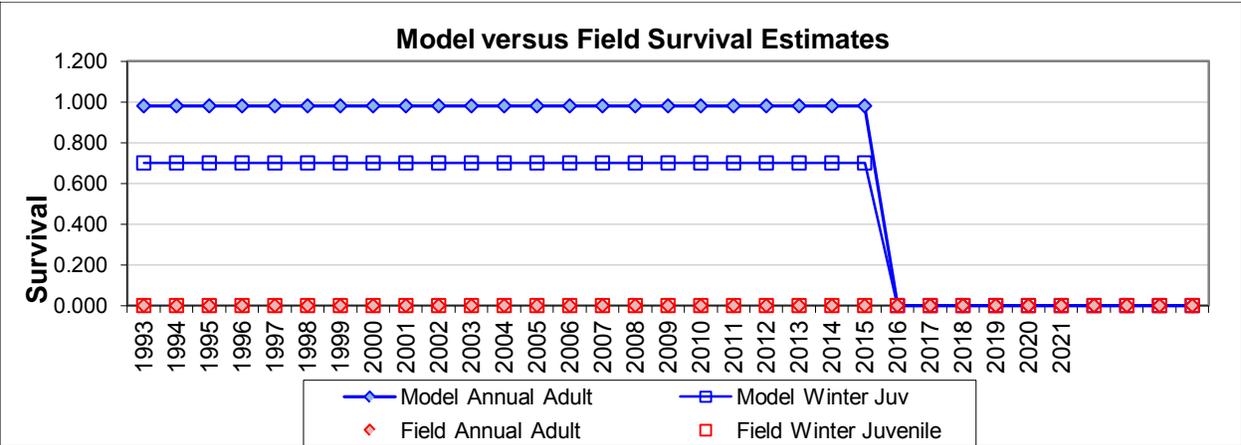
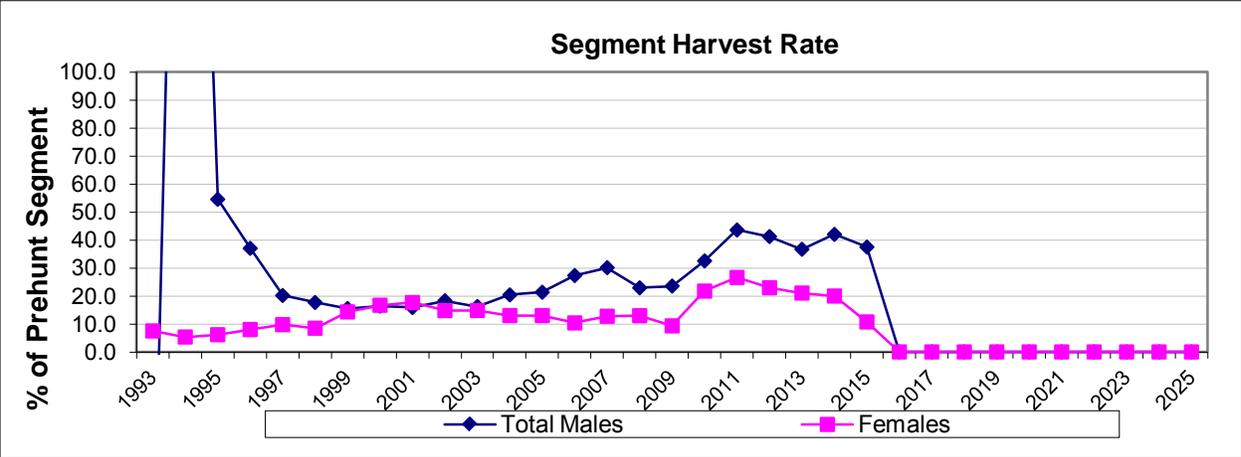
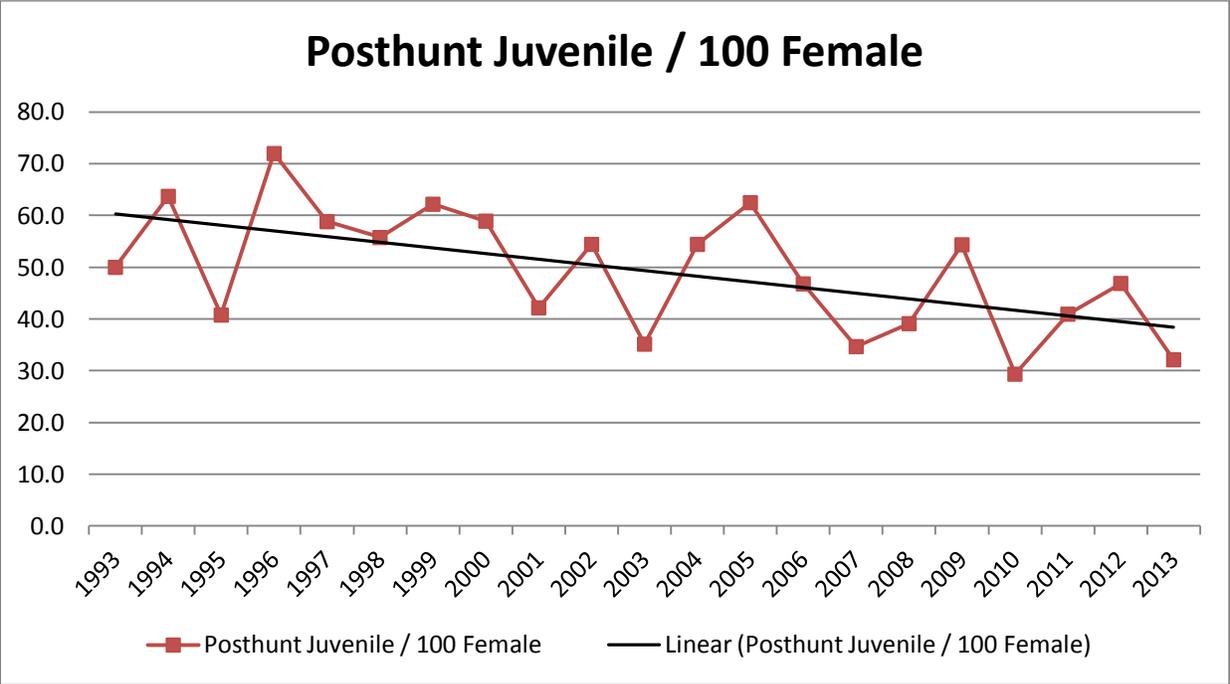
### 2014 STEAMBOAT ELK # BULLS HAVESTED PER AGE CLASS

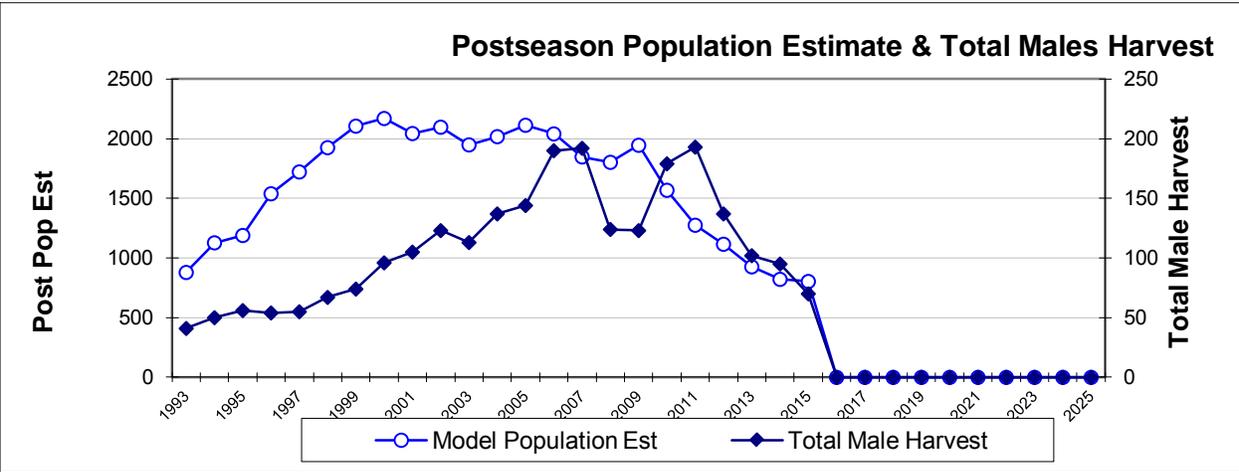


## 2013 STEAMBOAT ELK # HARVESTED PER AGE CLASS









<b>INPUT</b>	
Species:	Elk
Biologist:	Patrick Burke
Herd Unit & No.:	Steamboat EL426
Model date:	02/11/15

<b>MODELS SUMMARY</b>		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	361	370	<input checked="" type="checkbox"/> CJ, CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	200	209	<input type="checkbox"/> SCJ, SCA Model	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	287	375	<input checked="" type="checkbox"/> TSJ, CA Model	
TSJ,CA,MSC	Time-Specific Juv, Constant Adult Survival, Male survival coefficient	597	693	<input type="checkbox"/> TSJ, CA, MSC Model	

**Population Estimates from Top Model**

Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population			Total	Predicted Posthunt Population			Total	Objective
	Field Est	Field SE		Juveniles	Total Males	Females		Juveniles	Total Males	Females		
1993				334	-54	706	986	327	-101	653	879	500
1994				462	15	755	1232	455	-42	715	1128	500
1995				339	118	860	1317	329	54	807	1189	500
1996			474	603	168	906	1677	600	106	833	1539	500
1997				545	314	1027	1885	545	250	927	1722	500
1998			859	575	436	1099	2109	561	359	1006	1925	500
1999				661	548	1182	2391	630	463	1013	2106	500
2000			1415	619	674	1213	2506	596	564	1011	2170	500
2001				442	761	1199	2402	416	640	987	2044	500
2002			1172	526	773	1113	2414	516	632	949	2097	1200
2003				355	800	1111	2265	333	670	946	1949	1200
2004			1038	505	773	1044	2321	494	615	908	2018	1200
2005				599	776	1063	2438	578	610	925	2113	1200
2006			929	475	801	1109	2385	465	582	994	2041	1200
2007				375	733	1136	2245	344	512	992	1848	1200
2008			568	381	623	1092	2096	372	480	951	1803	1200
2009				548	601	1062	2210	523	459	963	1946	1200
2010			1524	287	633	1127	2047	259	427	882	1568	1200
2011				327	609	955	1792	287	287	701	1275	1200
2012				303	382	787	1472	285	225	607	1116	1200
2013				178	320	694	1192	176	202	548	927	1200
2014				212	260	599	1071	192	151	479	822	1200
2015				202	215	537	953	190	134	479	804	1200
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	0.70			0.98		
1994	0.70			0.98		
1995	0.70			0.98		
1996	0.70			0.98		
1997	0.70			0.98		
1998	0.70			0.98		
1999	0.70			0.98		
2000	0.70			0.98		
2001	0.70			0.98		
2002	0.70			0.98		
2003	0.70			0.98		
2004	0.70			0.98		
2005	0.70			0.98		
2006	0.70			0.98		
2007	0.70			0.98		
2008	0.70			0.98		
2009	0.70			0.98		
2010	0.70			0.98		
2011	0.70			0.98		
2012	0.70			0.98		
2013	0.70			0.98		
2014	0.70			0.98		
2015	0.70			0.98		
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

**Parameters:** **Optim cells**

Juvenile Survival = 0.700

Adult Survival = 0.980

Initial Total Male Pop/10,000 = -0.010

Initial Female Pop/10,000 = 0.065

**MODEL ASSUMPTIONS**

Sex Ratio (% Males) = 50%

Wounding Loss (total males) = 15%

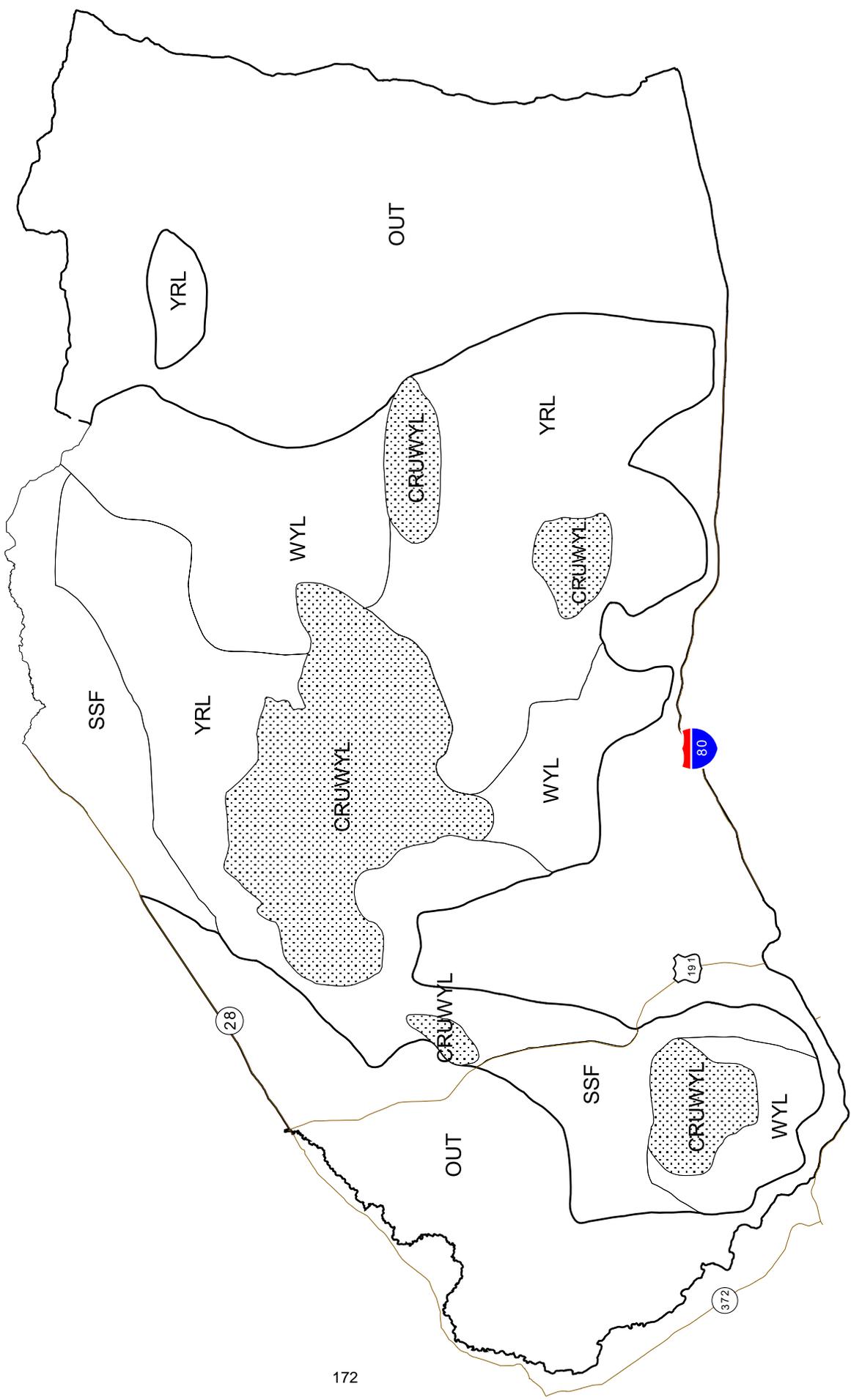
Wounding Loss (females) = 15%

Wounding Loss (juveniles) = 15%

**Total Bulls Adjustment Factor** = 120%

Year	Classification Counts							Harvest					Segment Harvest Rate (% of Prehunt Segment)	
	Juvenile/Female Ratio			Total Male/Female Ratio				Juv	Yrl males	2+ Males	Females	Total Harvest	Total Males	Females
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/ bull adj	Field Est w/o bull adj	Field SE							
1993		50.00	8.33	-15.46	23.92	28.70	5.85	6	7	34	46	93	-87.6	7.5
1994		63.73	7.15	-5.90	26.96	32.35	4.58	6	13	37	35	91	373.9	5.3
1995		40.78	5.66	6.66	27.47	32.96	4.95	9	12	44	46	111	54.5	6.2
1996		72.00	7.42	12.68	32.22	38.67	4.88	3	2	52	63	120	37.0	8.0
1997		58.84	6.74	27.01	28.88	34.66	4.80	0	0	55	87	142	20.2	9.7
1998		55.77	4.27	35.70	40.18	48.22	3.87	12	1	66	81	160	17.7	8.5
1999		62.20	6.14	45.72	33.76	40.51	4.52	27	2	72	147	248	15.5	14.3
2000		58.93	5.72	55.79	34.28	41.13	4.40	20	5	91	176	292	16.4	16.7
2001		42.18	4.67	64.85	67.27	80.73	7.28	22	2	103	184	311	15.9	17.7
2002		54.44	5.51	66.59	45.10	54.12	5.40	10	2	121	143	276	18.3	14.8
2003		35.16	4.17	70.81	62.58	75.09	6.94	19	2	111	143	275	16.2	14.8
2004		54.44	5.51	67.78	45.10	54.12	5.40	9	6	129	118	264	20.4	13.0
2005		62.50	6.40	66.02	67.54	81.05	7.69	18	2	142	120	282	21.3	13.0
2006		46.81	4.94	58.59	24.82	29.79	3.70	9	10	180	100	299	27.3	10.4
2007		34.69	3.82	51.68	28.65	34.38	3.80	27	0	192	126	345	30.1	12.8
2008		39.13	3.44	50.49	35.87	43.04	3.66	8	0	124	123	255	22.9	13.0
2009		54.37	4.08	47.68	39.02	46.83	3.69	21	0	123	86	230	23.6	9.3
2010		29.36	2.27	48.45	46.35	55.62	3.42	24	3	176	213	416	32.5	21.7
2011		40.95	3.26	41.01	40.41	48.49	3.59	35	4	189	221	449	43.6	26.6
2012		46.90	4.13	37.02	56.45	67.74	5.31	16	3	134	157	310	41.2	22.9
2013		32.14	3.89	36.92	32.74	39.29	4.42	2	3	99	127	231	36.7	21.0
2014		40.00	3.76	31.46	43.20	51.84	4.44	18	0	95	104	217	42.0	20.0
2015		39.68	3.93	28.03	44.13	52.96	4.72	10	0	70	50	130	37.5	10.7
2016														
2017														
2018														
2019														
2020														
2021														
2022														
2023														
2024														
2025														

ELK -- Steamboat  
Herd 426  
Hunt Area 100  
Revised 5/2004



## 2014 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2014 - 5/31/2015

HERD: EL428 - WEST GREEN RIVER

HUNT AREAS: 102-105

PREPARED BY: JEFF SHORT

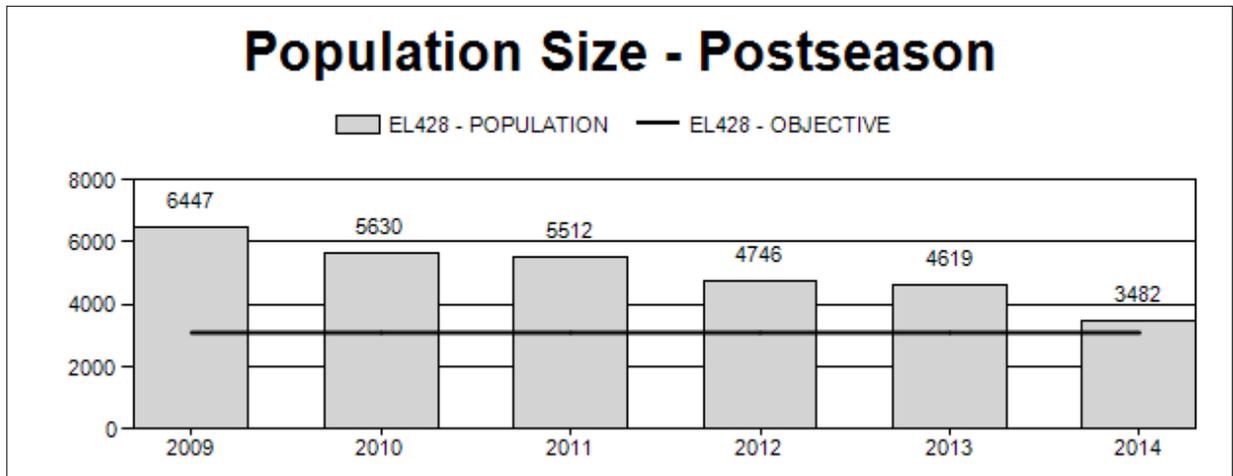
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	5,391	3,482	2,819
Harvest:	1,396	1,236	990
Hunters:	4,202	4,088	3,500
Hunter Success:	33%	30%	28 %
Active Licenses:	4,383	4,298	3,500
Active License Success:	32%	29%	28 %
Recreation Days:	30,168	31,091	27,000
Days Per Animal:	21.6	25.2	27.3
Males per 100 Females	34	0	
Juveniles per 100 Females	31	0	

Population Objective (± 20%) : 3100 (2480 - 3720)

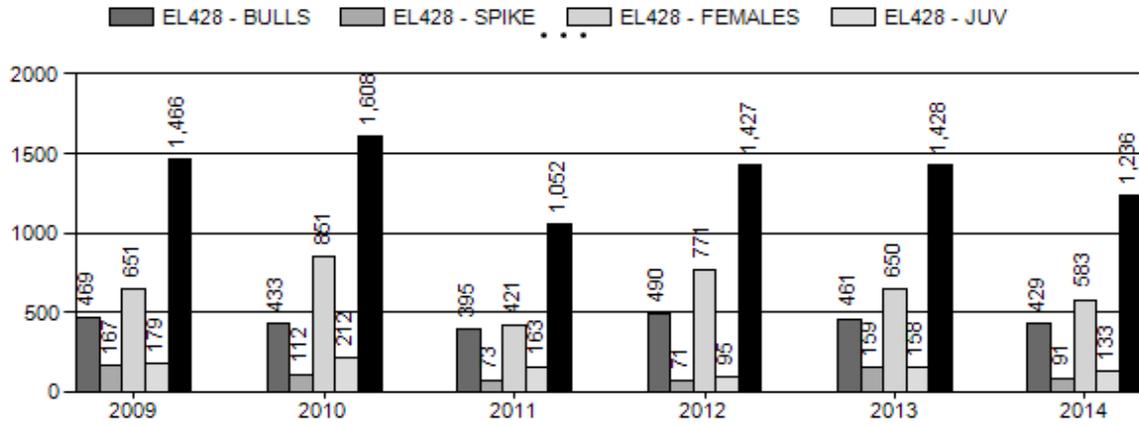
Management Strategy: Recreational  
 Percent population is above (+) or below (-) objective: 12%  
 Number of years population has been + or - objective in recent trend: 0  
 Model Date: 2/28/2015

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

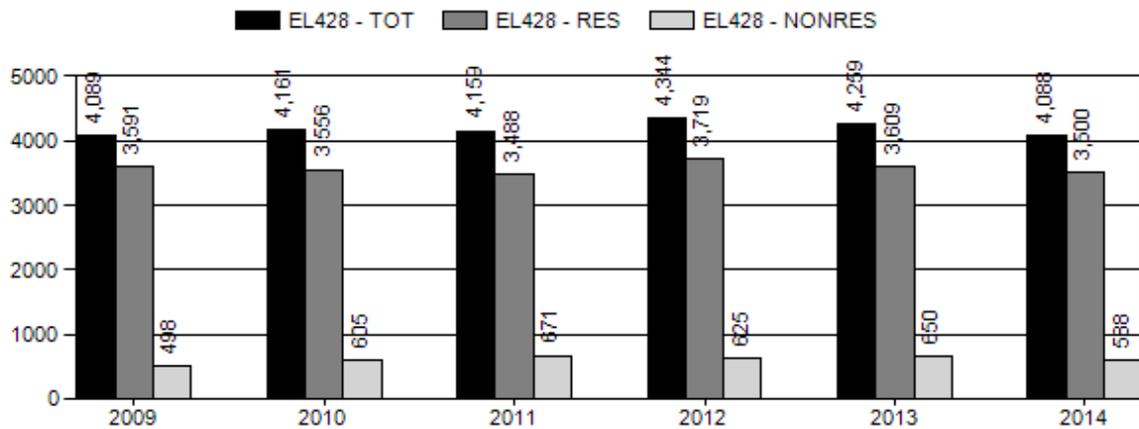
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	21.8%	20.3%
Males ≥ 1 year old:	54.3%	67.8%
Juveniles (< 1 year old):	15.7%	11.7%
Total:	25.5%	25.3%
Proposed change in post-season population:	-21.3%	-19.0%



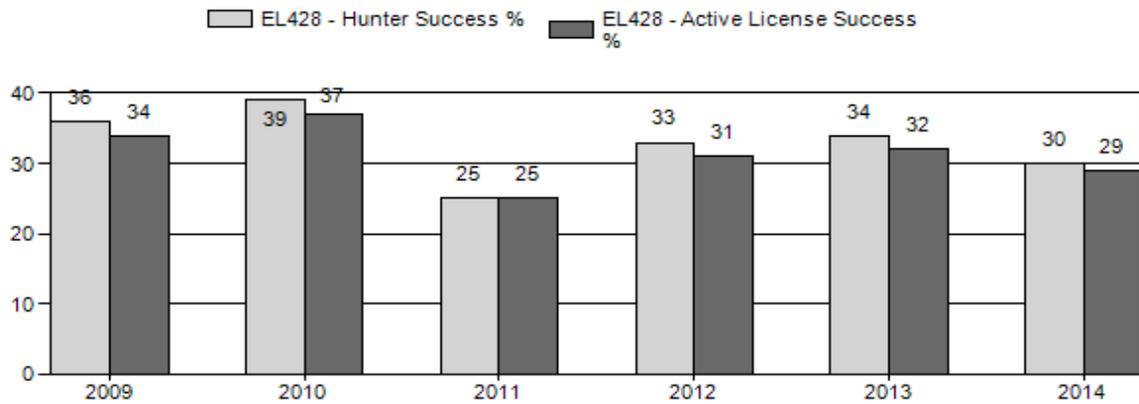
# Harvest



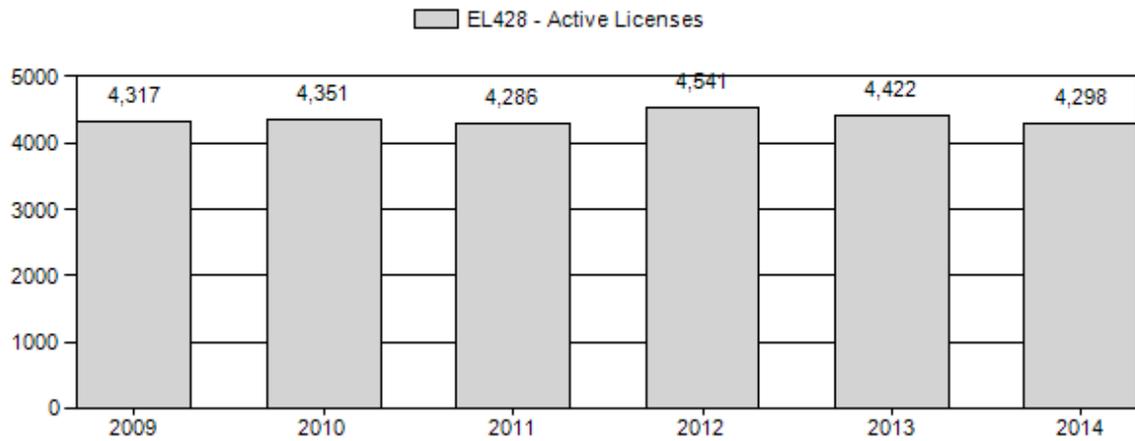
# Number of Hunters



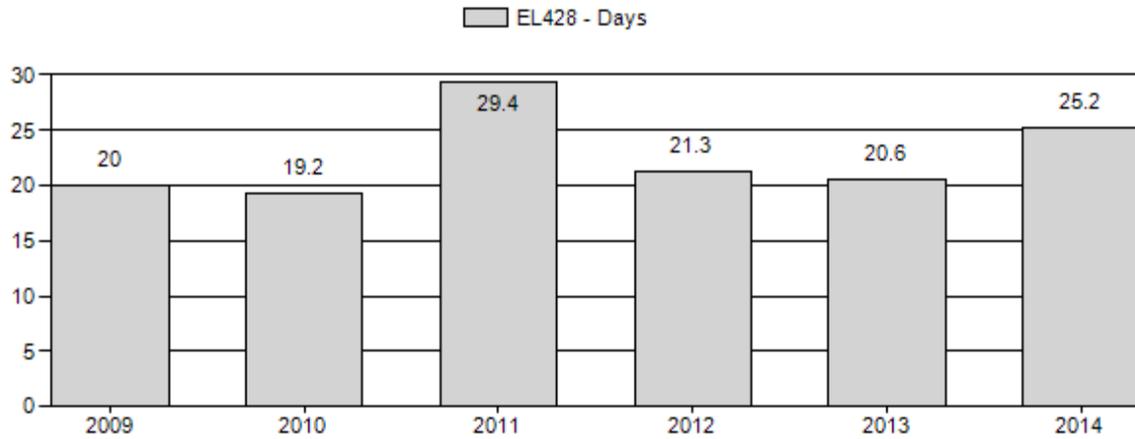
# Harvest Success



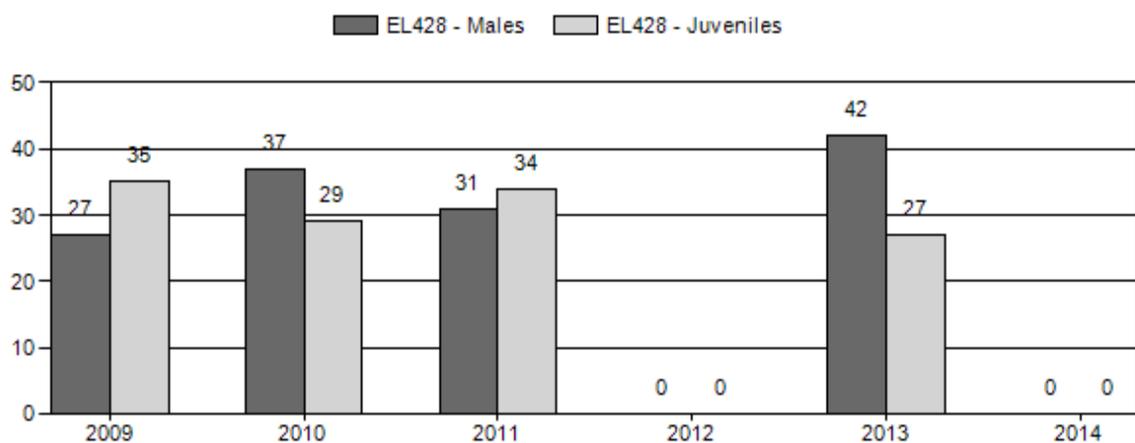
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



**2009 - 2014 Postseason Classification Summary**

for Elk Herd EL428 - WEST GREEN RIVER

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females			Young to			
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	6,447	286	242	528	17%	1,921	62%	672	22%	3,121	0	15	13	27	± 1	35	± 1	27
2010	5,630	265	264	529	22%	1,424	60%	409	17%	2,362	0	19	19	37	± 2	29	± 2	21
2011	5,512	385	474	859	19%	2,758	61%	929	20%	4,546	0	14	17	31	± 1	34	± 1	26
2012	4,746	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2013	4,619	440	510	950	25%	2,285	59%	627	16%	3,862	0	19	22	42	± 1	27	± 1	19
2014	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

**2015 HUNTING SEASONS**

**SPECIES : Elk**

**HERD UNIT : West Green River (428)**

**HUNT AREAS: 102, 103, 104, 105**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
102	6	Oct. 15	Oct. 24	100	General	Any elk
		Oct. 25	Oct. 31		General	Antlerless elk
		Oct. 15	Nov. 22		Limited quota	Cow or calf
		Dec. 5	Dec. 13			Unused Area 102 Type 6 licenses
103	6	Dec. 15	Jan. 31	25		Limited quota licenses; cow or calf
		Oct. 15	Oct. 24	150	General	Any elk
		Oct. 25	Nov. 15		General	Antlerless elk
		Oct. 15	Nov. 22		Limited quota	Cow or calf
Dec. 15	Jan. 31		Unused Area 103 Type 6 licenses			
104	6	Oct. 15	Oct. 24	400	General	license; any elk
		Oct. 25	Nov. 15		General	license; antlerless elk
		Oct. 15	Nov. 22		Limited quota	licenses; cow or calf
		Dec. 5	Dec. 13			Unused Area 104 Type 6 licenses
105	7	Dec. 15	Dec. 31	100	Limited quota	licenses; cow or calf
		Jan. 1	Jan. 31			Unused Area 104 Type 7 licenses valid west of U.S. Highway 30 and east of Lincoln County Road 207, or east of Rock Creek within the Twin Creek drainage.
105		Oct. 15	Oct. 31		General	Any elk
102-105	Archery	Sept. 1	Sept. 30			Refer to Section 3 of this chapter

Hunt Area	License Type	Quota change from 2014
102	6	-150
104	6	-300
<b>Herd Unit Total</b>	6	-450

### **Management Evaluation**

**Current Postseason Population Management Objective: 3,100**

**Management Strategy: Recreation**

**2014 Postseason Population Estimate: ~3,482**

**2015 Proposed Postseason Population Estimate: ~2,819**

### **Herd Unit Issues**

Energy development on crucial elk habitat is a looming issue for this herd. As an unfed elk herd in Western Wyoming, habitat integrity is of critical importance. Additionally, conflict with agriculture producers is a primary issue for this elk herd. Damage complaints typically occur during bad winters. Elk comingling with livestock during winter can be an issue in limited areas. Problems have typically been dealt with if the Department was notified. The area was recently added to the Brucellosis surveillance area. Even though the area has a very low brucellosis prevalence in elk this adds additional concern over elk and cattle comingling. Summer damage is rare. Significant efforts have been made by field personnel to alleviate problems. Perceived reduction in livestock forage due to elk grazing is an issue commonly brought up.

In the last four hunting seasons hunters commonly complained that elk numbers were down significantly and they were too low for their standards. However, we have still been over the set objective. This herd recently went through an objective review in 2012 and it was determined that the objective should remain at 3,100 mainly due to input from agriculture producers. Under our recent harvest strategies and attempts to get down to objective it appears that we have been successful and the population is now at or very near to the objective.

In recent years elk moving onto Fossil Butte National Monument prior to the season has increased, and is estimated to be 500 animals. Radio collar data indicates that a significant number of the marked animals moved back onto the Monument in early September. Additionally 100+ head of elk have stayed yearlong on Cokeville Meadows National Wildlife Refuge. Both the Monument and the Refuge have been closed to hunting. As the number of elk on the Monument and the refuge increased, it has become more difficult to manage this herd to objective while still providing huntable elk for sportsmen. The Cokeville Meadows National Wildlife Refuge became open for elk hunting in 2014 and this has greatly helped to alleviate elk problems in the Bear River valley but there is no solution in sight for Fossil Butte.

### **Weather**

Weather during 2014 and into 2015 was highly variable. In the early part of 2014 the winter was very mild and dry. A moist spring and summer followed. In late August and into September precipitation continued. The winter of 2014-2015 has been very mild to this point. The winters of 2011/12, 2012/13 and 2013/14 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.

## **Habitat**

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

## **Field Data**

Intensive helicopter based elk flights were performed in March of 2012 and 2014. In the 2014 survey 3,866 elk were observed. Flight conditions were favorable for congregating elk. Idaho's sightability model correction was used for the surveys and produced an estimate of 3,978 for the area flown in 2014. The low correction factor was due to large groups of elk in high snow cover and open environments. This creates survey conditions where very few elk are missed during helicopter surveys. We flew the majority of the available elk winter range during the survey. An additional area that was not flown in Hunt Area 105, due to budget constraints, was thought by field personnel to contain approximately 100 elk. Addition of this information produced a total Herd Unit sightability estimate of 4,078 elk post season 2013. The 2012 and 2014 winter sightability estimates fit very well in the spreadsheet model.

Recent post-season bull ratios have been excellent. Calf ratios have below average for this herd recently but are still reasonable. Harvest was increased on this herd markedly over several years in an effort to get the herd to objective. It appears that this has worked and that the herd is at objective. Antlerless harvest needs to be reduced now that the herd has reached objective. It is probable that bull harvest will go down in the future due to less elk production with a smaller herd and it may become difficult to maintain favorable bull:cow ratios. Another intensive helicopter survey is planned for post season 2015 barring projected budget limitations. This is a new sampling strategy where surveys are flown every other year and with greater intensity. In the past, classification surveys were flown on a yearly basis but with less intensity. This provided excellent classification data but did not provide any estimate of overall population size and/or trend information. The new strategy improves overall population estimates and gives us a better estimate of trend.

## **Harvest Data**

Antlerless harvest opportunity was increased every year for several years in this herd unit. The 2010 to 2014 season structures offered substantially increased cow/calf harvest opportunity to try to reduce the herd. Those seasons allowed significant antlerless harvest with large increases in licenses and season lengths. These hunts had good success rates as weather moved elk to winter ranges during those hunts. This management framework has reduced this population based on the dramatic population declines shown in the model and concerns voiced by the public. For 2015 we are recommending a reduction of this strategy since the estimates indicate we are at or near the population objective. The current elk population is unpopular with the hunting public who feel elk numbers are too low.

## **Population**

The post season 2014 population model estimate is about 3,482 elk with the population trending downward. The TSJ,CA model was selected due to the low AICc score and its good fit with the data. The TSJ,CA, MSC model scored very similar but there is no information to indicate that a MSC model would be appropriate for this herd.

The addition of aerial population estimates every other year since 2012 has been very valuable to check the status of the herd and anchor the model. With this continuing into the future it is likely that we can provide a reasonable 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.

Due to documented interchange with adjacent herd units, models generated for this herd should be used with some caution. This interchange has been affirmed in recent years with several radio collared elk from multiple studies crossing the herd unit border at different times of year. More radio collar studies would help determine the extent of these movements. 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 3,482 elk in the herd. This is a significant reduction in the herd over the last few years and is within 20% of the objective of 3,100 elk. The sharp decline in population was driven by antlerless harvest. This is substantiated by hunter comments and field observations. Harvest survey data indicate that we have had more than adequate harvest in the past four years to reduce this herd and move toward objective. This supporting information gives us some confidence in model results

### **Management Summary**

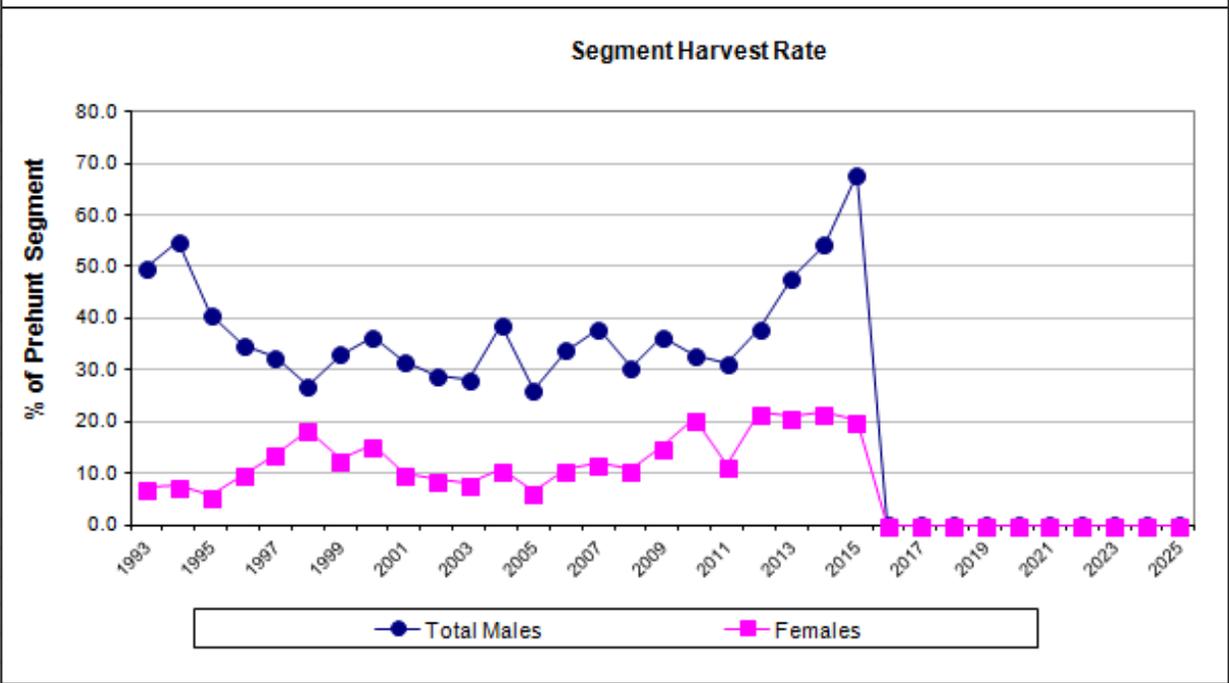
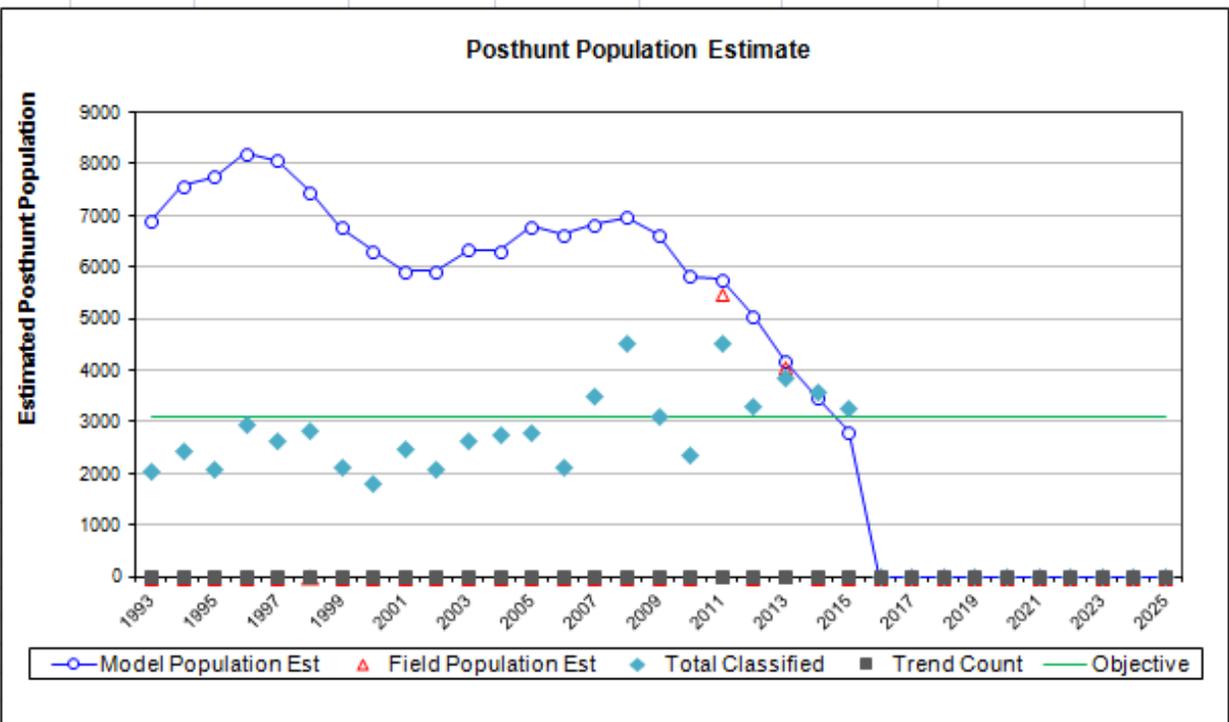
For 2015 season setting we will reduce antlerless harvest to reduce population decline since the population is very near the current objective. We will continue with hunt timing and license management to allow antlerless harvest to keep the population close to objective. To do this we provide a break in the hunt to placate elk and promote unhindered migration to more open winter ranges where the elk are more vulnerable to harvest. The harvest system in place should keep this herd near objective in the near future.

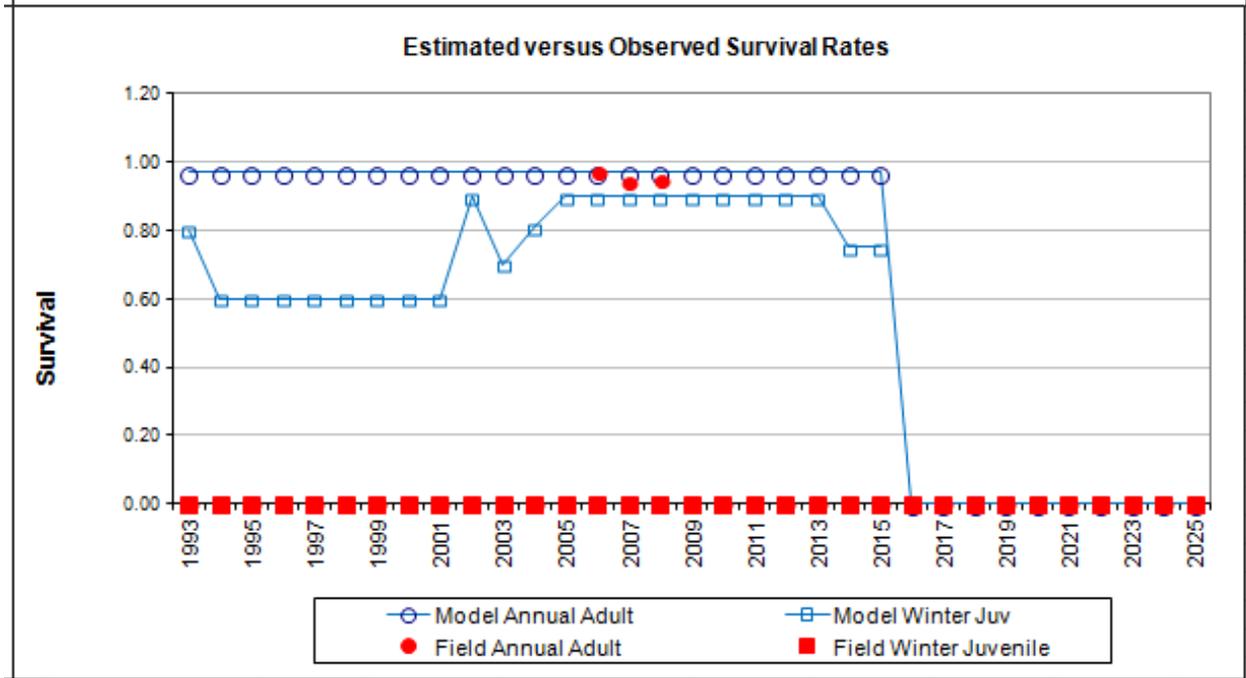
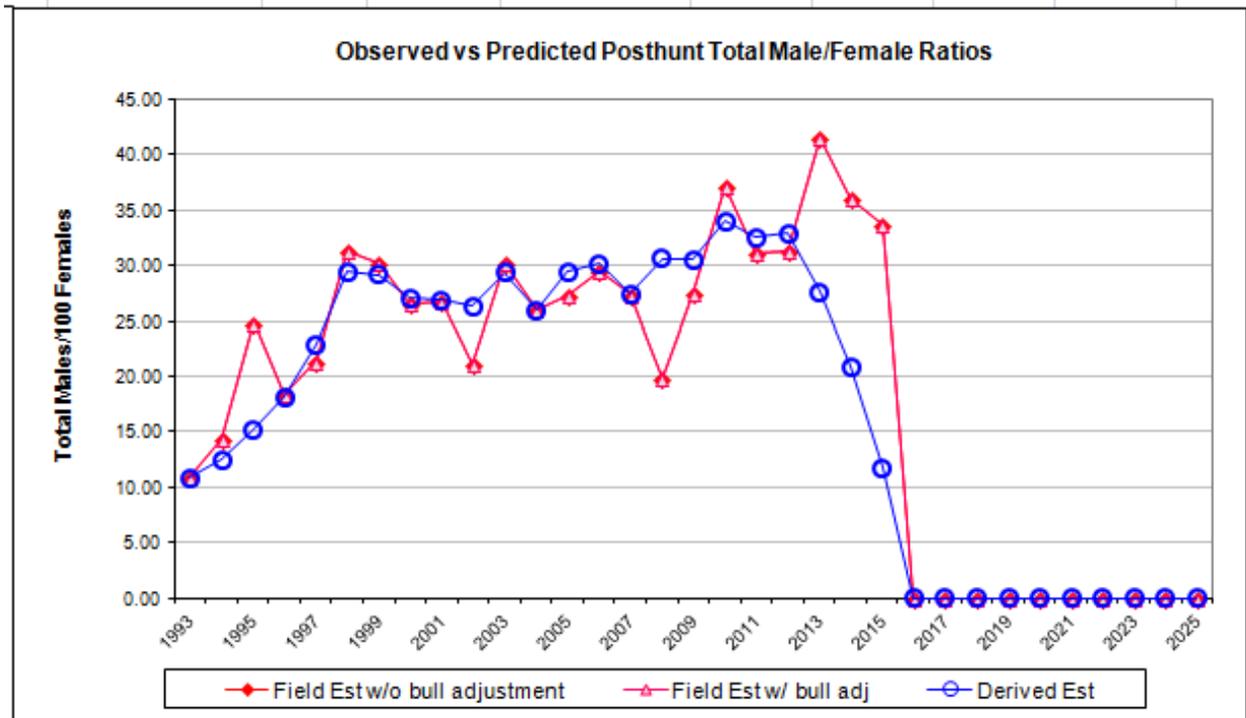
<b>INPUT</b>											
Species:	Elk										
Biologist:	Jeff Short										
Herd Unit & No.:	WGR EL428										
Model date:	02/28/14										
<input type="button" value="Clear form"/>											
<b>MODELS SUMMARY</b>						Fit	Relative AICc	Check best model to create report			
CJ,CA	Constant Juvenile & Adult Survival				2152	2161	<input type="checkbox"/> CJ,CA Model				
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival				947	964	<input type="checkbox"/> SCJ,SCA Mo				
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival				399	510	<input checked="" type="checkbox"/> TSJ,CA Model				
TSJ,CA,MSC	Time-Specific Juv, Constant Adult Survival, Male survival coefficient				393	513	<input type="checkbox"/> TSJ,CA,MSC Model				

Population Estimates from Top Model												
Year	Posthant Population Est.		Trend Count	Predicted Prehant Population				Predicted Posthant Population				Objective
	Field Est	Field SE		Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	
1993				2151	943	4681	7775	2086	472	4346	6905	3100
1994				2467	1294	5052	8813	2325	584	4657	7566	3100
1995				2113	1264	5215	8592	2085	750	4922	7757	3100
1996				2495	1353	5400	9247	2444	884	4869	8197	3100
1997				2389	1591	5456	9436	2285	1076	4705	8066	3100
1998				2163	1729	5250	9142	1913	1265	4280	7458	3100
1999				1586	1801	4725	8113	1438	1206	4128	6772	3100
2000				1729	1601	4435	7766	1553	1016	3746	6315	3100
2001				1351	1451	4099	6902	1249	990	3681	5921	3100
2002				1490	1335	3946	6771	1375	952	3601	5928	3100
2003				1523	1542	4112	7177	1439	1111	3777	6327	3100
2004				1765	1582	4168	7514	1622	969	3723	6314	3100
2005				1688	1596	4268	7552	1619	1177	3987	6783	3100
2006				1452	1870	4596	7918	1298	1238	4094	6630	3100
2007				1863	1784	4555	8203	1705	1105	4015	6825	3100
2008				1669	1839	4662	8170	1524	1276	4160	6961	3100
2009				1598	1924	4721	8243	1401	1224	4005	6631	3100
2010				1261	1818	4516	7595	1028	1219	3579	5826	3100
2011	5500	250		1349	1645	3935	6928	1169	1130	3472	5771	3100
2012				1108	1622	3894	6623	1003	1005	3046	5054	3100
2013	4078	32		912	1426	3406	5744	738	744	2691	4173	3100
2014				845	1054	2942	4842	699	482	2301	3482	3100
2015				684	730	2494	3908	596	235	1988	2819	3100

Survival and Initial Population Estimates								
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates			Parameters:	Optim cells
	Model Est	Field Est	SE	Model Est	Field Est	SE		
1993	0.80			0.97			Adult Survival =	0.970
1994	0.60			0.97			Initial Total Male Pop/10,000 =	0.047
1995	0.60			0.97			Initial Female Pop/10,000 =	0.435
1996	0.60			0.97				
1997	0.60			0.97				
1998	0.60			0.97				
1999	0.60			0.97				
2000	0.60			0.97				
2001	0.60			0.97				
2002	0.90			0.97				
2003	0.70			0.97				
2004	0.81			0.97				
2005	0.90			0.97				
2006	0.90			0.97	0.97	0.05		
2007	0.90			0.97	0.95	0.05		
2008	0.90			0.97	0.95	0.05		
2009	0.90			0.97				
2010	0.90			0.97				
2011	0.90			0.97				
2012	0.90			0.97				
2013	0.90			0.97				
2014	0.75			0.97				
2015	0.75			0.97				

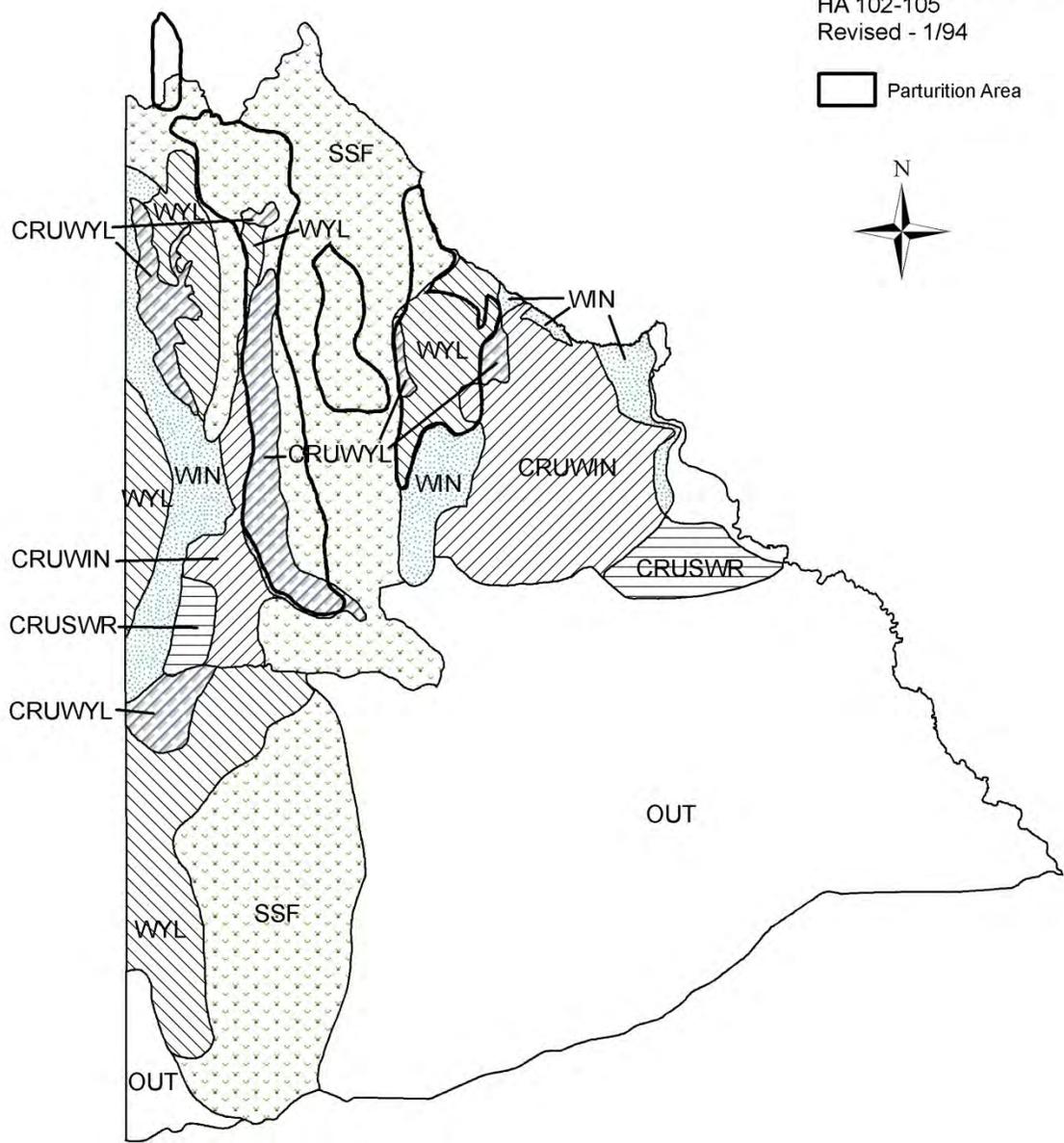
Classification Counts							Harvest									
Year	Juvenile/Female Ratio			Total Male/Female Ratio				Juv	Yrl males	2+ Males	Females	Total Harvest	Segment Harvest Rate % of Prehant			
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/ bull adj	Field Est w/o bull adj	Field SE						Total Males	Females	juv	total
1993	47.99	2.34	10.87	10.90	10.90	0.97	59	158	270	304	791	49.9	7.1	2.7%	10.2%	
1994	49.93	2.24	12.55	14.31	14.31	1.05	129	260	385	359	1133	54.8	7.8	5.2%	12.9%	
1995	42.37	2.20	15.23	24.86	24.86	1.58	25	194	274	266	759	40.7	5.6	1.2%	8.8%	
1996	50.20	2.07	18.16	18.37	18.37	1.11	46	192	234	483	955	34.6	9.8	1.8%	10.3%	
1997	48.56	2.15	22.87	21.40	21.40	1.29	95	190	278	682	1245	32.4	13.8	4.0%	13.2%	
1998	44.71	1.99	29.56	31.30	31.30	1.59	227	166	256	882	1531	26.8	18.5	10.5%	16.7%	
1999	34.83	1.91	29.21	30.19	30.19	1.74	135	172	369	543	1219	33.0	12.6	8.5%	15.0%	
2000	41.46	2.31	27.12	26.58	26.58	1.75	160	153	379	627	1319	36.5	15.5	9.3%	17.0%	
2001	33.93	1.71	26.90	26.80	26.80	1.48	93	88	331	380	892	31.8	10.2	6.9%	12.9%	
2002	38.18	1.99	26.42	21.08	21.08	1.38	104	99	250	313	766	28.7	8.7	7.0%	11.3%	
2003	38.11	1.83	29.41	30.21	30.21	1.58	76	100	292	305	773	28.0	8.2	5.0%	10.8%	
2004	43.55	1.96	28.03	26.04	26.04	1.42	130	128	429	404	1091	38.7	10.7	7.4%	14.5%	
2005	40.80	1.84	29.52	27.26	27.26	1.44	63	117	264	255	699	26.3	6.8	3.7%	9.3%	
2006	31.69	1.76	30.23	29.46	29.46	1.69	140	138	437	456	1171	33.8	10.9	9.6%	14.8%	
2007	42.45	1.71	27.51	27.40	27.40	1.30	144	167	451	491	1253	38.1	11.9	7.7%	15.3%	
2008	36.63	1.31	30.68	19.90	19.90	0.91	132	108	403	456	1099	30.6	10.8	7.9%	13.5%	
2009	34.98	1.57	30.57	27.49	27.49	1.35	179	167	469	651	1466	36.4	15.2	11.2%	17.8%	
2010	28.72	1.61	34.04	37.15	37.15	1.89	212	112	433	851	1608	33.0	20.7	16.8%	21.2%	
2011	33.68	1.28	32.54	31.15	31.15	1.22	163	73	395	421	1052	31.3	11.8	12.1%	15.2%	
2012	32.93	1.47	33.00	31.39	31.39	1.42	95	71	490	771	1427	38.0	21.8	8.6%	21.5%	
2013	27.44	1.24	27.66	41.58	41.58	1.60	158	159	461	650	1428	47.8	21.0	17.3%	24.9%	
2014	30.39	1.36	20.96	36.15	36.15	1.51	133	91	429	583	1236	54.3	21.8	15.7%	25.5%	
2015	30.00	1.40	11.82	33.75	33.75	1.50	80	70	380	460	990	67.8	20.3	11.7%	25.3%	





E428 - West Green River  
HA 102-105  
Revised - 1/94

 Parturition Area





## 2014 - JCR Evaluation Form

SPECIES: EIK

PERIOD: 6/1/2014 - 5/31/2015

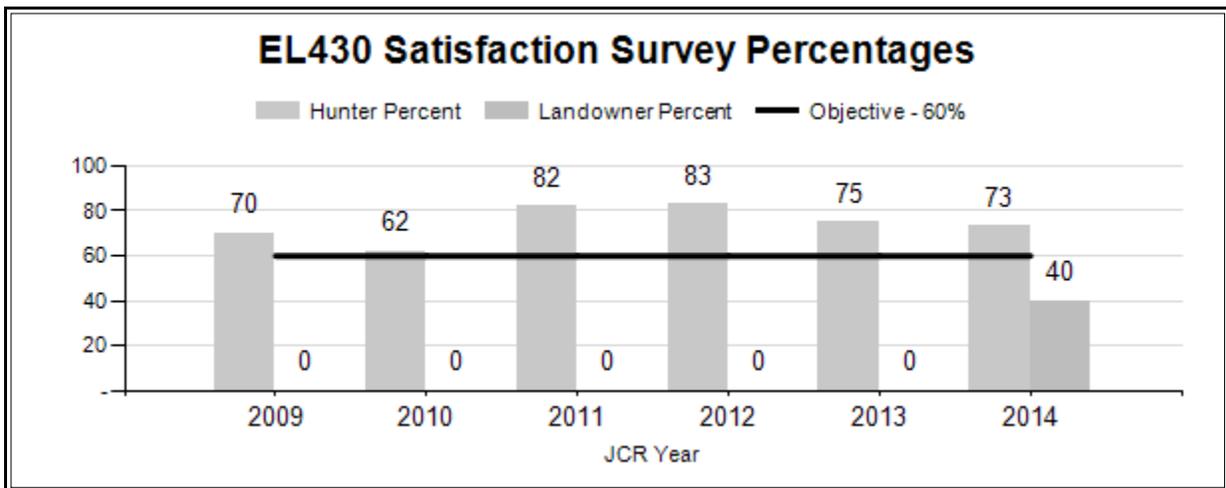
HERD: EL430 - PETITION

HUNT AREAS: 124

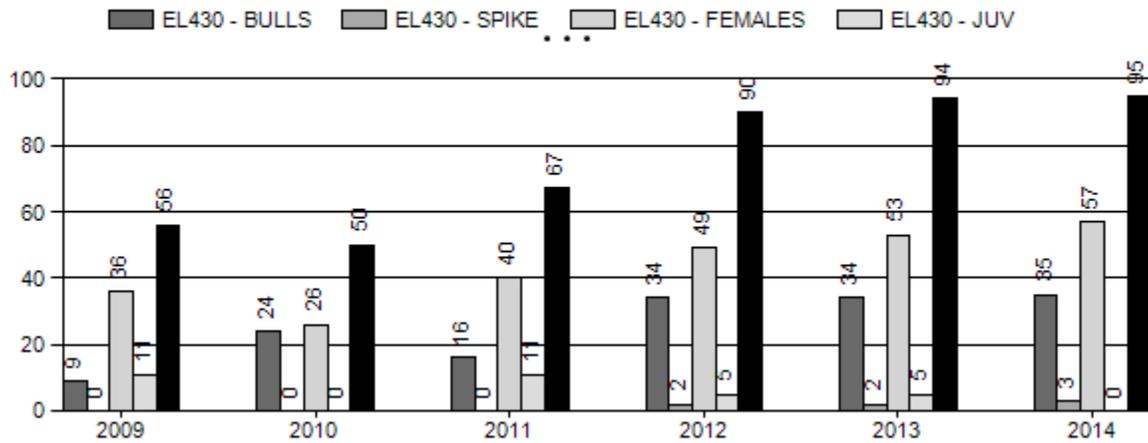
PREPARED BY: TONY MONG

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Hunter Satisfaction Percent	75%	73%	75%
Landowner Satisfaction Percent	75%	40%	60%
Harvest:	71	95	95
Hunters:	110	136	136
Hunter Success:	65%	70%	70%
Active Licenses:	110	136	136
Active License Success:	65%	70%	70%
Recreation Days:	796	1,126	1,200
Days Per Animal:	11.2	11.9	12.6
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	

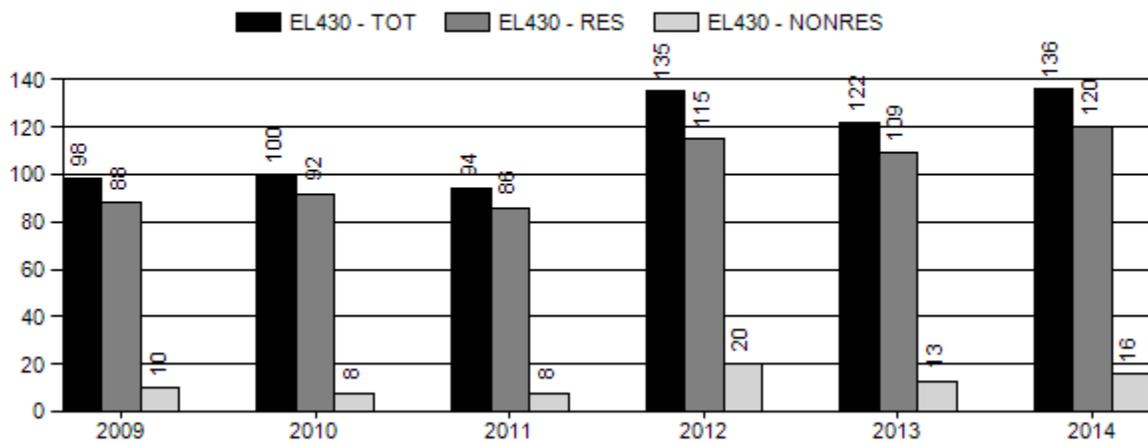
Satisfaction Based Objective	60%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	-4%
Number of years population has been + or - objective in recent trend:	0



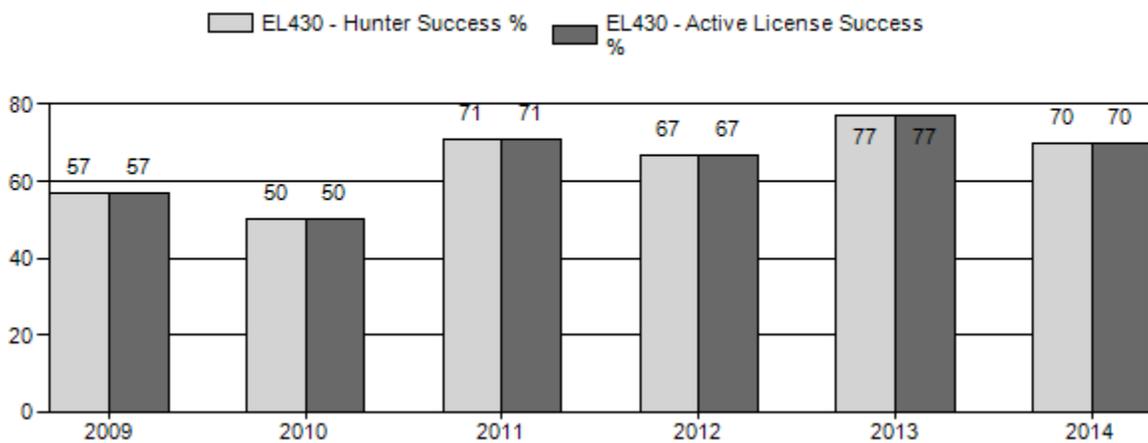
## Harvest



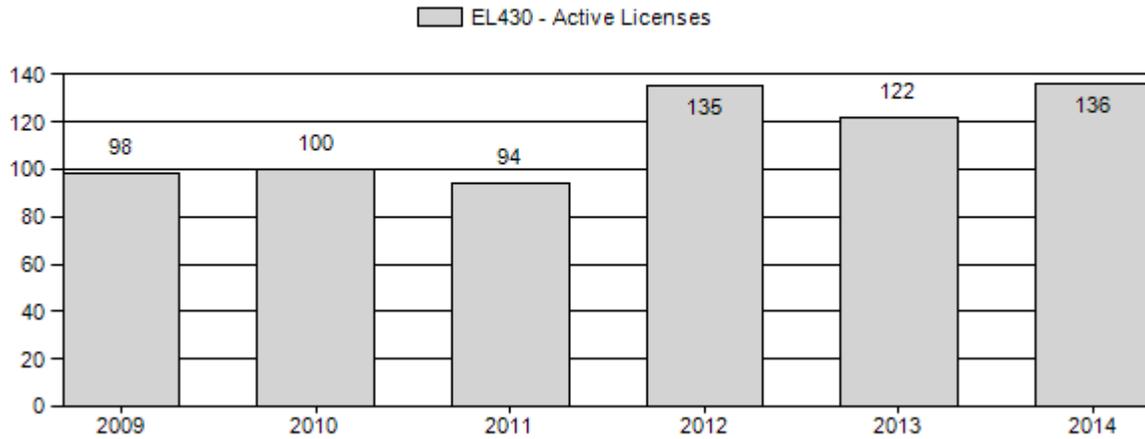
## Number of Hunters



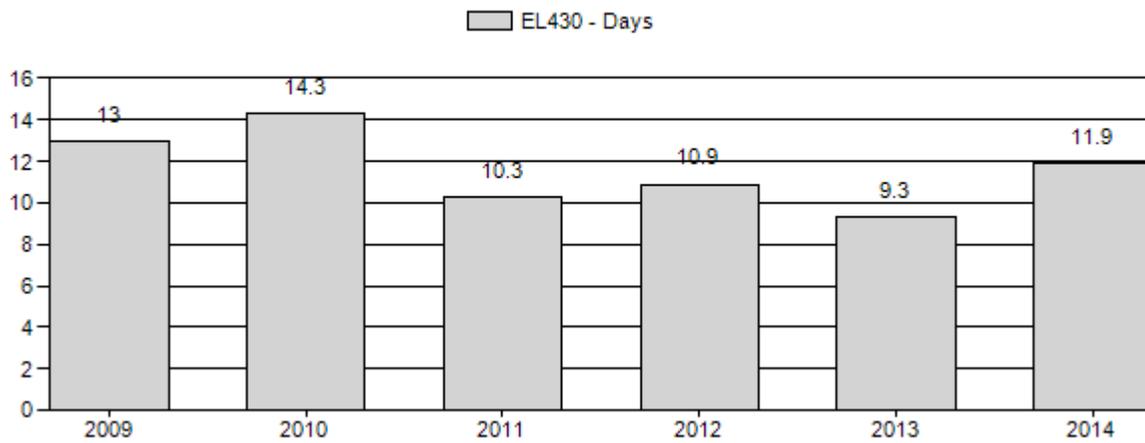
## Harvest Success



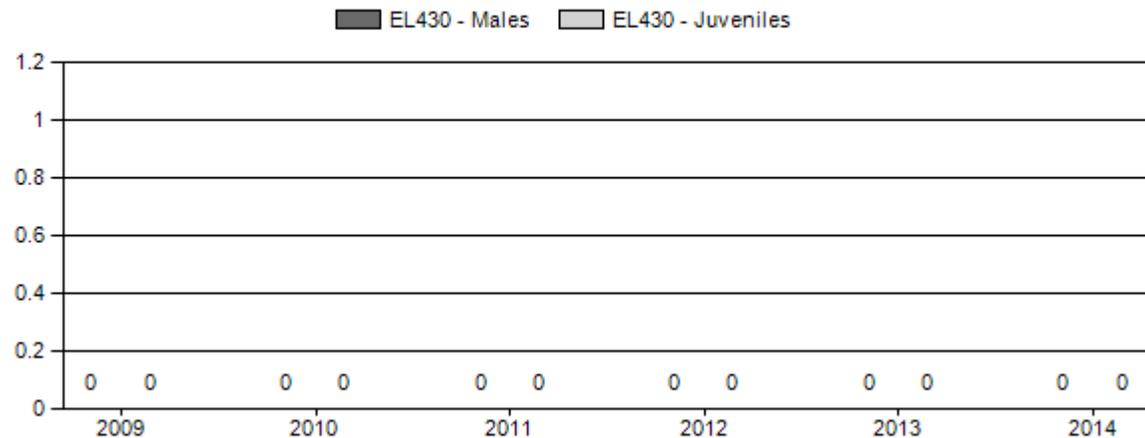
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



# 2015 HUNTING SEASONS

SPECIES : **Elk**

HERD UNIT : **Petition (430)**

HUNT AREAS: **124**

Hunt Area	Type	Opens	Closes	Quota	License	Limitations
124	1	Oct. 15	Nov. 30	40	Limited quota	Any elk
	4	Oct. 15	Nov. 30	100	Limited quota	Antlerless elk
		Dec. 1	Dec. 31			Unused Area 124 Type 4 licenses valid on the Tipton Hunter Management Area (HMA permission slip required)
	Archery	Sep. 1	Sep. 30			Refer to Section 3

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2014</i>
<i>124</i>	<i>1</i>	<i>0</i>
	<i>4</i>	<i>0</i>
	<i>7</i>	<i>0</i>
<b><i>Herd Unit Total</i></b>	<b><i>1</i></b>	<b><i>0</i></b>
	<b><i>4</i></b>	<b><i>0</i></b>
	<b><i>7</i></b>	<b><i>0</i></b>

## **Management Evaluation**

**Current Hunter/Landowner Satisfaction Objective:** 60% landowner/hunter satisfaction; sub-objective regarding average bull age

**Management Strategy:** Recreational

**2014 Hunter Satisfaction Estimate:** 72%

**2014 Landowner Satisfaction Estimate:** 40%\* (5 out of 13 respondents to the survey)

**Most Recent 3-year Running Average Hunter Satisfaction Estimate:** 77%

**Most Recent 3-year Running Average Landowner Satisfaction Estimate:** n/a

**Most Recent 3-year Running Average Tooth Age:** n/a

The current management objective was established in 2013, and consists of an alternative objective of landowner and sportsmen satisfaction, along with an index of bull quality using average harvest age. Our strategy is to maintain current levels of harvest across the area, and continue to direct additional cow harvest to the northern portion of the area (specifically within the Tipton Hunter Management Area) to address landowner concerns.

## Herd Unit Issues

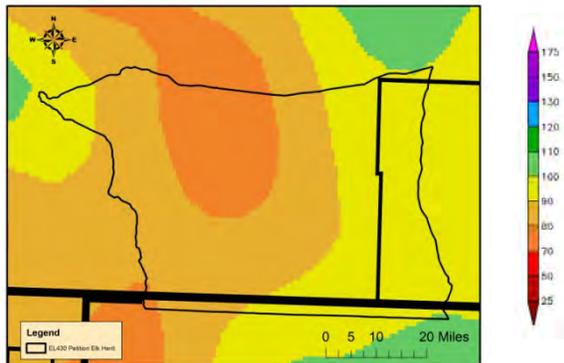
The Petition elk herd is a small, highly mobile elk herd occupying a large area of desert habitats, interspersed with infrequent pockets of more suitable habitats. A high degree of interchange (from a Petition Elk standpoint) occurs with Colorado to the south, and with hunt areas 30/32 and 100 to the west and north, respectively. Based on herd sizes, the “loss” of elk to Petition is insignificant, but may have a larger influence on Petition herd size (since there are relatively few elk in this area). This interchange, flight budget shortfalls, and the sheer size of Area 124 makes meaningful data collection and population estimation very difficult. Possible competition with mule deer in the South Rock Springs Deer herd is becoming an issue of concern in the western ½ of this area, and may need to be addressed in the future. This herd unit is extremely popular with hunters, particularly those seeking a large, trophy class bull. Many Governor’s license holders choose this as an area to use their license.

## Weather

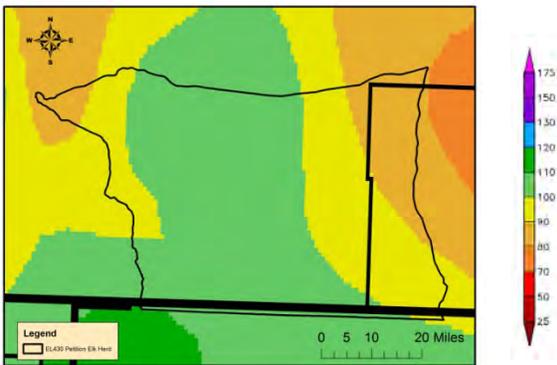
Weather conditions in the Petition herd unit have been quite variable over the last several years. Overall, this herd unit has received more precipitation in 2014, when compared to 2013 (Figure 1), and dramatically more than the “exceptional” drought conditions of 2012. This return to normal, or above normal, precipitation should equate to better vegetation for 2015. The 2014-15 winter was extremely mild, with limited snowfall, and higher than average temperatures throughout winter. Although initially concerning because of reduced precipitation during the winter, spring moisture levels have been exceptional, and have more than made up for the low winter moisture.

Figure 1. A) Percent of normal precipitation for the herd unit from January 2013 to December 2013, B) Percent of normal precipitation for the herd unit from January 2014 to December 2014.

A)



B)



## Habitat

Precipitation during 2014 and 2015 has allowed for dramatically improved habitat conditions in this herd unit. The increase in precipitation during the early fall months of 2014 induced a late growth opportunity for most vegetation in the herd unit, resulting in improved condition for all browsers and grazers. An early warming trend following the 2014-15 winter, coupled with regular, and above average, spring precipitation, has resulted in an early green up that persists to this day. Some areas in this herd unit have received moisture in levels not observed in many years, resulting in dramatically improved habitat conditions through a majority of the herd unit.

## Field Data

No population data is currently collected for this herd, negatively influencing management. Public input and harvest statistics lead us to believe this herd has grown over the last 5 years, which may result in more licenses in the future. Field checks and pre-season setting meetings have indicated that many hunters that have hunted in this area are seeing more elk than they had historically.

Sportsmen satisfaction in this herd is very high with 72% of the 54 respondents “satisfied or very satisfied” with their overall hunting experience. Landowner satisfaction was collected through a mailed survey. We sent out surveys to 13 landowners, but the response rate was poor (5).. Two landowners responded that there are too many elk, two responded that elk numbers are “at or about” where they need to be, and one responded that elk numbers are too low. The small sample of landowners responding makes it difficult to draw meaningful conclusions from the data, but demonstrate landowners are split on their desires. Given the poor response rate, we will rely on phone calls or personal contacts to gather this information in the future.

Age data from teeth submitted to the Game and Fish tooth aging lab for 2014 (N = 19) yield an average age of 7.0 (range 1.5 to 12.5). Our initial internal discussions had indicated a 3-year average age of 7.0 would be sufficient to maintain trophy quality bulls within this herd, but this is higher than typical and may be unrealistic as a sub-objective.

## Harvest Data and Population Indications

Hunter success over the last 4 years (average = 71%) is higher than the previous 10 year average (55%), while hunter effort is similar (3 year average = 10.7 days, previous 10 year average = 12.6 days). Cow harvest was similar between 2013 and 2014 (53 and 55, respectively), but may be insufficient in future years to maintain this herd at levels considering other wild ungulates of

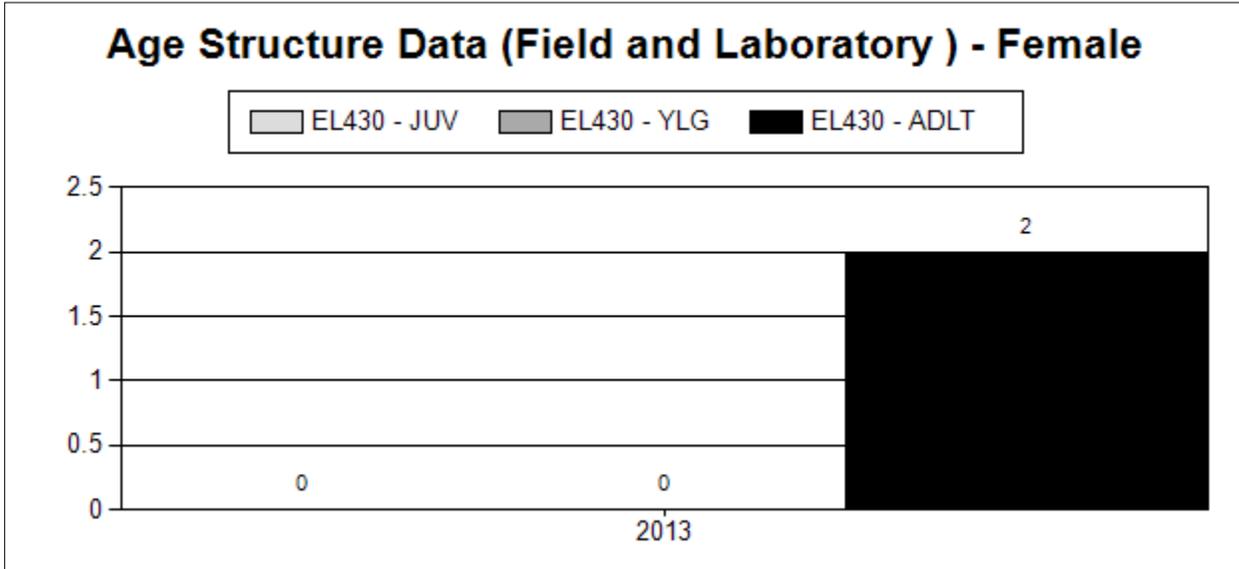
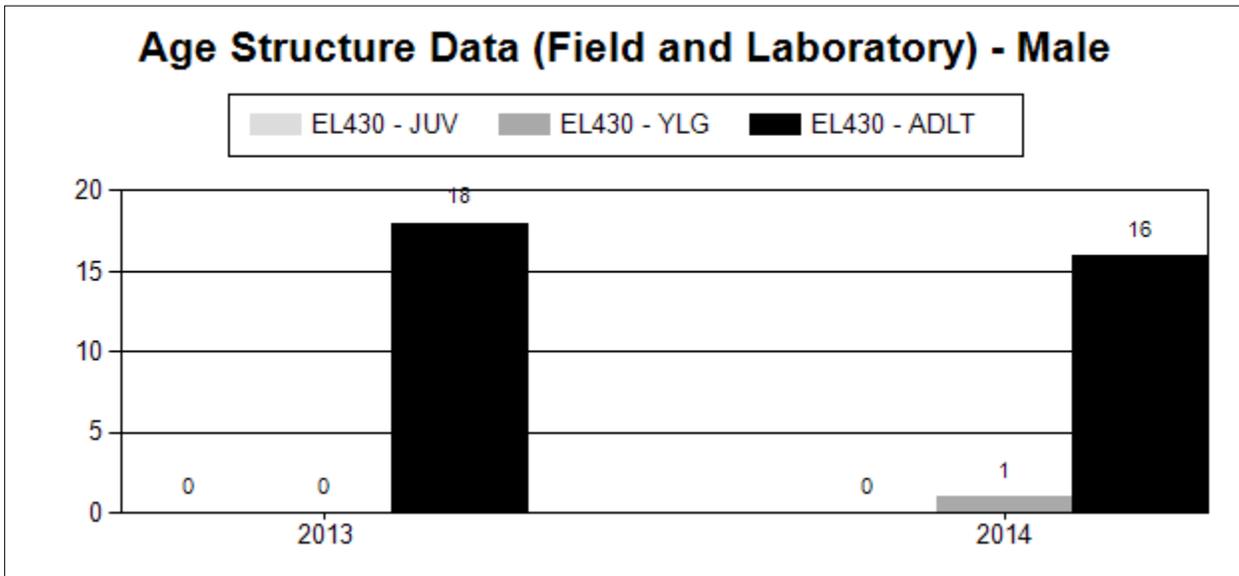
interest (mule deer and pronghorn). Higher success rates, reduced hunter effort, and the ability to sustain a higher antlerless harvest may be an indication that population levels are higher than they were 5 years ago, which is consistent with reports from sportsmen and landowners.

### **Management Summary**

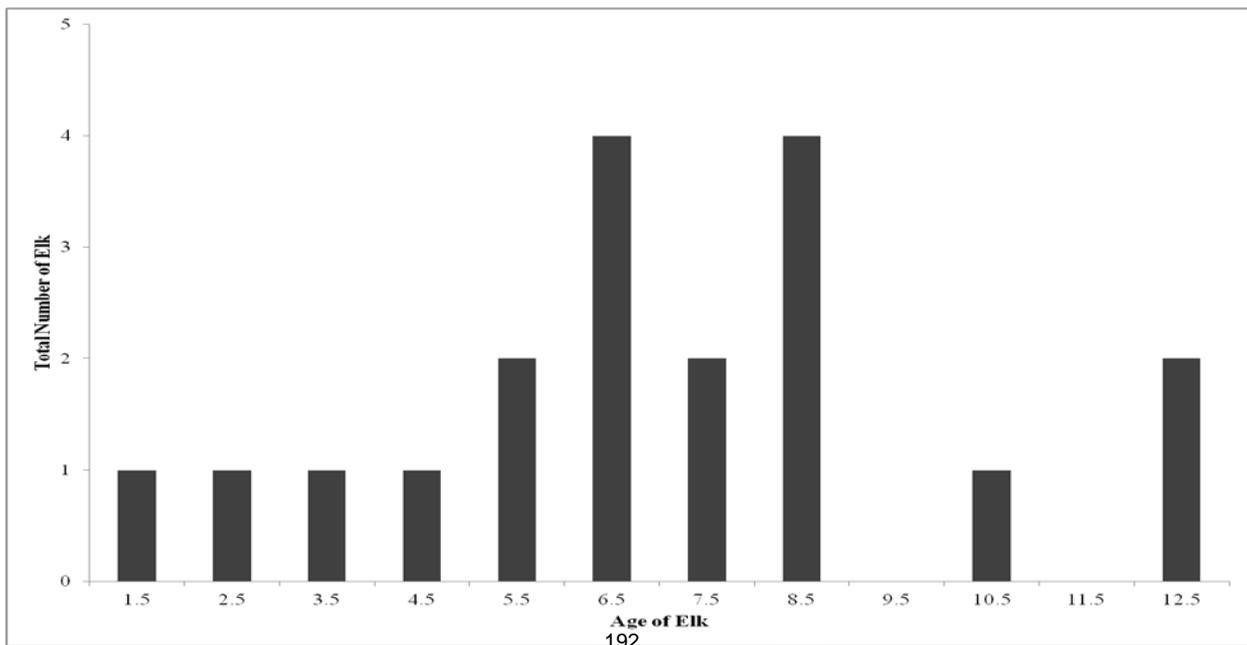
It is important that we balance the management of a popular hunted resource (i.e. good opportunity for large bulls), and the extremely sensitive ecosystem found in the Petition elk herd. Much of this area is in a 5-7 inch precipitation zone, and habitats are easily disturbed, with limited recovery potential. Significant energy development occurs in this area, and most is grazed by domestic livestock and feral horses, the latter of which can have significant impacts on native wildlife if allowed to increase unchecked. Currently, we see some issues between landowners and these elk, and strong support from sportsmen that hunt this herd. However, we need to make a better effort to survey sportsmen hunting the same areas for other species (i.e. mule deer and pronghorn). In lieu of better data, and a complete 3-year data cycle, our current management strategy is to maintain harvest rates in an effort to maintain or slightly decrease elk numbers in this herd.

Appendix A. a) Tooth age data from the JCR summary program, b) specific lab tooth age summary of male elk harvested in the EL430 herd unit.

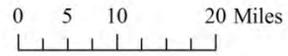
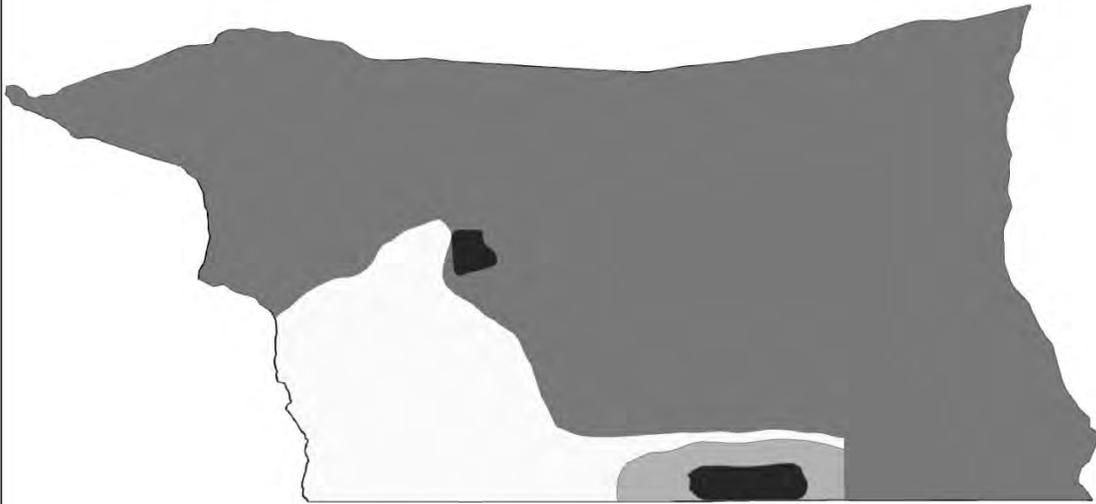
a.



b.



# Petition Elk Herd Seasonal Ranges





## 2014 - JCR Evaluation Form

SPECIES: Moose

PERIOD: 6/1/2014 - 5/31/2015

HERD: MO415 - UINTA

HUNT AREAS: 27, 35, 44, 901-902

PREPARED BY: JEFF SHORT

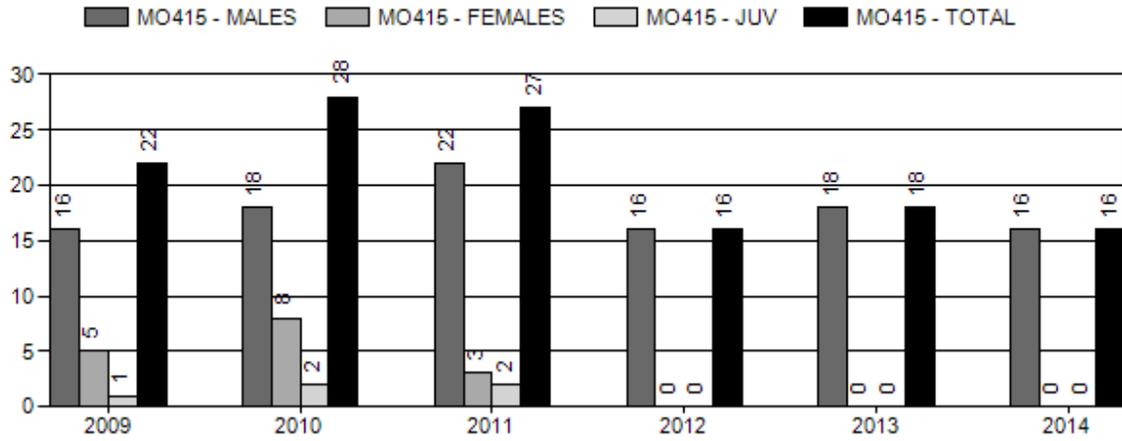
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	NA	NA	NA
Harvest:	22	16	15
Hunters:	28	18	18
Hunter Success:	79%	89%	83%
Active Licenses:	28	18	18
Active License Success:	79%	89%	83%
Recreation Days:	256	146	150
Days Per Animal:	11.6	9.1	10
Males per 100 Females	44	75	
Juveniles per 100 Females	51	100	

Population Objective (Harvest Based):	NA
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	NA
Number of years population has been + or - objective in recent trend:	NA
Model Date:	None

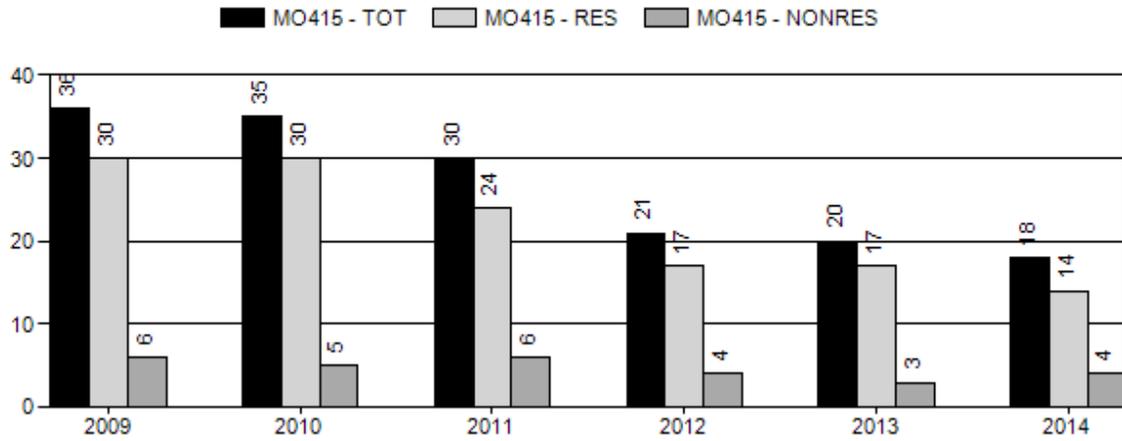
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	NA	NA
Males ≥ 1 year old:	NA	NA
Juveniles (< 1 year old):	NA	NA
Total:	NA	NA
Proposed change in post-season population:	NA	NA

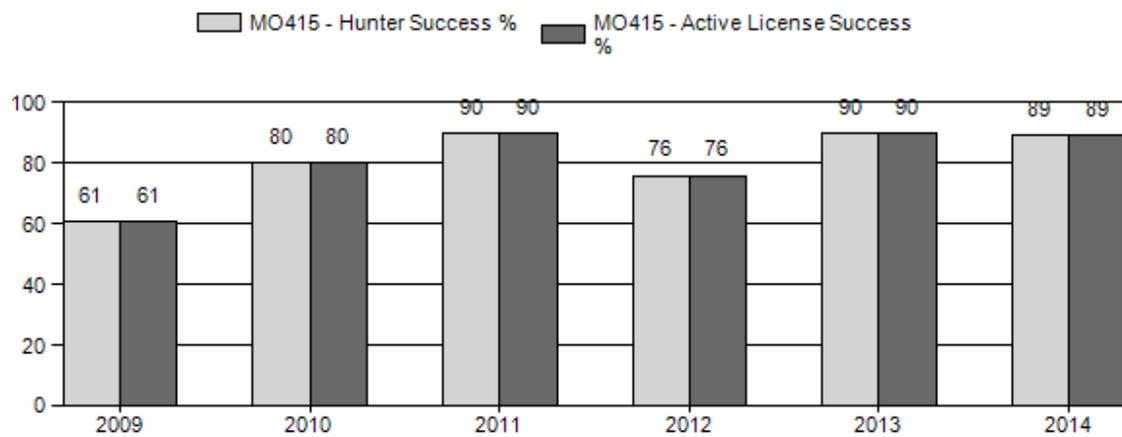
## Harvest



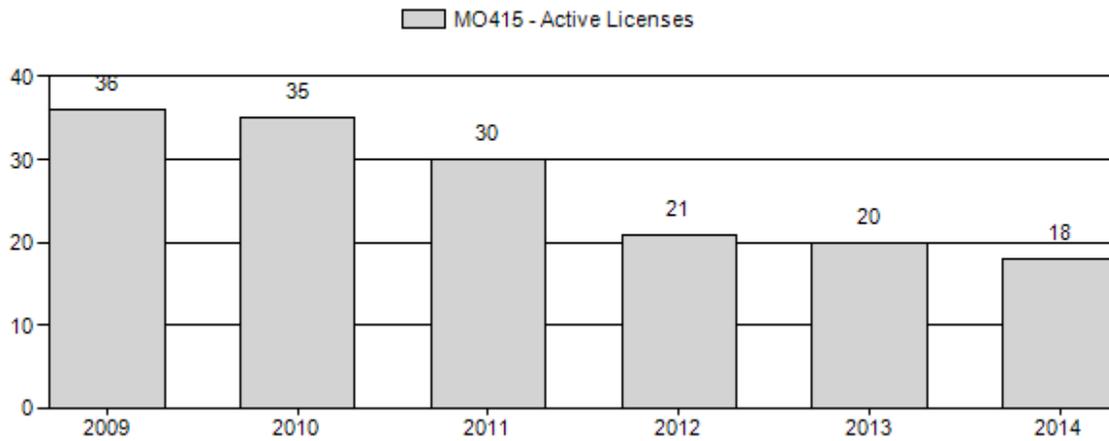
## Number of Hunters



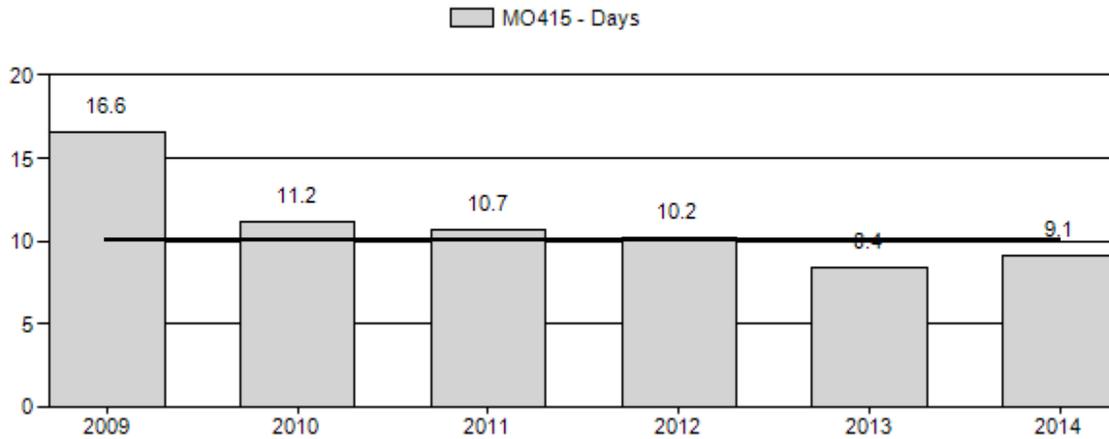
## Harvest Success



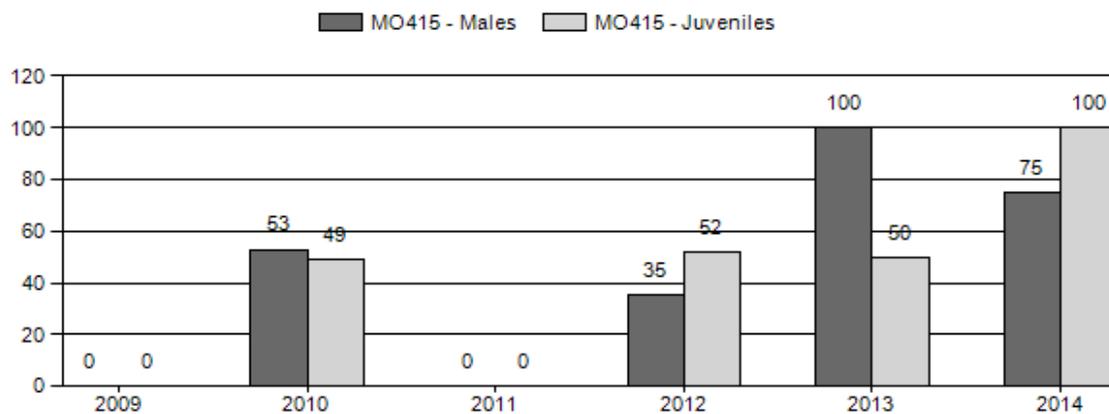
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



**2009 - 2014 Postseason Classification Summary**

for Moose Herd MO415 - UINTA

Year	Post 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
2009	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2010	0	0	0	62	26%	118	50%	58	24%	238	0	0	0	53	±0	49	±0	32
2011	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	±0	0	±0	0	
2012	0	0	52	52	19%	149	54%	77	28%	278	0	0	35	±0	52	±0	38	
2013	0	0	8	8	40%	8	40%	4	20%	20	0	0	100	±0	50	±0	25	
2014	0	1	2	3	27%	4	36%	4	36%	11	0	25	50	±0	100	±0	57	

**2015 HUNTING SEASON**

SPECIES : **Moose**

HERD UNIT : **UINTA (415)**

HUNT AREAS: **27, 35, 44**

Hunt Area	Type	Dates of Seasons		Quota	Licenses	Limitations
		Opens	Closes			
27	1	Oct. 1	Nov. 20	15	Limited quota	Antlered moose
35	1	Oct. 1	Nov. 20	5	Limited quota	Antlered moose
44						CLOSED
27, 35	Archery	Sept. 1	Sept. 30			Refer to Section 3 of this chapter

Hunt Area	License Type	Quota change from 2014
Herd Unit Total		

**Management Evaluation**

**Current Postseason Population Management Objective:** Harvest Based

**Management Strategy:** Special

**2013 Postseason Population Estimate:** ~300

**2014 Proposed Postseason Population Estimate:** ~300

## **Herd Unit Issues**

This is an interstate herd shared with Utah. Many moose that summer in the Uinta Mountains in Utah come to Wyoming to winter. Limited winter range is an issue for this herd. A significant portion of the lower elevation moose habitat is on private land so landowner tolerance of moose can be an issue. Moose coming into towns and residing in yards has been a reoccurring issue but far less common than in the past.

Our biggest concern is our lack of knowledge on disease issues in this herd. We have had several documented cases of elaeophorosis caused deaths in this herd and feel that this may have had a significant population effected on the herd. This has stabilized and elaeophorosis caused mortalities have reduced significantly in the last two years. However, we are continuing our conservative management strategy until we see moose numbers rebound significantly.

In 2006 Hunt Area 44 was added to the herd unit. There have been increasing numbers of moose in this area. This has created some concern to habitat managers since these moose are impacting the ability to bring back riparian shrubs in these xeric habitats. The objective has been to keep moose from establishing in this area. In 2012 Area 44 was added to the Area 35 hunt in the packet. In 2015 Area 44 will be closed to moose hunting due to concern over offering an opportunity with extremely low moose numbers. It will likely be reopened when moose numbers start to grow again.

## **Weather**

Weather during 2014 and into 2015 was highly variable. In the early part of 2014 the winter was very mild and dry. A moist spring and summer followed. In late August and into September precipitation continued. The winter of 2014-2015 has been very mild to this point and moose have not migrated as far as normal to crucial winter ranges.. The winters of 2011/12, 2012/13 and 2013/14 were also mild with low snowpack resulting in mild winter conditions. However, the dry springs and summers of 2012 and 2013 negatively impacted summer and winter range forage production.

## **Habitat**

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

## **Field Data**

Since data is very limited in this herd it is difficult to look at data trends. It is not possible to model this interstate herd. Classification data is not collected consistently. We experienced a significant reduction in nuisance moose complaints and reduced field observations of moose in the period between 2007 and 2011. Between the 2007 and the 2011 survey our field observations indicated we had a sharp reduction in moose populations. We also received complaints from moose hunters about moose numbers. This prompted us to drastically reduce moose hunting opportunity during that period.

The moose flight data supported our concern about a reduction in moose numbers in the Uinta Herd Unit. The 2011 survey was conducted in ideal circumstances with high snow loads making moose highly visible and concentrated on specific wintering areas. The survey was also more intensely flown than previous surveys. This indicates that it was a good reference count and that we would have not missed large numbers of animals that may have been seen in previous surveys. The 2011 count represents the lowest total moose seen in Wyoming since the counts have been conducted. This information supported the deep cuts we made in moose harvest over the those years and we propose to stay conservative with harvest for 2015.

Moose surveys are flown in cooperation with Utah DNR, most recently in February 2013. Past results are shown below. Utah pays for a joint elk and moose survey on average every 3<sup>rd</sup> year. Classification data is collected during those surveys with Utah. In the off years some moose classification data is collected during aerial mule deer surveys in December. That data is reported in the JCR report graphs and tables but sample sizes are very inadequate and those ratios are not reliable.

#### **TOTAL MOOSE COUNTED BY YEAR**

	<b>1996</b>	<b>1998</b>	<b>2001</b>	<b>2004</b>	<b>2007</b>	<b>2011</b>	<b>2013</b>
<b>UTAH DAGGETT (8B)</b>	103	84	109	107	95	NA	74
<b>UTAH SUMMIT (8A)</b>	182	229	243	150	181	92	104
<b>WYOMING</b>	<b>393</b>	<b>289</b>	<b>334</b>	<b>270</b>	<b>314</b>	<b>232</b>	<b>174</b>
<b>TOTAL WYOMING AND UTAH SUMMIT</b>	575	518	577	420	495	324	278
<b>TOTAL</b>	678	602	686	527	590	324	352

#### **Harvest Data**

Antlerless harvest opportunity has been eliminated in this herd unit. We have drastically reduced the number of licenses in the last five years. Type 1 hunts have had very good success rates in the last four years. Tooth age data indicates at current hunting levels we are able to recruit a few older animals into the population and have them available to hunters.

#### **Population**

Due to interstate nature of this herd no working model exists. Weather severity is usually the determining factor in the number of moose that come into Wyoming from Utah during the winter. This and other factors make data collected inconsistent and unreliable.

#### **Management Summary**

For 2015 hunting seasons we will remain conservative with hunter harvest. Hunt area 44 will be closed for 2015 and no antlerless harvest will be allowed in the herd unit. This is an effort to allow maximum growth of the herd. However, hunting is not likely to be the limiting factor for this herd. The objective and management strategy were revised in 2014. During that objective review process we moved to a new objective type for this herd. Due to the issues associated with modeling and tracking this population we have switched to a harvest statistic based objective. This entails an age of harvest objective and an average days per harvest objective.

New objective criteria (Harvest Based)

- Minimum age of Harvest (median  $\geq$  4 years)
- Days per Harvest (average  $\leq$  10 days)

Secondary objective:

- 40% of male harvest  $\geq$  5 years of age  
(5 year average timelines for better sample sizes)

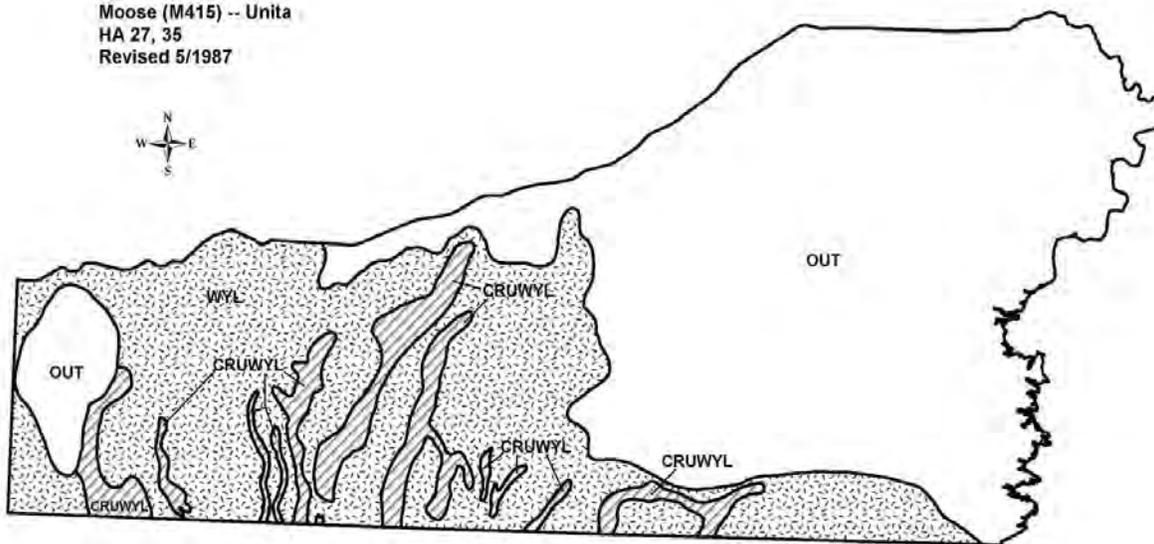
## 2009 - 2014 Harvest Summary

for Moose Herd MO415 - UINTA

Year	HUNTERS					HARVEST									SUCCESS			
	Res Htrs	NRes Htrs	% NRes	Total Htrs	Act Lic	Ylg Male	Adult Male	Total Male	% Male	Fem	% Fem	Juv	% Juv	Tot Harv	Hntrs	Act Lic	Hntr Days	Days to Harv
2009	30	6	17%	36	36	0	16	16	73%	5	23%	1	5%	22	61%	61%	365	16.6
2010	30	5	14%	35	35	0	18	18	64%	8	29%	2	7%	28	80%	80%	314	11.2
2011	24	6	20%	30	30	0	22	22	81%	3	11%	2	7%	27	90%	90%	288	10.7
2012	17	4	19%	21	21	0	16	16	100%	0	0%	0	0%	16	76%	76%	163	10.2
2013	17	3	15%	20	20	0	18	18	100%	0	0%	0	0%	18	90%	90%	151	8.4
2014	14	4	22%	18	18	0	16	16	100%	0	0%	0	0%	16	89%	89%	146	9.1

2014 was the first year of this type of objective option. Currently, the JCR system is not set up to report this type of objective data. Starting next year we plan to have a better synopsis of this objective in this document.

Moose (M415) -- Unita  
HA 27, 35  
Revised 5/1987



## 2014 - JCR Evaluation Form

SPECIES: Moose

PERIOD: 6/1/2014 - 5/31/2015

HERD: MO417 - LINCOLN

HUNT AREAS: 26, 33, 36, 40

PREPARED BY: JEFF SHORT

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	NA	NA	NA
Harvest:	45	54	53
Hunters:	47	55	55
Hunter Success:	96%	98%	96%
Active Licenses:	47	55	55
Active License Success:	96%	98%	96%
Recreation Days:	332	482	475
Days Per Animal:	7.4	8.9	9.0
Males per 100 Females	66	50	
Juveniles per 100 Females	37	69	

Population Objective ( $\pm 20\%$ ) : 1620 (1296 - 1944)

Management Strategy: Special

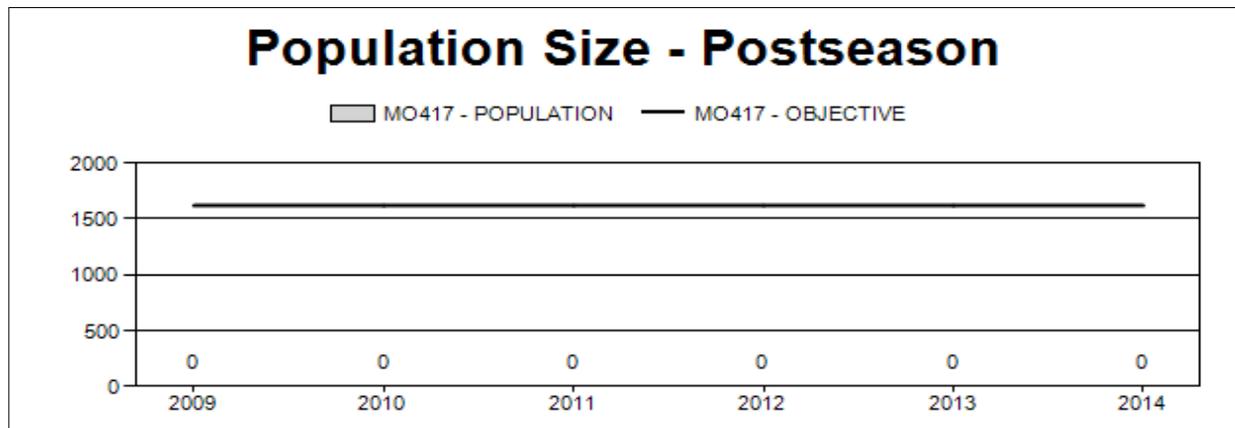
Percent population is above (+) or below (-) objective: NA

Number of years population has been + or - objective in recent trend: 7

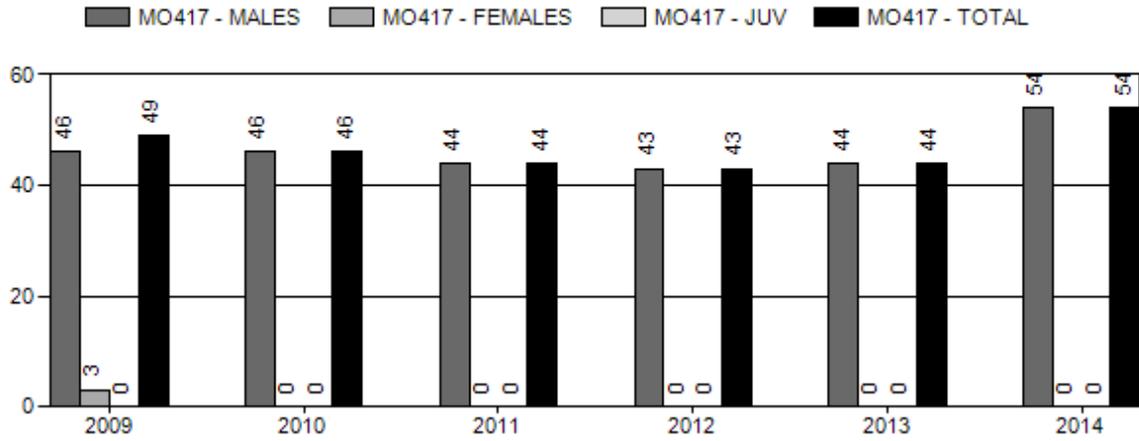
Model Date: None

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

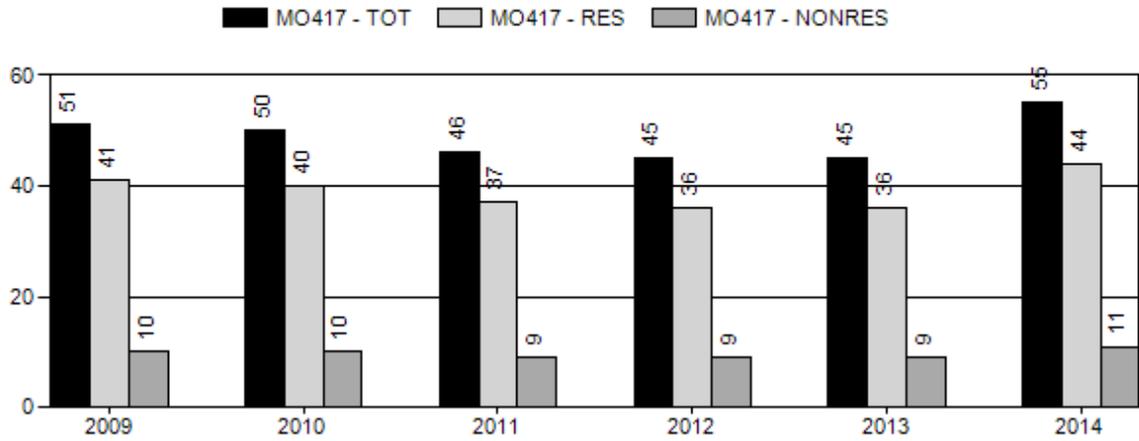
	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	NA	NA
Males $\geq 1$ year old:	NA	NA
Juveniles ( $< 1$ year old):	NA	NA
Total:	NA	NA
Proposed change in post-season population:	NA	NA



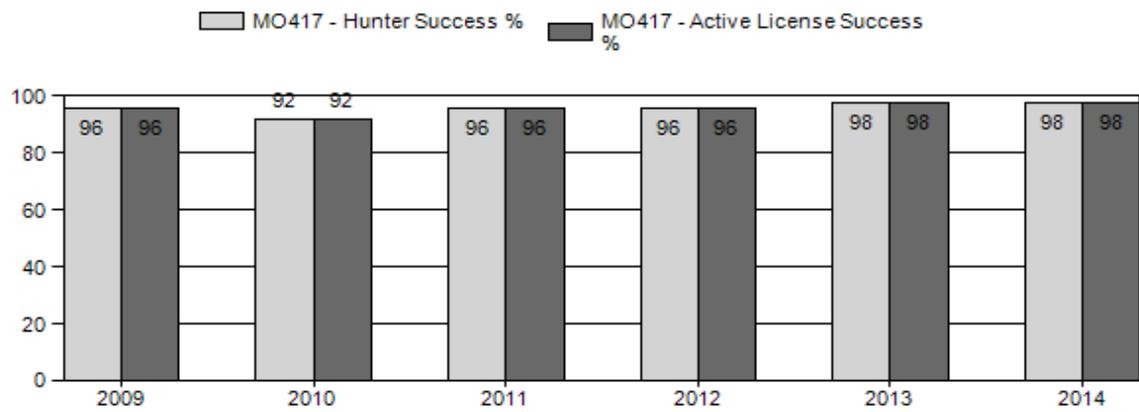
# Harvest



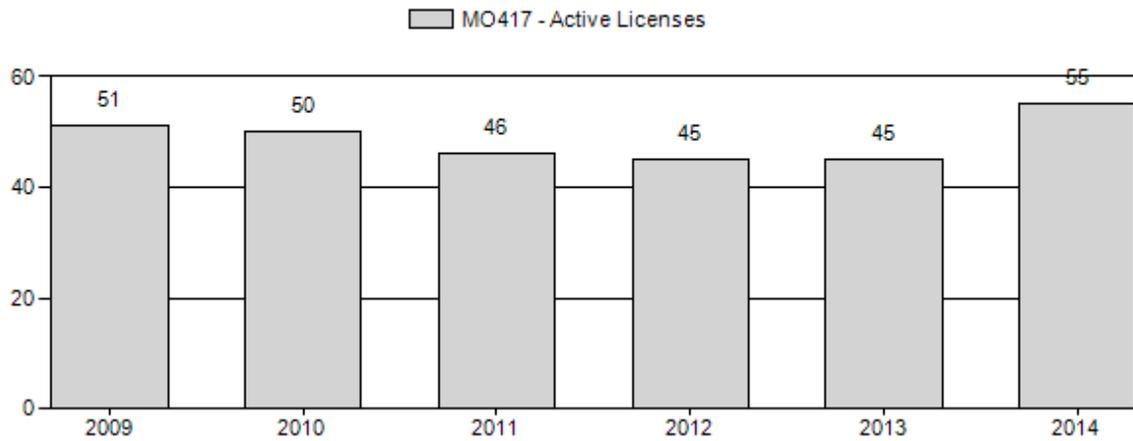
# Number of Hunters



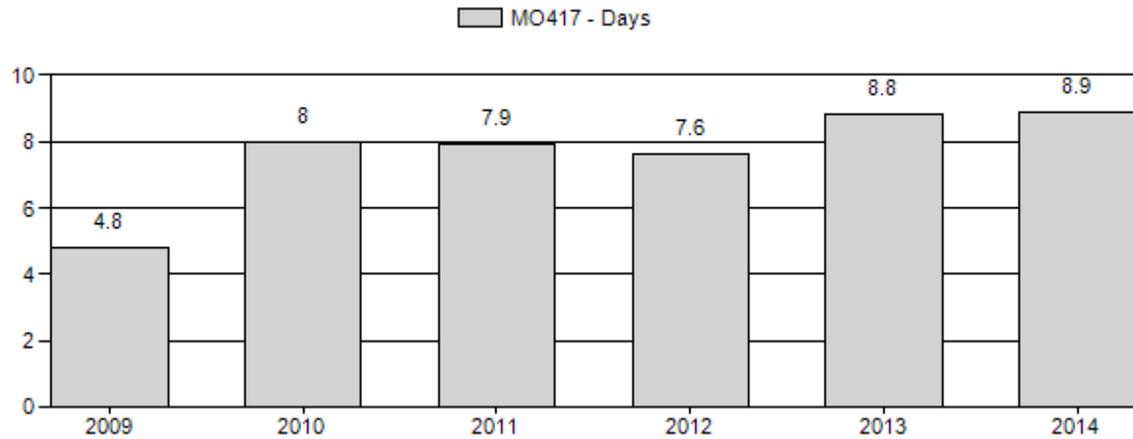
# Harvest Success



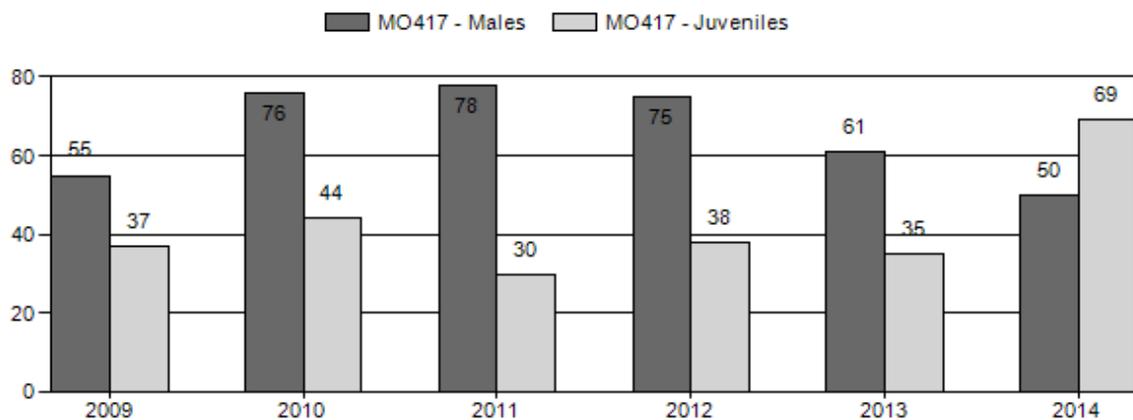
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



**2009 - 2014 Postseason Classification Summary**

for Moose Herd MO417 - LINCOLN

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	0	0	53	53	28%	97	52%	36	19%	186	0	0	55	55	± 9	37	± 7	24
2010	0	0	0	103	35%	135	45%	59	20%	297	0	0	0	76	± 0	44	± 0	25
2011	0	0	0	47	38%	60	48%	18	14%	125	0	0	0	78	± 17	30	± 9	17
2012	0	0	6	6	35%	8	47%	3	18%	17	0	0	75	75	± 0	38	± 0	21
2013	0	0	124	124	31%	202	51%	71	18%	397	0	0	61	61	± 0	35	± 0	22
2014	0	1	7	8	23%	16	46%	11	31%	35	0	6	44	50	± 0	69	± 0	46

**2015 HUNTING SEASON**

SPECIES : **Moose**

HERD UNIT : **LINCOLN (417)**

HUNT AREAS: **26, 33, 36, 40**

Hunt Area	Type	Dates of Seasons			Quota	Licenses	Limitations
		Opens	Closes				
26	1	Oct. 1	Oct. 31	50	Limited quota	Antlered moose	
33, 36, 40	1	Oct. 1	Oct. 31	5	Limited quota	Antlered moose in Areas 36 and 40, valid for antlerless moose only except cow moose with calf at side in Area 33	
26, 33, 36, 40	Archery	Sept. 1	Sept. 30			Refer to Section 3 of this chapter	

Hunt Area	License Type	Quota change from 2014
Herd Unit Total		

**Management Evaluation**

**Current Postseason Population Management Objective: 1,620**

**Management Strategy: Special**

**2014 Postseason Population Estimate: ~600**

**2015 Proposed Postseason Population Estimate: ~600**

## **Herd Unit Issues**

A significant portion of the lower elevation moose habitat is on private land so landowner tolerance of moose can be an issue. Moose coming into towns and residing in yards has been an issue in the past. This herd unit is not a closed population with the northeast boundary line being through prime moose habitat.

The advent of parasite caused mortalities of unknown magnitude in the herd complicates management. There is a lack of knowledge on disease issues in this herd. We have had several documented cases of Elaeophorosis caused deaths in this herd and feel that this may have had a significant population effect. Elaeophorosis caused mortalities have reduced significantly in the last four years.

Hunt area 36, formerly the Bear River Divide moose herd, is now considered part of the Lincoln moose herd. This is a small moose herd that is scattered over a large expanse of non-typical open moose habitat. The herd unit objective was 120 moose. Harvest data will continue to be analyzed separately. This area acts as an “over flow” area for adjacent larger populations of moose in the Uinta and Lincoln herds. The young average age of animal harvested there supports our concept that younger age class animals are immigrating into this area. We do not survey this area for moose.

In hunt area 40 the moose population is almost entirely on private lands. Like Area 36, it has a small population of moose. Area 33 also has a very limited number of moose. They primarily occur on Seedskaadee National wildlife refuge and along the Green River. Area 33 had been closed for hunting from 2003 to 2013. It can be difficult for hunters to locate moose in areas 36 and 40. We have combined areas 33, 36 and 40 into one hunt with a total of 5 permits. This structure allows hunters to travel more to find moose. In 2015 Area 33 will only allow for hunting of cow moose without a calf at side.

## **Weather**

Weather during 2014 and into 2015 was highly variable. In the early part of 2014 the winter was very mild and dry. A moist spring and summer followed. In late August and into September precipitation continued. The winter of 2014-2015 has been very mild to this point and moose have not migrated as far as normal to crucial winter ranges.. The winters of 2011/12, 2012/13 and 2013/14 were also mild with low snowpack resulting in mild winter conditions. However, the dry springs and summers of 2012 and 2013 negatively impacted summer and winter range forage production.

## **Habitat**

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

## **Field Data**

Moose surveys are done from a helicopter along with West Green River elk surveys. Classification data is collected during those flights. Those surveys are conducted every other year. The joint elk and moose survey was flown last year in the winter of 2013/14. Total numbers of moose seen were 406. Nearly complete coverage of occupied moose winter habitat was achieved in the survey. We are still working on a sightability correction factor for that survey since we are having problems with the model. In the off years some moose classification data is collected during aerial deer surveys in December. That data is reported in the JCR report graphs and tables but sample sizes are very inadequate and those ratios are not reliable.

## Harvest Data

Antlerless harvest opportunity has been very limited in this herd unit. We have drastically reduced the number of licenses in the last six years. Type 1 hunts still have very good success rates. Hunt area 26 is considered a very good quality moose hunt with potential for trophy animals. Area 26 has ample public access and a variety of places to hunt moose. Hunts in areas 33, 36 and 40 are considered good hunts with good success rates but require more time to find moose spread out over large areas. Public access can be more challenging in these areas but access to moose hunting is still available. They are not typically considered trophy areas but mature animals do exist and are harvested. Harvest data from 33, 36 and 40 does not give us much information since sample sizes are very small. In Hunt area 26 harvest data has a better sample size. Tooth age data from Area 26 indicates we have an average age of harvest of 4.07 years old for 2014. Average antler spread in Hunt Area 26 was 37.64 for 2014.

## Population

Currently there is no model for this moose herd. We collect classification data on moose during elk and deer flights. Calf ratios remain good. Bull ratios are very good with the last three helicopter surveys showing ratios in the high 70's. Field observations indicated that the herd declined considerably around 2007/2008. For four consecutive years in Area 26 we saw very low numbers of moose on post-season classification surveys. This was very concerning considering counting conditions were ideal in post-season 2007 and post-season 2010 surveys. We had also experienced a reduction in nuisance moose complaints and reduced field observations of moose. This information prompted us to reduce harvest on this herd significantly over during that time. After the more detailed survey conducted in March of 2014 resulted in 406 observed moose we felt confident that we could offer 50 licenses in the 2014 season. If we can refine the sightability correction for these surveys we may be able to produce a population model for that part of the herd.

## Management Summary

Harvest opportunity was substantially limited in this herd from 2008 to 2014. We will remain fairly conservative for 2015. In Hunt Area 26 the 2015 hunting season will be no change from the 2014 season. In Hunt Areas 33, 36 and 40 we will keep the same number of licenses but Hunt Area 33 will be for **antlerless moose only** (except cow moose with calf at side). Moose in this area are confined to the riparian areas along the Green River. Due to high hunter success, and low densities of moose, this area cannot sustain much harvest every year. Antlerless harvest will only be allowed in Hunt Area 33 due to habitat concerns there. The objective and management strategy were last revised in 2004.

M417 - Lincoln  
HA 26, 33, 36, 40  
Revised 1/2006

