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2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR401 - SUBLETTE

HUNT AREAS: 85-93, 96, 107

PREPARED BY: PATRICK
BURKE

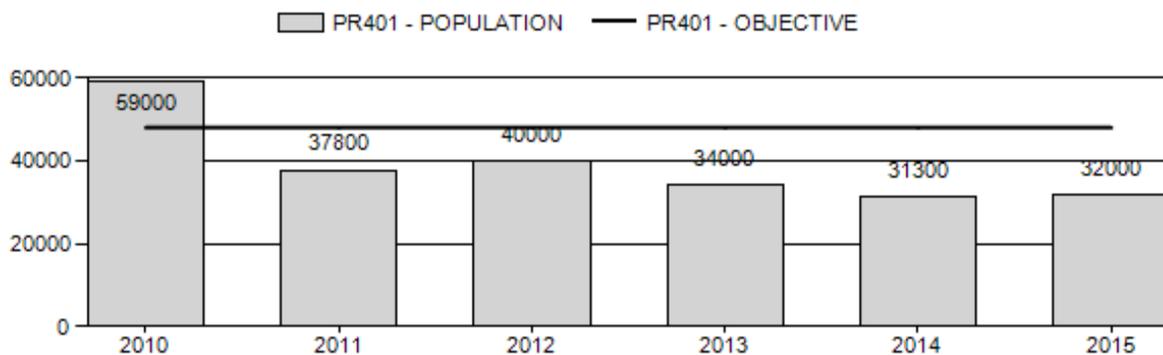
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	40,420	32,000	32,000
Harvest:	4,423	3,304	3,325
Hunters:	4,599	3,395	3,500
Hunter Success:	96%	97%	95 %
Active Licenses:	5,188	3,855	4,000
Active License Success:	85%	86%	83 %
Recreation Days:	16,267	12,858	13,000
Days Per Animal:	3.7	3.9	3.9
Males per 100 Females	54	53	
Juveniles per 100 Females	65	72	

Population Objective (\pm 20%) :	48000 (38400 - 57600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-33.3%
Number of years population has been + or - objective in recent trend:	5
Model Date:	2/23/2016

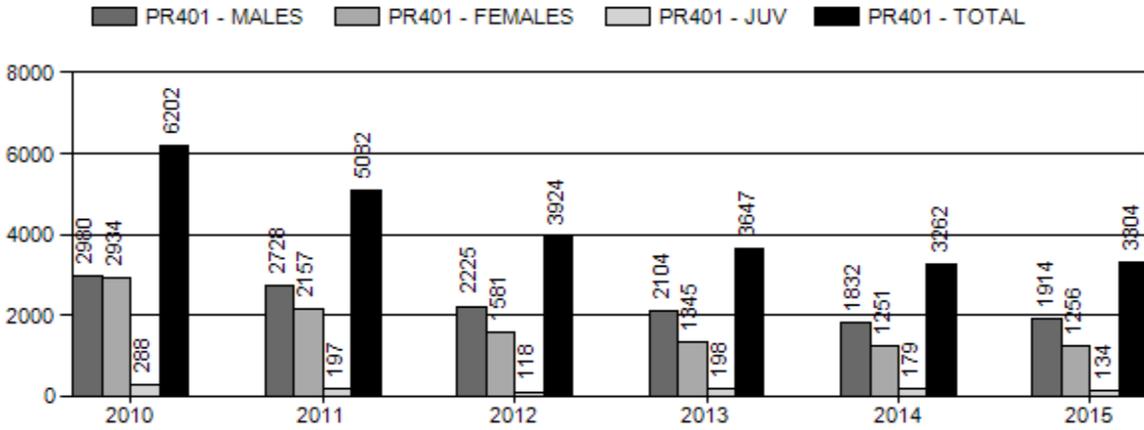
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	8%	9%
Males \geq 1 year old:	26%	25%
Juveniles (< 1 year old):	1%	1%
Total:	8%	10%
Proposed change in post-season population:	0%	0%

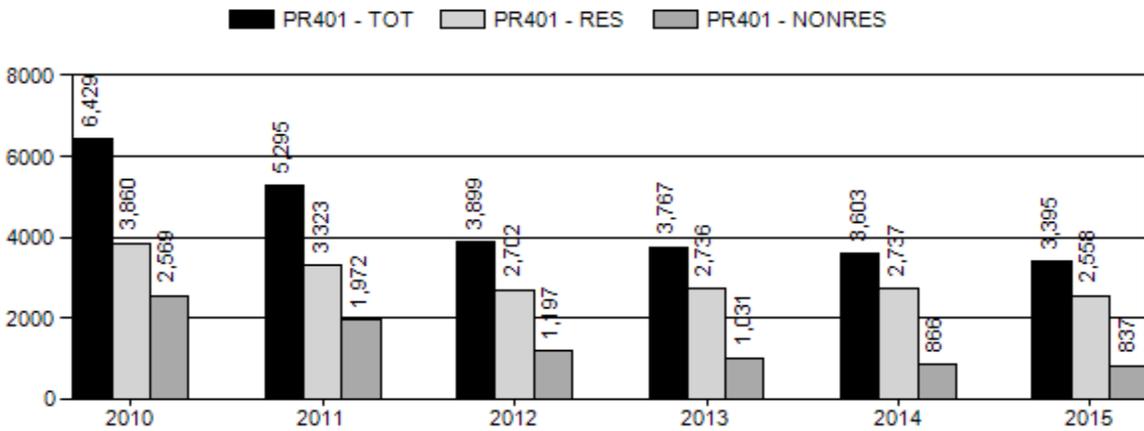
Population Size - Postseason



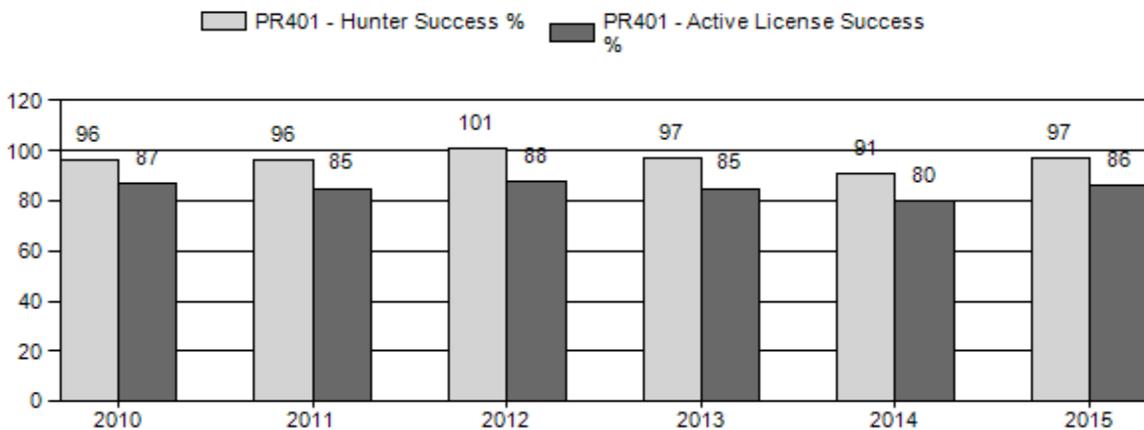
Harvest



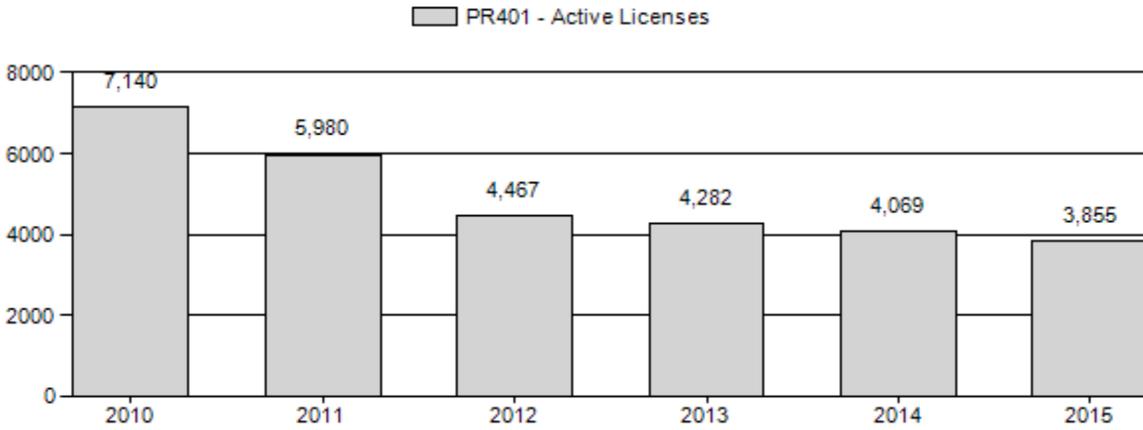
Number of Hunters



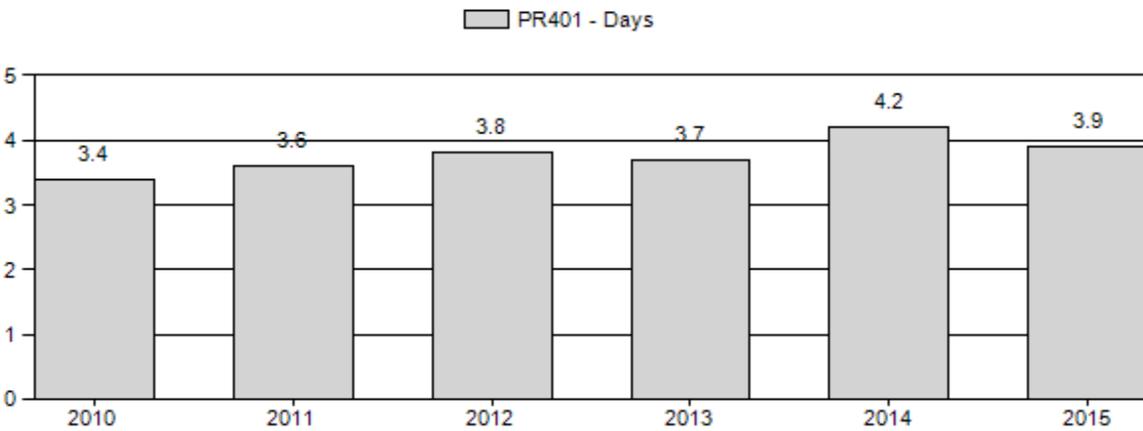
Harvest Success



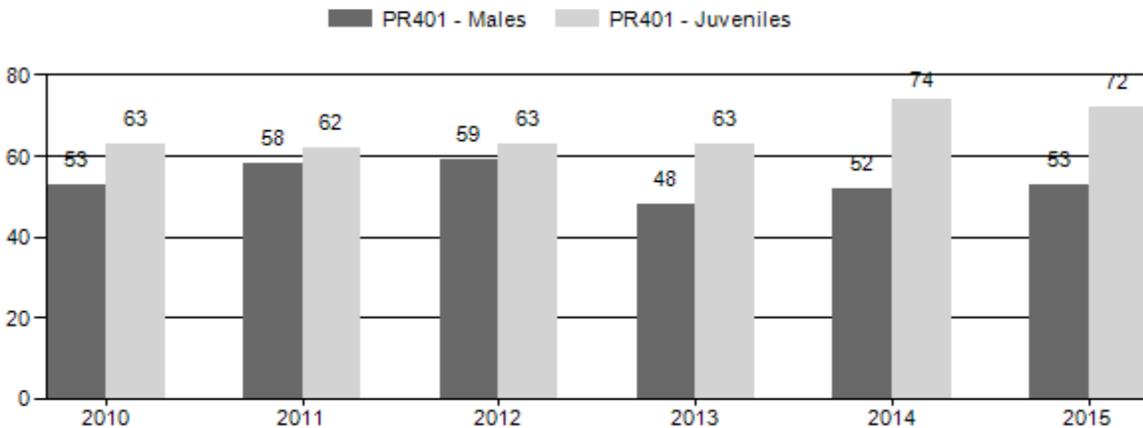
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 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
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	35,500	864	1,651	2,515	24%	4,764	45%	3,408	32%	10,687	2,603	18	35	53	± 2	72	± 2	47

**2016 HUNTING SEASONS
SUBLETTE PRONGHORN HERD (PR401)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
85	1	Sep. 10	Oct. 31	20	Limited quota	Any antelope
86	1	Sep. 10	Oct. 31	50	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	25	Limited quota	Doe or fawn
87	1	Sep. 10	Oct. 31	200	Limited quota	Any 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
	2	Sep. 25	Oct. 31	150	Limited quota	Any 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
	6	Sep. 10	Oct. 31	150	Limited quota	Doe or fawn, 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
	7	Sep. 25	Oct. 31	150	Limited quota	Doe or fawn, 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
88	1	Sep. 10	Oct. 31	300	Limited quota	Any antelope, except that portion of Area 88 on B.L.M. land immediately west of and adjacent to the East Green River Road (Sublette County Road 23-110) and west of Sublette County Road 23-179 shall be closed
	6	Oct. 1	Oct. 31	325	Limited quota	Doe or fawn, except that portion of Area 88 on B.L.M. land immediately west of and adjacent to the East Green River Road (Sublette County Road 23-110) and west of Sublette County Road 23-179 shall be closed

89	1	Sep. 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
	6	Nov. 1	Nov. 15			Unused Area 89 Type 6 licenses valid south of Middle Piney Creek and south of Wyoming Highway 351
90	1	Sep. 10	Oct. 31	225	Limited quota	Any antelope valid east of U.S. Highway 191
	2	Sep. 10	Oct. 31	150	Limited quota	Any antelope valid west of U.S. Highway 191
	6	Sep. 10	Oct. 31	150	Limited quota	Doe or fawn valid east of U.S. Highway 191
	8	Aug. 15	Sep. 9	50	Limited quota	Doe or fawn valid on private land east of U.S. Highway 191
	1	Sep. 10	Oct. 31	350	Limited quota	Any antelope
91	6	Sep. 10	Oct. 31	200	Limited quota	Doe or fawn
	7	Aug. 15	Oct. 31	75	Limited quota	Doe or fawn valid on private land and Bureau of Reclamation land within Sweetwater County
	1	Sept. 10	Oct. 31	125	Limited quota	Any antelope
92, 96	7	Sept. 10	Oct. 31	50	Limited quota	Doe or fawn valid within the Farson-Eden Irrigation Project
	1	Sept. 10	Oct. 31	500	Limited quota	Any antelope
93	6	Sept. 10	Oct. 31	25	Limited quota	Doe or fawn
	7	Sept. 10	Oct. 31	200	Limited quota	Doe or fawn valid in that portion of Area 93 north and west of Wyoming Highway 189
	8	Oct. 1	Nov. 30	100	Limited quota	Doe or fawn valid on private land north and west of Wyoming Highway 189

107	1	Sept. 10	Oct. 22	50	Limited quota	Any antelope
	6	Sept. 10	Oct. 22	50	Limited quota	Doe or fawn
	0	Aug. 20	Sept. 9	50	Limited quota	Any antelope, muzzleloading firearms and handguns only

Special Archery Season Hunt Areas	Opening Date	Limitations
85-93, 107	Aug. 15	Refer to Section 2 of this Chapter

Hunt Area	Type	Quota change from 2015
90	6	-25
	8	+25
91	1	-25
	7	-50
92	7	+25
93	1	+100
	7	+50
	8	+100
96	1	-25
	7	-25
Herd Unit Total	1	+50
	6	-25
	7	-25
	8	+125

Management Evaluation

Current Management Objective: 48,000

Management Strategy: Recreational

2014 Postseason Population Estimate: ~32,000

2015 Proposed Population Estimate: ~32,000

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 2015 post-season modeled population estimate for the Sublette herd is approximately 32,000 pronghorn with a stable trend. The last two line-transect surveys conducted in this herd unit have yielded lower estimates for where this herd is in relation to its population objective than previous line-transect estimates. 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 2015 saw substantially better moisture in most 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 and 2015. 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 drowned sage-brush living in low-laying areas. Improved precipitation levels during the summer of 2015 did result in better plant growth than had been seen in the previous three years.

Field Data

Pre-season ground classifications conducted in August of 2015 resulted in observed ratios of 72 fawns per 100 does as well as 53 total and 18 yearling bucks per 100 does for the herd unit. A total of 10,687 pronghorn were classified across the whole herd unit, which is very similar to the 10,793 classified in 2014, but 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 2015 hunting season saw a slight increase in the harvest that was reported from the 2014 season. The total number of pronghorn harvested herd unit wide in 2014 was 3,304 pronghorn. This compares to 3,262 pronghorn harvested in 2014. Days per animal harvested declined slightly in 2015 to 3.9 days per animal harvested compared to 2014's 4.2 days per animal. The overall success rate in 2015 was 83% for the Type 1 licenses and 83% success for the doe/fawn licenses in the herd unit.

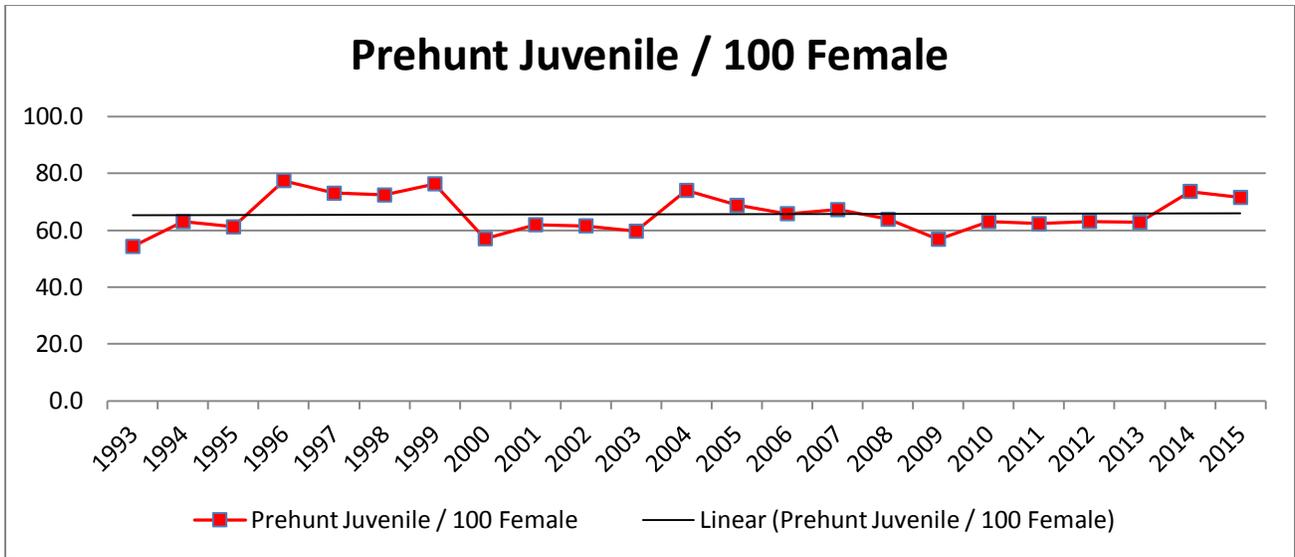
Population

The model for the Sublette herd does an OK 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.

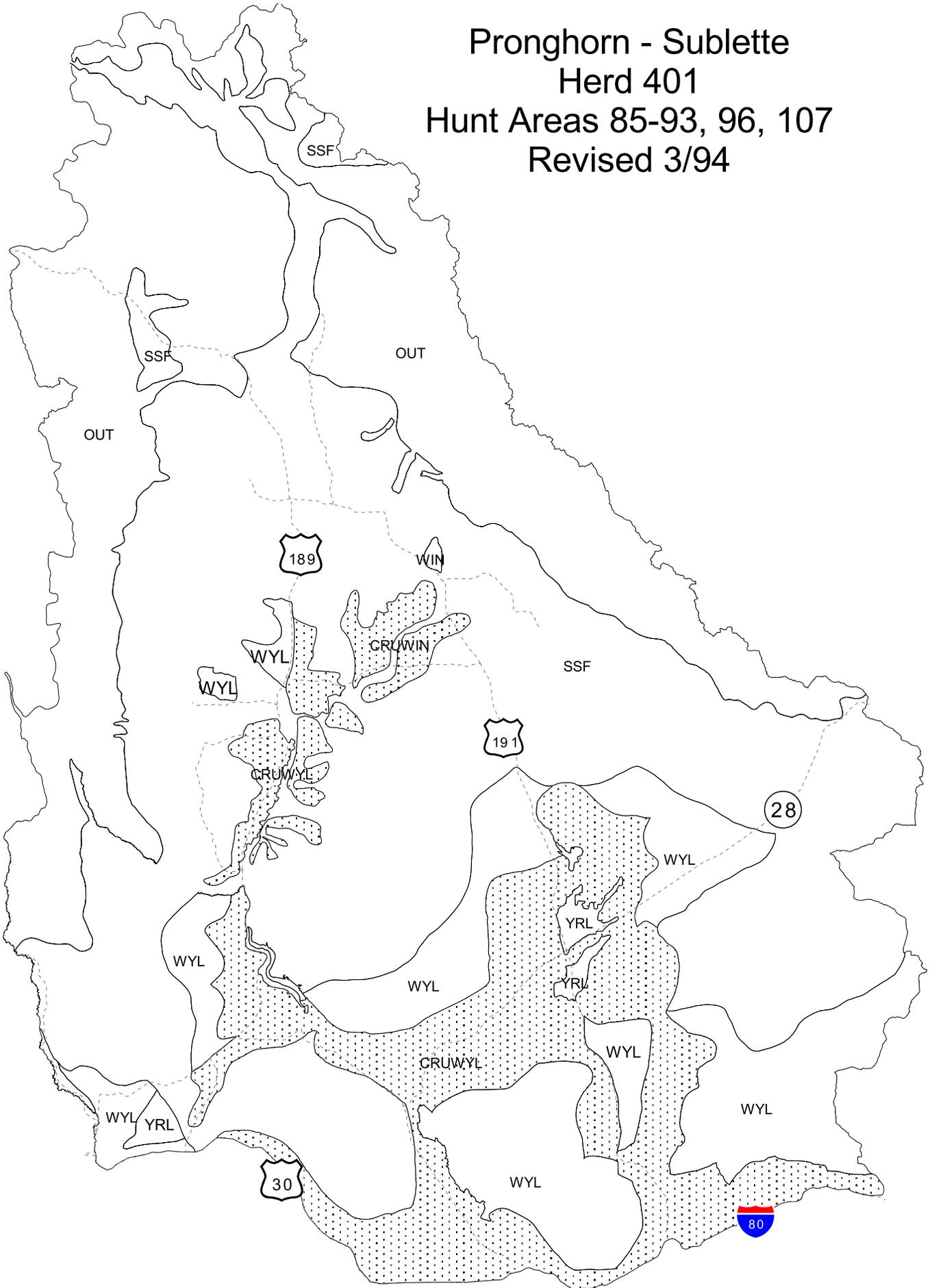
A line-transect survey was flown in the Sublette herd in June of 2013 to obtain an end of bio-year estimate for the 2012 bio-year. That survey was designed and analyzed using a stratified design to account for low, medium, and high density areas of the herd unit. The resulting end of bio-year population 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 package is similar to previous hunting seasons for the herd unit, but does include changes in 5 of the hunt areas in the herd unit. Reductions in one or more license types will occur in HAs 90, 91, and 96; and increases will happen in HAs 90, 92, and 93, along with the creation of a new license type in HA93. These were proposed due to concerns over lower pronghorn numbers in the middle and southern portions of the herd and concerns about pronghorn numbers on private land in the western portion of HA93. The 2016 seasons also includes combining HAs 92 and 96 due to extremely low pronghorn densities in HA96 and removing the stand alone HA96 licenses from the season offering. This change was instituted 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. The 2016 seasons should result in approximately 3,325 pronghorn being harvested with 1,925 bucks, 1,350 does and 50 fawn projected to be harvested assuming similar success rates to previous seasons. This level of harvest should result in the population remaining fairly stable between the 2015 and 2016 seasons at approximately 32,000 pronghorn. If this population is to grow to near its population objective of 48,000 animals, doe and fawn harvest rates will have to be reduced in future hunting seasons.



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



2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR411 - UINTA-CEDAR MOUNTAIN

HUNT AREAS: 95, 99

PREPARED BY: JEFF SHORT

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	10,365	6,355	6,363
Harvest:	878	880	840
Hunters:	934	941	900
Hunter Success:	94%	94%	93%
Active Licenses:	1,019	1,051	1,000
Active License Success:	86%	84%	84%
Recreation Days:	3,654	4,481	4,400
Days Per Animal:	4.2	5.1	5.2
Males per 100 Females	58	73	
Juveniles per 100 Females	58	69	

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

Management Strategy: Recreational

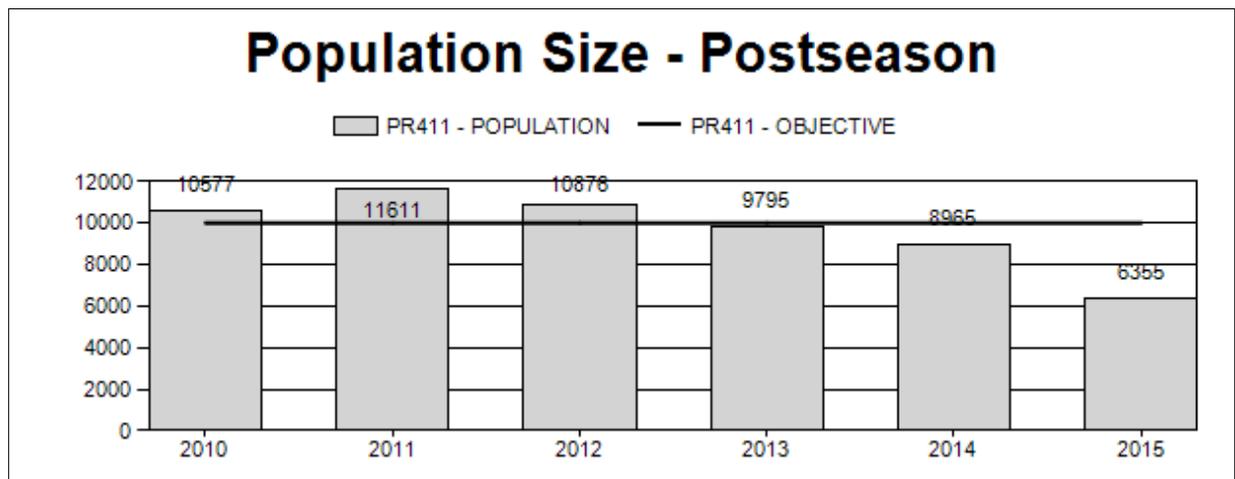
Percent population is above (+) or below (-) objective: -36.4%

Number of years population has been + or - objective in recent trend: 10

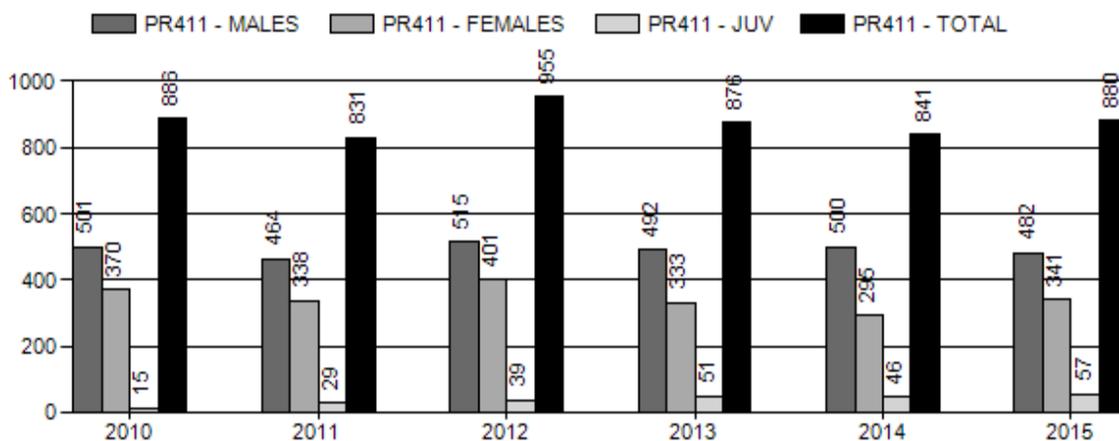
Model Date: 02/16/2016

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

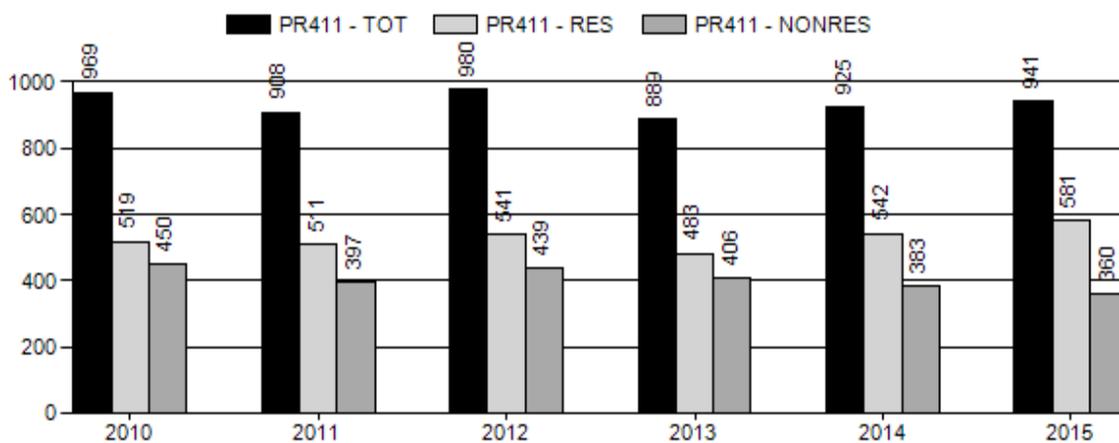
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	10.2%	8.7%
Males ≥ 1 year old:	28.6%	27.8%
Juveniles (< 1 year old):	2.5%	2.0%
Total:	12.0%	11.5%
Proposed change in post-season population:	8.0%	0.12%



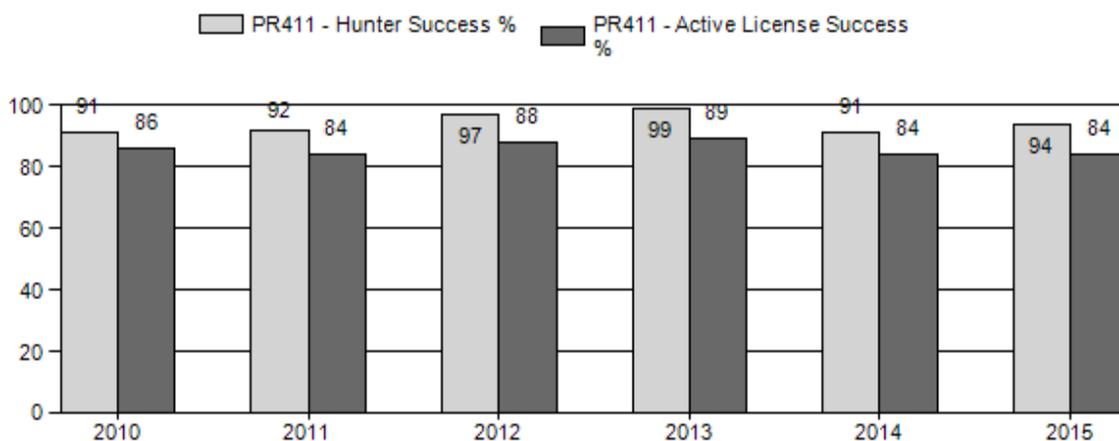
Harvest



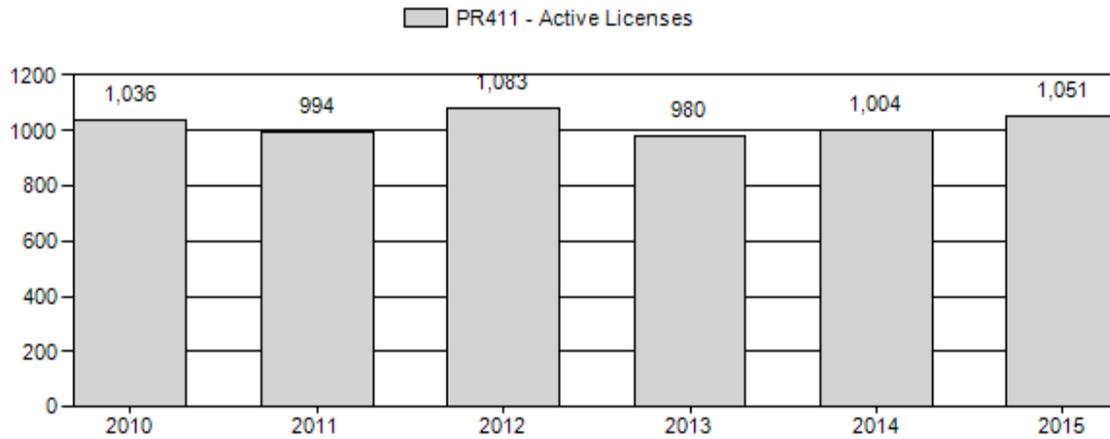
Number of Hunters



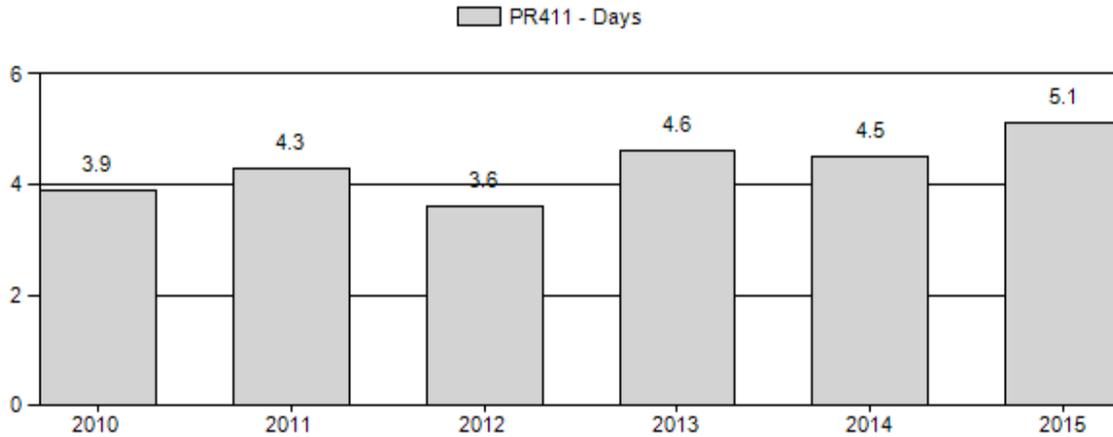
Harvest Success



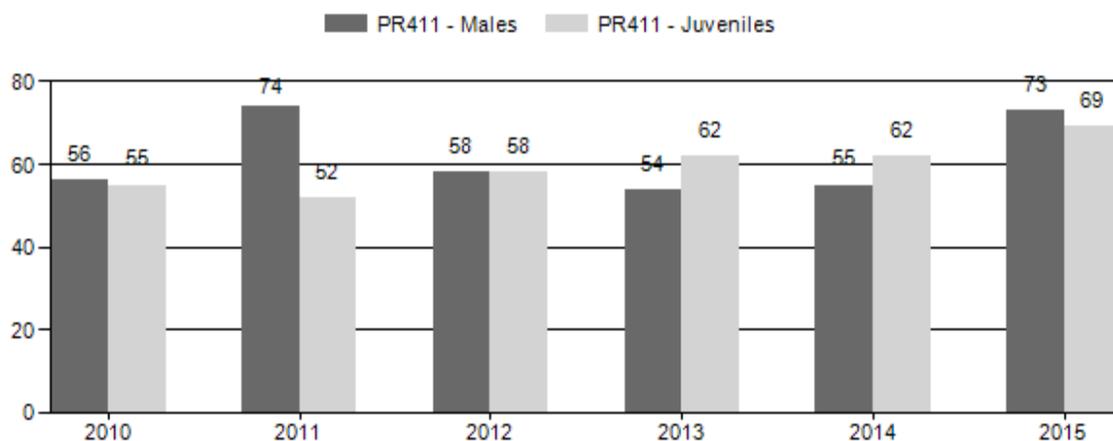
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR411 - UINTA-CEDAR MOUNTAIN

Year	Pre 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
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	7,323	201	392	593	30%	812	41%	563	29%	1,968	0	25	48	73	± 6	69	± 5	40

2016 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	Sep. 10	Oct. 31	325	Limited	Any antelope
	7	Aug. 15	Oct. 31	200	Limited	quota Doe or fawn valid on irrigated land
99	1	Sep. 10	Oct. 31	225	Limited	Any antelope
	6	Sep. 10	Oct. 31	100	Limited	quota Doe or fawn
	7	Sep. 10	Nov. 30	200	Limited	quota Doe or fawn valid north and west of Wyoming Highway 410 and west of Uinta County Road 271
	0	Sep. 1	Oct. 31	50	Limited	quota Any antelope, muzzle-loading firearms only
95, 99	Archery	Aug. 15	Sept. 9		Limited	Refer to Section 2 of this chapter
					quota	

Hunt Area	License Type	Quota change from 2015
95	7	+50
99	6	-200
Herd Unit Total	6	-200
	7	+50

Management Evaluation

Current Postseason Population Management Objective: 10,000

Management Strategy: Recreational

2015 Postseason Population Estimate: ~6,355

2016 Proposed Postseason Population Estimate: ~6,363

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 2015 and into 2016 has been highly variable. In the early part of 2015 the winter was very mild and dry. A moist spring and summer followed. In late August conditions dried considerably and a relatively dry fall continued into late December. Winter did not set in until mid December but it came in abruptly. The winter of 2015-2016 has been very cold with high snow loads to this point and pronghorn have migrated to crucial winter ranges. A much needed warming trend has occurred in February and it remains to be seen how the winter will ultimately shape out. The winters from 2011 to 2015 were very mild with low snowpack and relatively warm temperatures resulting in very mild winter conditions. However, the dry springs and summers of 2012 and 2013 negatively impacted summer and winter range forage production.

Habitat

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

Field Data

The 2015 post-season population estimate is 6,355 animals with a downward trend since 2011. A line transect survey was flown in 2015. Survey variance has been high for this herd unit in the past and a new survey design was used in 2015. This was an end of bio year 2014 estimate of 4,923 with a relatively low variance. The previous line transect survey conducted in this herd unit was in June 2009. Originally, that survey was reported as an estimate of 10,997 pronghorn for the end of bio year 2008 with a huge variance on the estimate. A new method was used to reanalyze that survey data which resulted in a much lower estimate of 6,009 with a much lower variance. The addition of this information has significantly changed population estimates for this herd from previous estimates.

Harvest Data

In 2012 Area 99 a type 7 hunt was added to target specific depredation problems west of Mountain View. We have increased those permits over time to address continual complaints. Hopefully this will help to alleviate private land problems. Conservative seasons continue to be warranted overall in HA 95 due to low productivity in this dry environment. We have increased hunt area 95 type 7 (irrigated land only) licenses to alleviate damage issues on key parcels.

Doe/fawn harvest opportunity was increased every year for several years in area 99. This was to alleviate pressure on limited winter ranges and to address landowner concerns. The 2009, 2010 and 2011 season structures offered substantial 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 had good success rates. This management framework has reduced this population segment. Public land areas of hunt area 99 have much lower antelope populations due to those type 6 licenses. We are now reducing this harvest pressure since the herd is well below objective. For 2015 we will reduce area 99 type 6 licenses. We will maintain type 7 licenses to target antelope on private lands.

Population

The TSJ,CA model was selected due to the low Relative AICc score, its good fit with the data. 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 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.

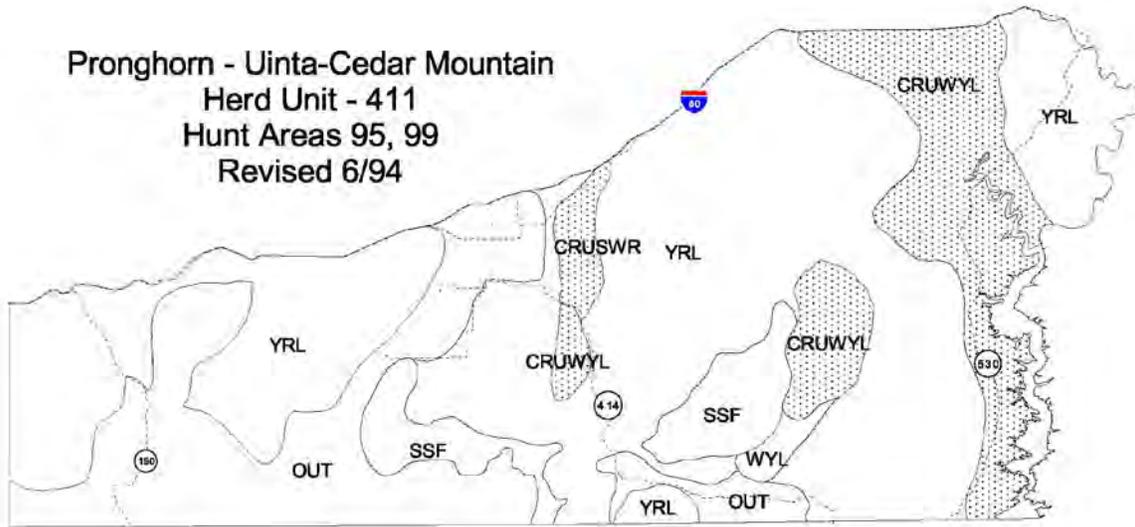
Due to significant documented differences in density and productivity between hunt areas within this herd unit models generated for this herd should be used with some caution. However, with consistent good line transect data it should be able to perform in the future. In 2012 the Department switched 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.

The model underwent a lot of change this year with the addition of new and refined line transect data. The addition of this information has significantly changed population estimates for this herd from previously reported estimates. Currently the model is estimating we have around 6,355 pronghorn in the herd. The model estimates a downward trend since 2011. This is substantiated by a reduction in classification sample sizes and field observations in hunt area 99.

Management Summary

For 2016 season setting we will maintain similar levels of harvest in hunt area 95 while putting more pressure on antelope using private irrigated lands. This should continue to alleviate depredation issues and keep that part of the population fairly stable. We will back off on antlerless harvest in parts of area 99 to hopefully help that population segment rebound. The model predicts a 2016 post-season population of about 6,363. The objective and management strategy were last revised in 2014.

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



2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR412 - SOUTH ROCK SPRINGS

HUNT AREAS: 59, 112

PREPARED BY: PATRICK BURKE

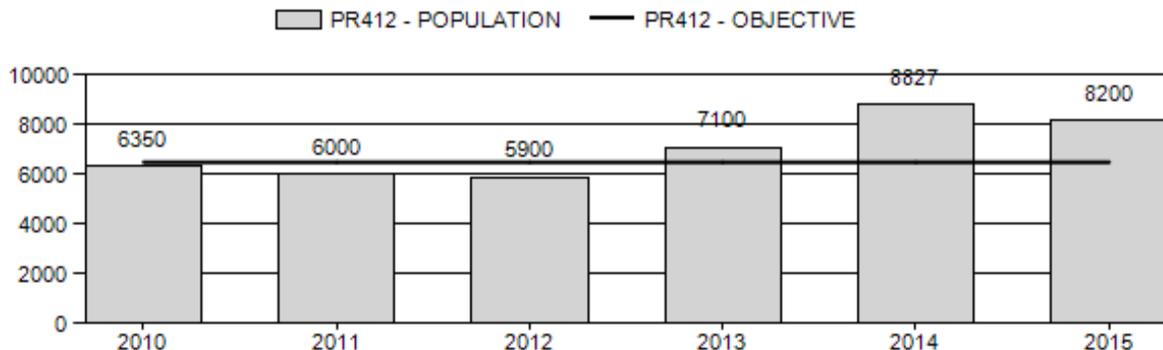
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	6,835	8,200	8,200
Harvest:	339	295	340
Hunters:	377	320	360
Hunter Success:	90%	92%	94 %
Active Licenses:	389	320	360
Active License Success:	87%	92%	94 %
Recreation Days:	1,235	1,028	1,200
Days Per Animal:	3.6	3.5	3.5
Males per 100 Females	42	49	
Juveniles per 100 Females	50	64	

Population Objective ($\pm 20\%$) : 6500 (5200 - 7800)
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: 26%
 Number of years population has been + or - objective in recent trend: 0
 Model Date: 02/17/2016

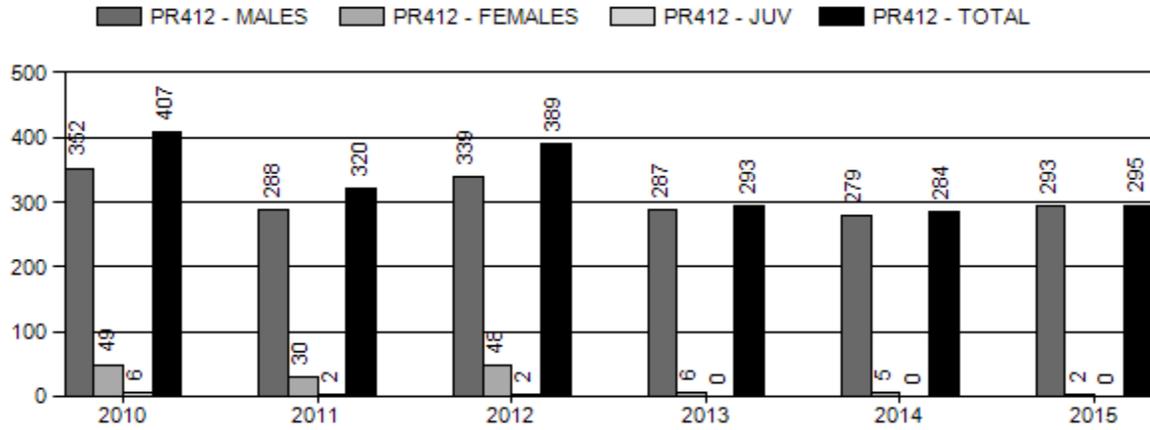
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	.1%	1.1%
Males ≥ 1 year old:	20%	18%
Juveniles (< 1 year old):	0%	0%
Total:	4%	4%
Proposed change in post-season population:	0%	-1%

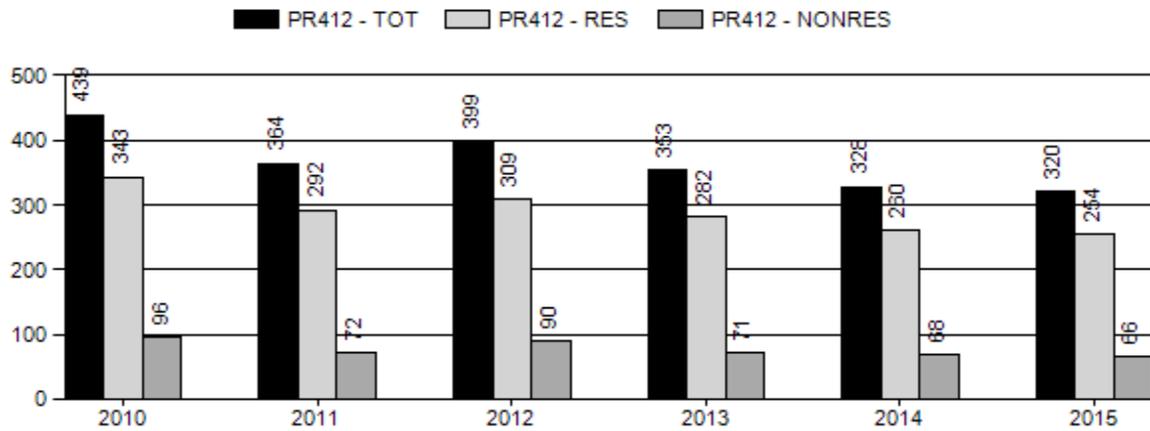
Population Size - Postseason



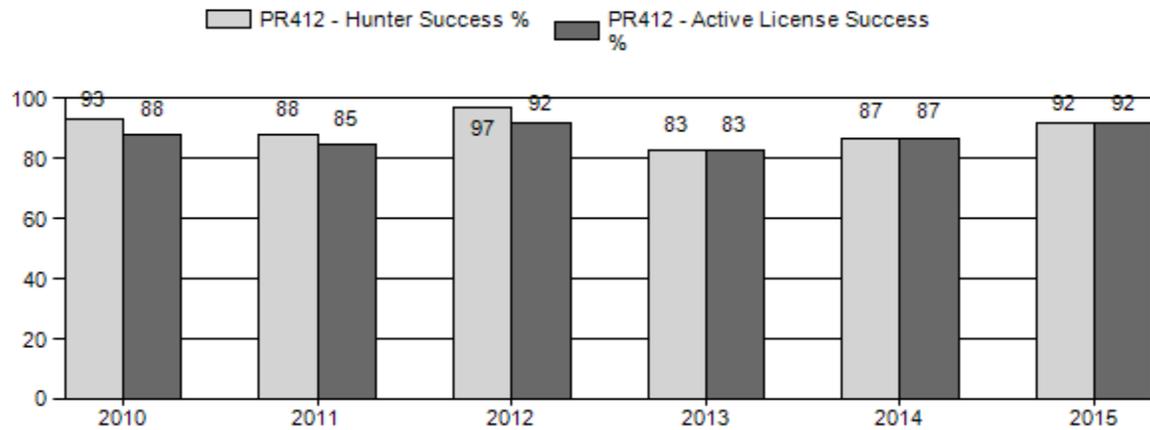
Harvest



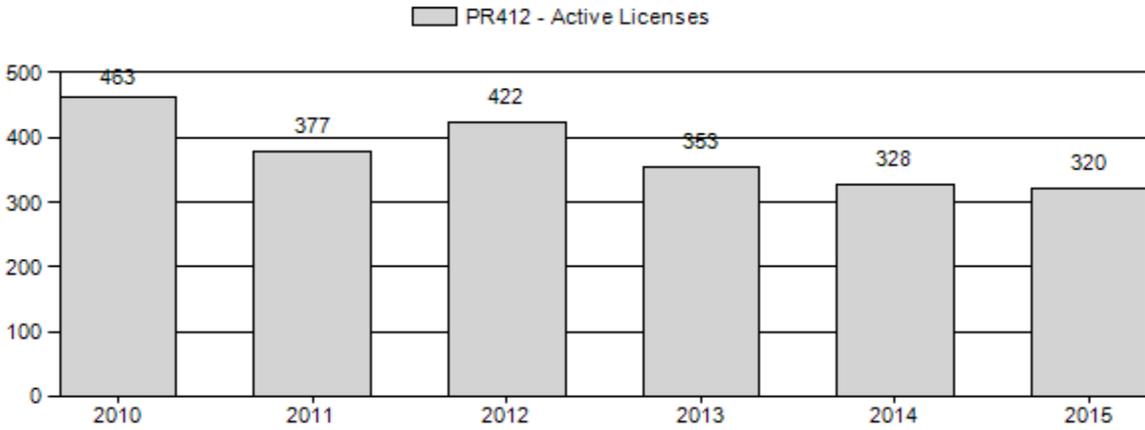
Number of Hunters



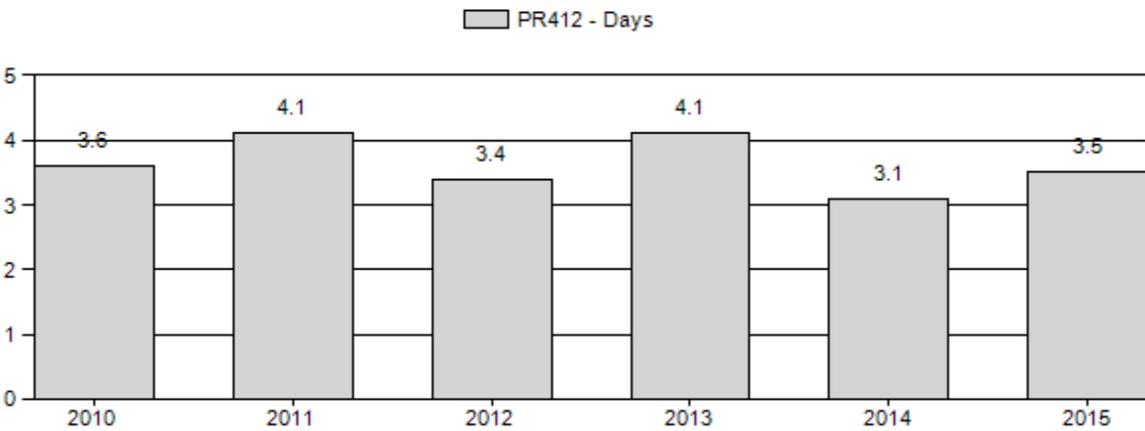
Harvest Success



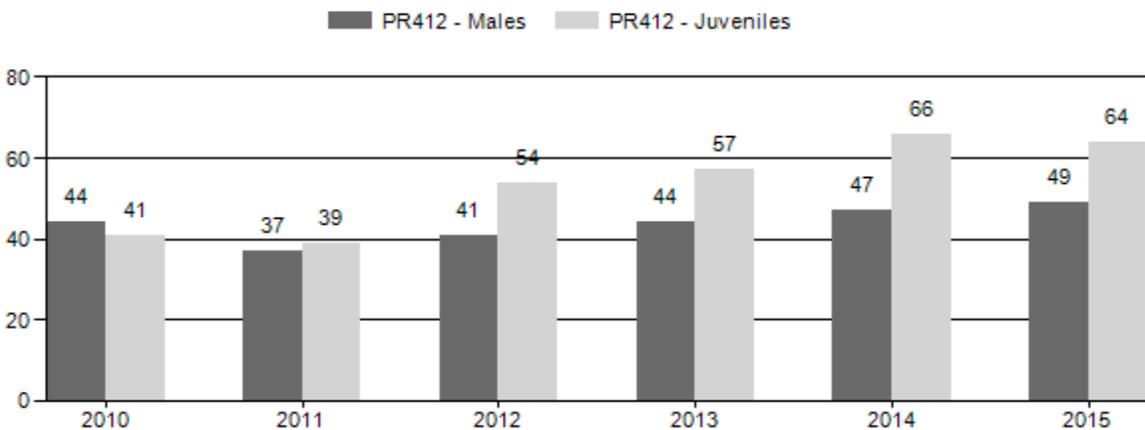
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd 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
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	8,500	179	250	429	23%	873	47%	558	30%	1,860	1,940	21	29	49	± 4	64	± 5	43

**2016 HUNTING SEASONS
SOUTH ROCK SPRINGS PRONGHORN HERD (PR412)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
59	1	Sept. 20	Oct. 31	250	Limited quota	Any antelope
	6	Sept. 20	Oct. 31	25	Limited quota	Doe or fawn
112	1	Sept. 20	Oct. 31	100	Limited quota	Any antelope
	6	Sept. 20	Oct. 31	25	Limited quota	Doe or fawn

Special Archery Season Hunt Areas	Opening Date	Limitations
59, 112	Aug. 15	Refer to Section 2 of this Chapter

Hunt Area	Type	Quota change from 2015
59	6	+25
112	6	+25
Herd Unit Total	6	+50

Management Evaluation

Current Management Objective: 6,500

Management Strategy: Recreational

2015 Postseason Population Estimate: ~9,000

2016 Proposed Postseason Population Estimate: ~9,000

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 2015 post-season population to be a little over 8,000 pronghorn. This estimate is a significant increase from recent population estimates that estimated the herd to be slightly under objective. 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 2,000 animals in just two years. The most likely explanation for the larger population estimate is a combination of somewhat higher observed buck to doe ratios in the last couple of years and slightly increased observed fawn to doe ratios. The observed fawn ratios for the last three years have only been in the mid 50's to the mid 60's. Fawn ratios in this range should not cause the population to increase, especially at the rate suggested by the model. Typically, fawn ratios in this range would result in population maintenance and not an overall population increase.

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 at the Rock Springs monitoring station with only 3.13 inches of precipitation recorded, 2013 was the 5th driest with 4.68 inches of precipitation measured and 2014 was the second driest on record with only 4.24 inches of precipitation for the year. This lack of moisture was especially evident in areas of the herd unit below 8,000 ft. Near normal precipitation levels were documented in 2015, with 8.62 inches of precipitation recorded at the Rock Springs monitoring site. Most of the moisture came in July, however which did not benefit plant growth as much as if it had arrived earlier in the growing season. Unlike the South Rock Springs deer herd, all indications are that this pronghorn herd has dealt fairly well with these conditions though. 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, even with the better precipitation experience in the summer of 2015. Some portions of the herd unit did receive good snowfall amount during the 2015-2016 winter, hopefully the moisture from this winter precipitation will help recharge some of these groundwater sources.

Habitat

No habitat transects targeting pronghorn ranges have been conducted in the South Rock Springs pronghorn herd unit. However, the dry summers of recent years 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 lately. The summer of 2015 saw better moisture than the previous three summers, but was only average in the amount of precipitation received with much of that moisture coming latter in the summer.

Field Data

Pre-season classifications conducted in August 2015 resulted in observed fawn to doe ratios of 63 fawns per 100 does. This observed fawn to doe ratio is the above the long term average for the herd, but slightly down from the 66 fawns per 100 does seen in 2014. Pre-season classifications also resulted in observed buck ratios of 49 total bucks per 100 does for the herd unit as a whole, which is well within the approved range for a recreational management herd.

Harvest Data

Harvest statistics for the 2015 hunting season were typical for this herd. Harvest success for the herd unit was 92% Days per harvest was 3.5 days per harvest during the 2015. A total of 295 pronghorn were harvested in 2015, with 293 bucks and 2 does being harvested. Broken out by hunt area, HA59 had a 96% success rate and 3.3 days per harvest with a total of 223 bucks harvested and HA112 had a 82% success rate and 4 days per harvest with a total of 70 bucks and 2 does harvested.

Population

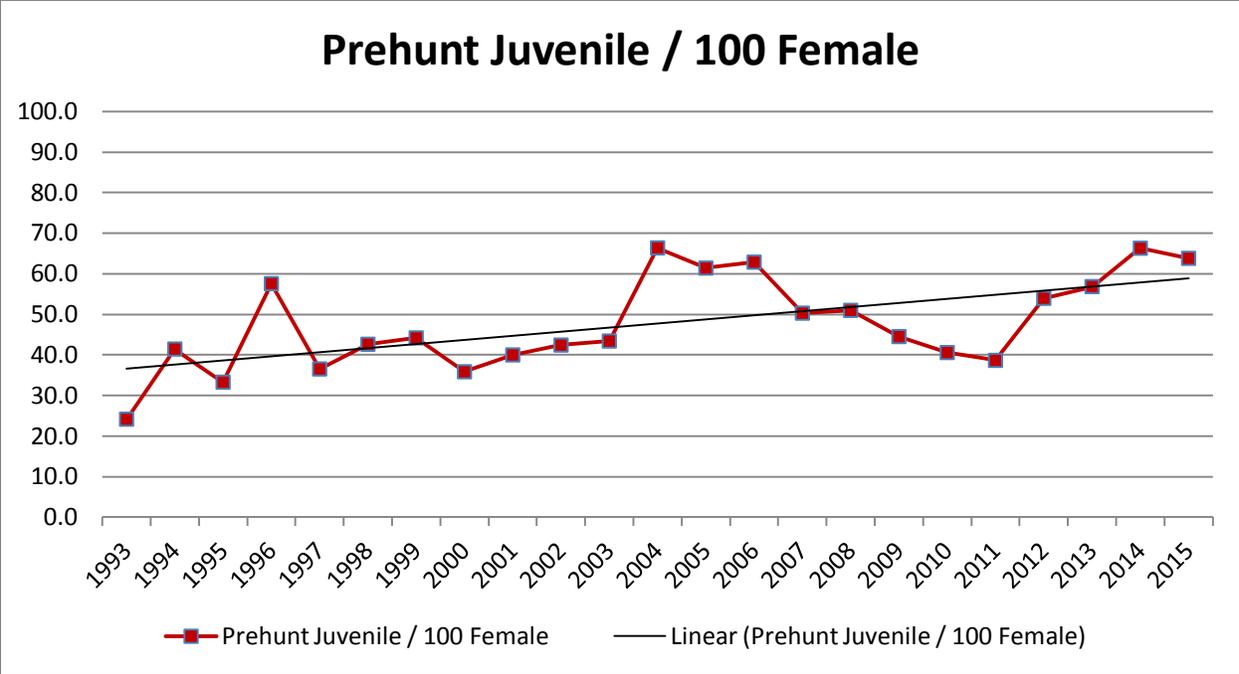
The model for this population has tracked fairly well with field observations of this herd until 2013, when the post-season population estimate moved in a direction counter to the field observations of both the managers and the public. The model performance in 2015 continues to be poor, with the model “running away” and forecasting a simply unrealistic growth rate. The growth predicted by the model of almost 2,000 animals in just a few years is simply not possible given the fawn ratios and habitat conditions present 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.

A line-transect survey was flown in this herd unit in June of 2015 for an end of bio-year 2014 estimate. The result of the LT survey was a point estimate of 6,650 pronghorn with a standard error of 1,033 animals. This estimate along with the model goes contrary to what is seen on the ground in August and September. It should be noted that August classification sample sizes have remained fairly consistent, with the 2015 sample size being right in line with average sample sizes for this herd. While classification sample sizes are in no way a population estimate, one would expect the number of animals classified to increase if the herd was indeed increasing at a rapid rate as is being suggested by the computer model.

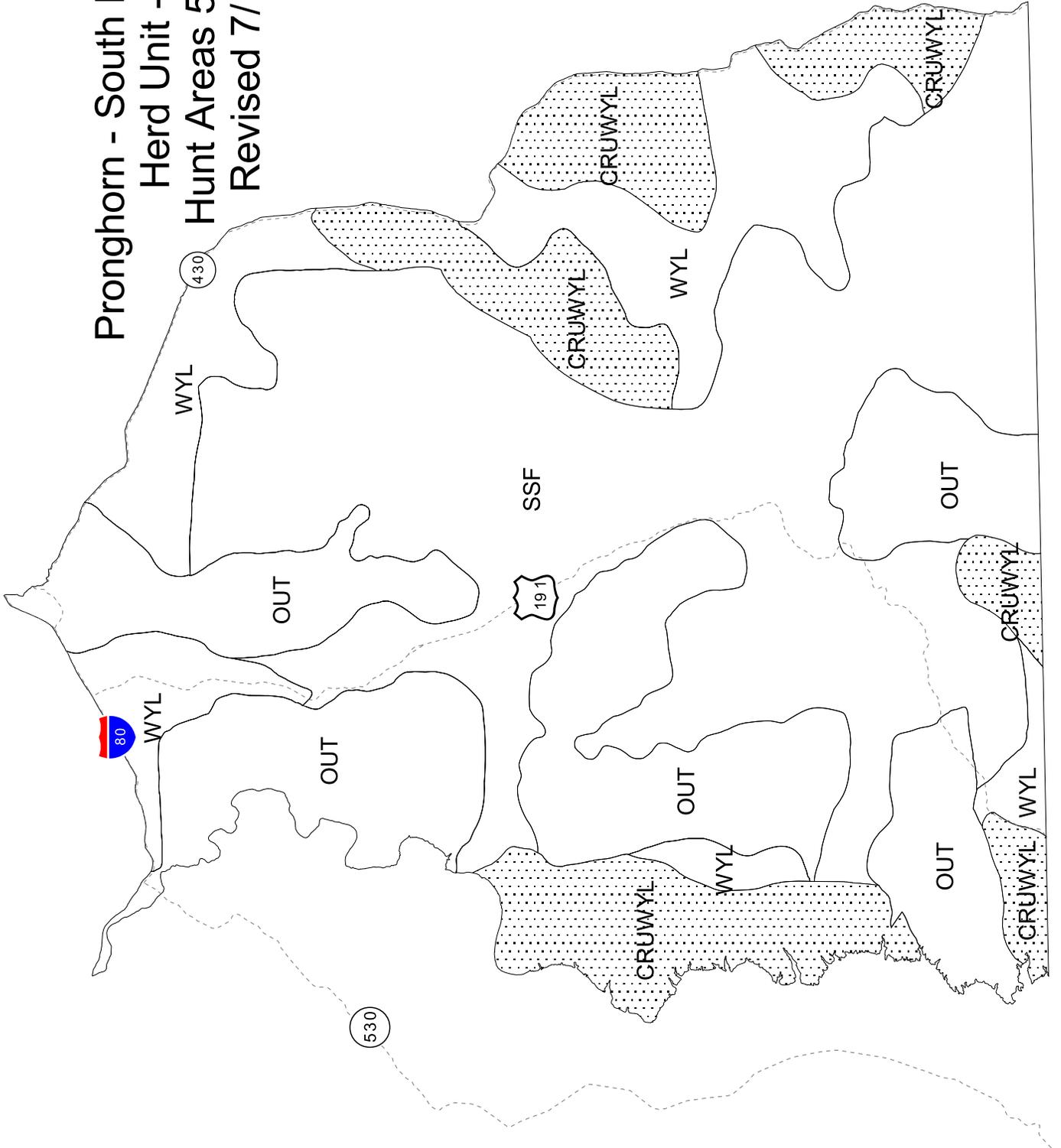
The time-specific juvenile survival model was selected for this herd because of its relative AIC value and because that model best fit the field observations of the population and the biology of the species.

Management Summary

The hunting season for 2016 is identical to the 2015 season in regards to the number of Type 1 licenses being offered in both hunt areas in the herd unit. The observed buck to doe ratio of 49 bucks per 100 does is right in the middle of the management prescription for a recreational management herd, indicating that the number of buck licenses issued in the herd has been appropriate. The 2016 season offering does include adding 25 Type 6 licenses in both hunt areas. This license type is being offered due to the feeling by the local managers that some level of doe hunting opportunity is possible in this herd unit without negatively affecting the population.



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



2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR414 - BITTER CREEK

HUNT AREAS: 57-58

PREPARED BY: TONY MONG

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	9,453	15,900	16,100
Harvest:	238	258	450
Hunters:	248	281	500
Hunter Success:	96%	92%	90%
Active Licenses:	255	285	515
Active License Success:	93%	91%	87 %
Recreation Days:	842	1,133	1,800
Days Per Animal:	3.5	4.4	4
Males per 100 Females	54	56	
Juveniles per 100 Females	42	58	

Population Objective (± 20%) : 15000 (12000 - 18000)

Management Strategy: Special

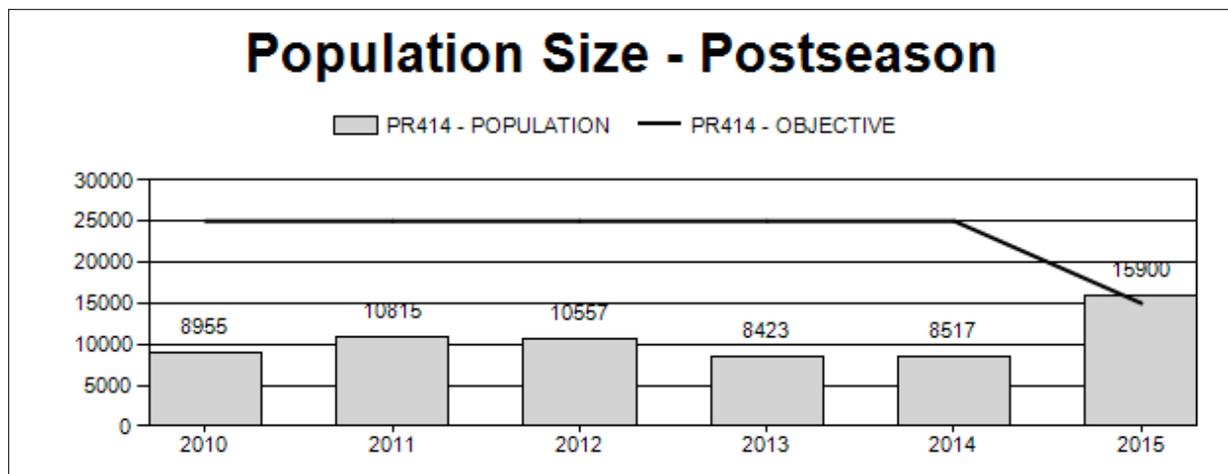
Percent population is above (+) or below (-) objective: 6%

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

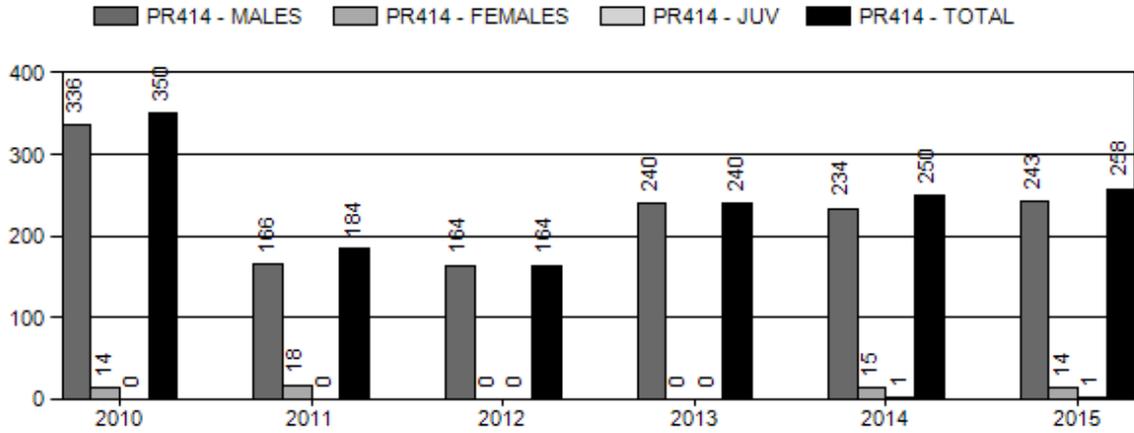
Model Date: 06/20/2016

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

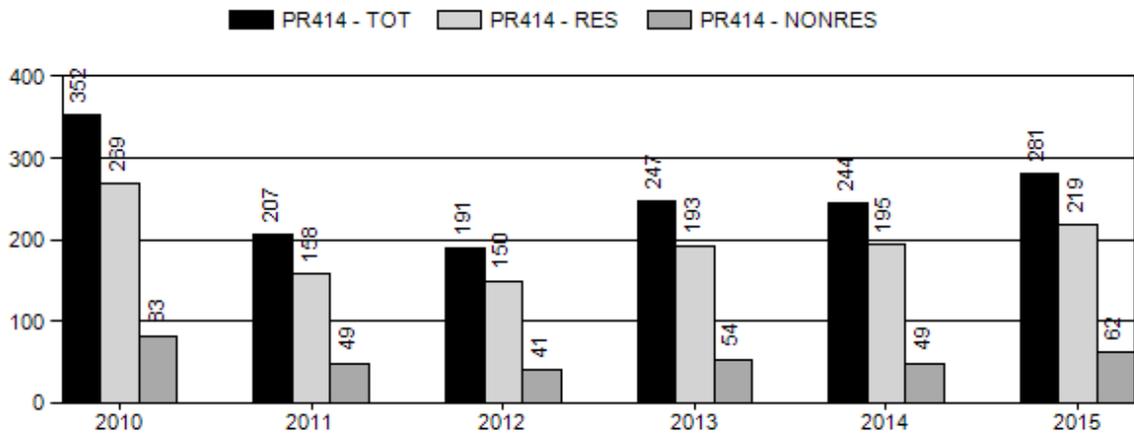
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.4%	2.1%
Males ≥ 1 year old:	11.7%	8.0%
Juveniles (< 1 year old):	0%	0.5%
Total:	3%	4%
Proposed change in post-season population:	10%	1%



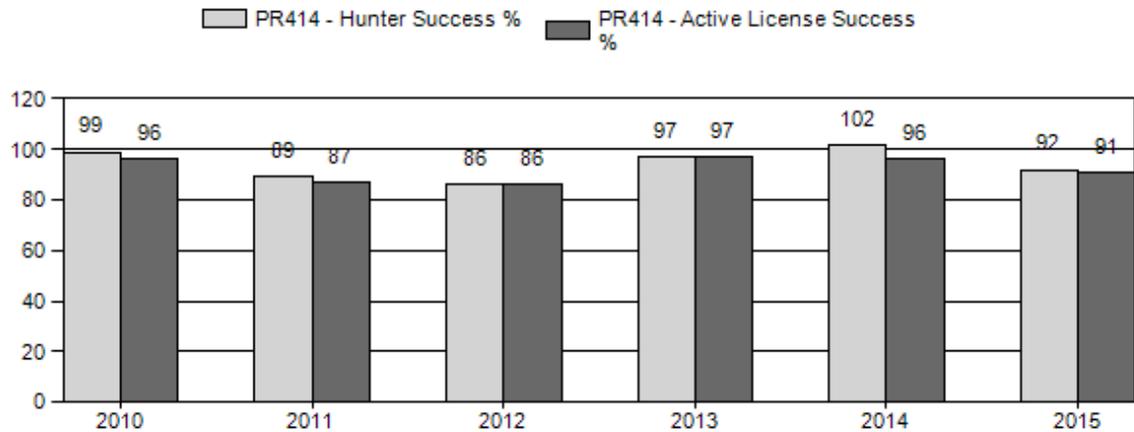
Harvest



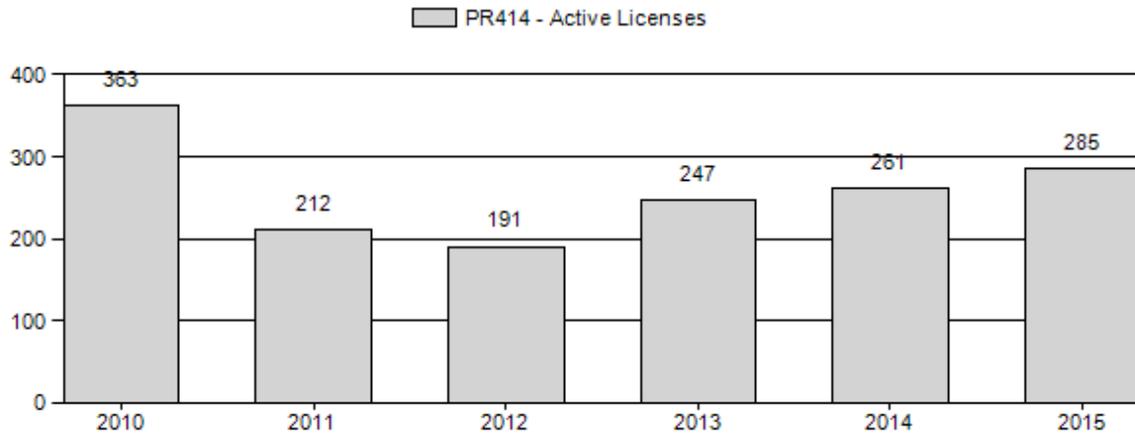
Number of Hunters



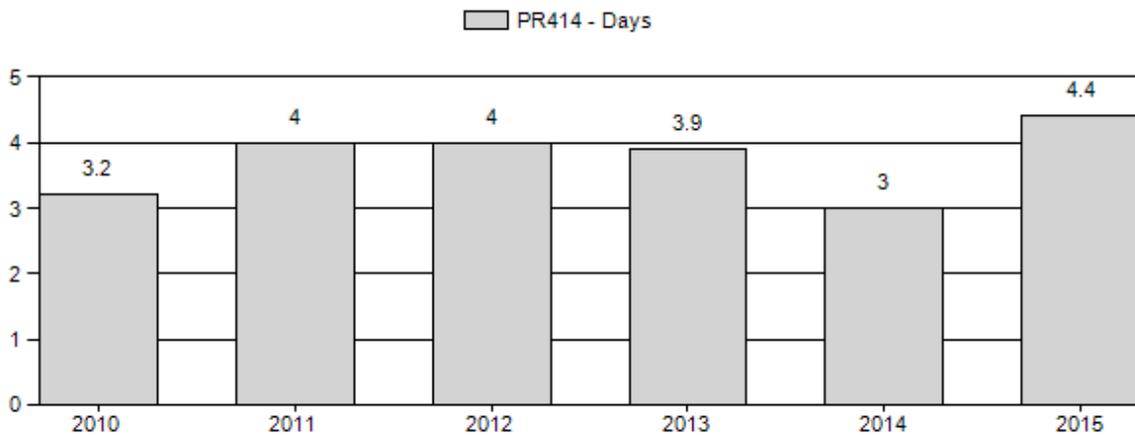
Harvest Success



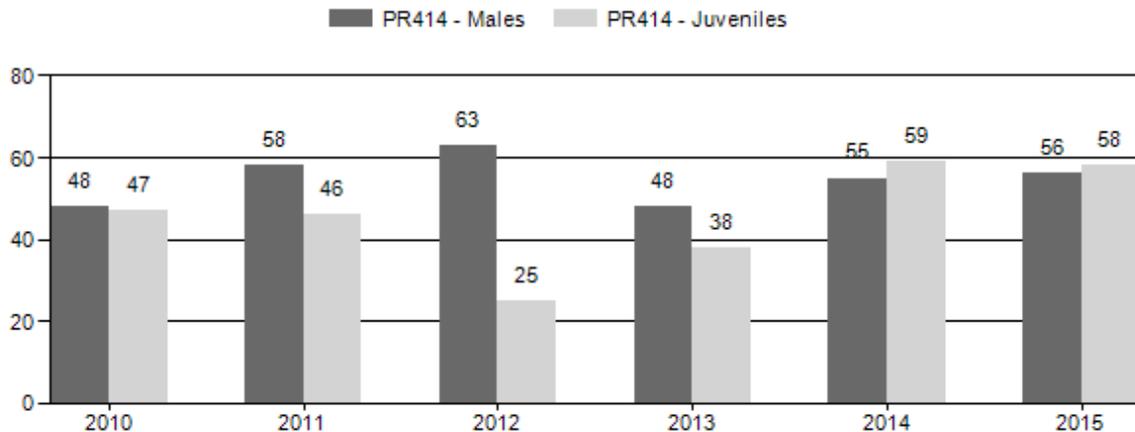
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary																				
for Pronghorn Herd PR414 - BITTER CREEK																				
Year	Pre Pop	MALES				FEMALE		JUVENIL		Tot		Cls		Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%	Cls	Obj	Yng	Adult	Total	Int	Conf	100 Fem	Conf Int	100 Adult	
2010	9,340	39	116	530	24%	1,113	51%	523	24%	2,166	0	4	10	48	± 4	47	± 4	32		
2011	11,018	146	395	541	28%	937	49%	427	22%	1,905	0	16	42	58	± 5	46	± 4	29		
2012	10,737	116	372	549	34%	866	53%	219	13%	1,634	0	13	43	63	± 5	25	± 3	15		
2013	10,390	51	306	357	26%	751	54%	283	20%	1,391	0	7	41	48	± 5	38	± 4	26		
2014	8,792	91	217	308	26%	563	47%	333	28%	1,204	0	16	39	55	± 6	59	± 6	38		
2015	16,200	218	473	691	26%	1,231	47%	709	27%	2,631	0	18	38	56	± 4	58	± 4	37		

2016 HUNTING SEASON

SPECIES : Pronghorn

HERD UNIT : Bitter Creek (414)

HUNT AREAS: 57, 58

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
57	1	Sep. 20	Oct. 31	300	Limited Quota	Any antelope
	2	Sep. 20	Oct. 31	15	Limited Quota	Any antelope valid west of Sweetwater County Road 23S and B.L.M. Road 3310, and north and east of B.L.M. Roads 4411 and 4409
	6	Sep. 20	Oct. 31	100	Limited Quota	Doe or fawn only
	7	Sep. 1	Oct. 31	50	Limited Quota	Doe or fawn valid on or within one (1) mile of private land south of County Road 700 and east of County Road 730
58	1	Sep. 20	Oct. 31	50	Limited Quota	Any antelope

Special Archery Season Hunt Areas	Opening Date	Limitations
57, 58	Aug. 15	Refer to Section 2 of this Chapter

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2015</i>
57	1	+50
	2	+15
	6	+50
	7	0
58	1	+20
<i>Herd Unit Total</i>	<i>1</i>	<i>+70</i>
	<i>2</i>	<i>+15</i>
	<i>6</i>	<i>+100</i>

Management Evaluation

Current Management Objective: 15,000 (2015)

Management Strategy: Special

2015 End-of-bio-year Estimate: 12,431

2016 Proposed postseason Estimate: 15,918

The Bitter Creek herd is at the new objective of 15,000 (set in 2015) therefore our current management strategy is to maintain herd size. We are increasing type 1 licenses in hunt area 57 to allow for more opportunity, creating a hunt area 57 type 6 license to help maintain current population numbers and slightly increasing current license levels in hunt area 58 to allow for more opportunity. The private land type 7 license was successful in curbing damage issues on irrigated meadows in the SE portion of hunt area 57 and we are increasing these for 2016. High pronghorn numbers and a lack of hunter use in the northern portion of hunt area 57 are the basis for the hunt area 57 type 2 license in 2016.

Herd Unit Issues

The main issues impacting the Bitter Creek herd include continued energy development and competition with wild horses. The Bitter Creek herd is facing many challenges through the expansion of the Continental Divide-Creston Junction (CDC) and Desolation Flats gas fields. Currently there are nearly 5,000 wells in the CDC and an EIS for an additional 8,950 infill wells. A majority of these wells occur in summer and winter range 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 2 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, this road bisects current winter range and migration routes. This new road has significantly increased the amount of traffic in areas that had seen minimal travel prior to construction of the new road. The number of proposals to work year-round on both of these sites has increased recently. These landscape level impacts may prove to be a challenge for the pronghorn in the Bitter Creek herd.

Wild horses have been shown to “defend” open water sources and recent fecal analysis is showing a diet overlap with pronghorn. It will be important to work with BLM to delineate distribution as well as estimates based on aerial distance sampling done in conjunction with pronghorn line transects.

Weather

There has been an increase in moisture over the last two years in the Bitter Creek herd unit, especially in 2015, which has caused the filling of reservoirs and a positive response from vegetation (Figure 1). 2015 saw a 150% increase in normal precipitation across the entire herd unit.

The 2014 winter was extremely mild with no noticeable winter kill events. 2015 has seen an unusually high amount of snow in the herd unit, especially in areas that have traditionally seen very little snow along the Colorado/Wyoming border potentially impacting wintering pronghorn. This could lead to higher winter mortality for the pronghorn in the southern portion of the herd unit.

Figure 1. Percent of normal precipitation for the Bitter Creek herd unit from February 2015 to February 2016.



Field Data

We have seen two good years of fawn ratios in the Bitter Creek herd. The average fawn ratio for 2014-2015 (59:100) is significantly higher than the previous five years (38:100). This is encouraging however, high variability in fawn production and buck ratios between hunt areas 57 and 58 are also problematic for this herd. Hunt area 58 has shown extremely low buck ratios in both 2014 and 2015 (42 and 49) compared to hunt area 57 (67 and 64) indicating a significant difference between the two areas in relation to population dynamics. This is also evident with overall fawn production in the hunt areas, with hunt area 58 having a much lower 10-year average fawn ratio (35) compared to hunt area 57 (46). These variations between the two hunt areas has been seen since the 2007-08 winter possibly pointing towards a much more severe loss in hunt area 58 than 57.

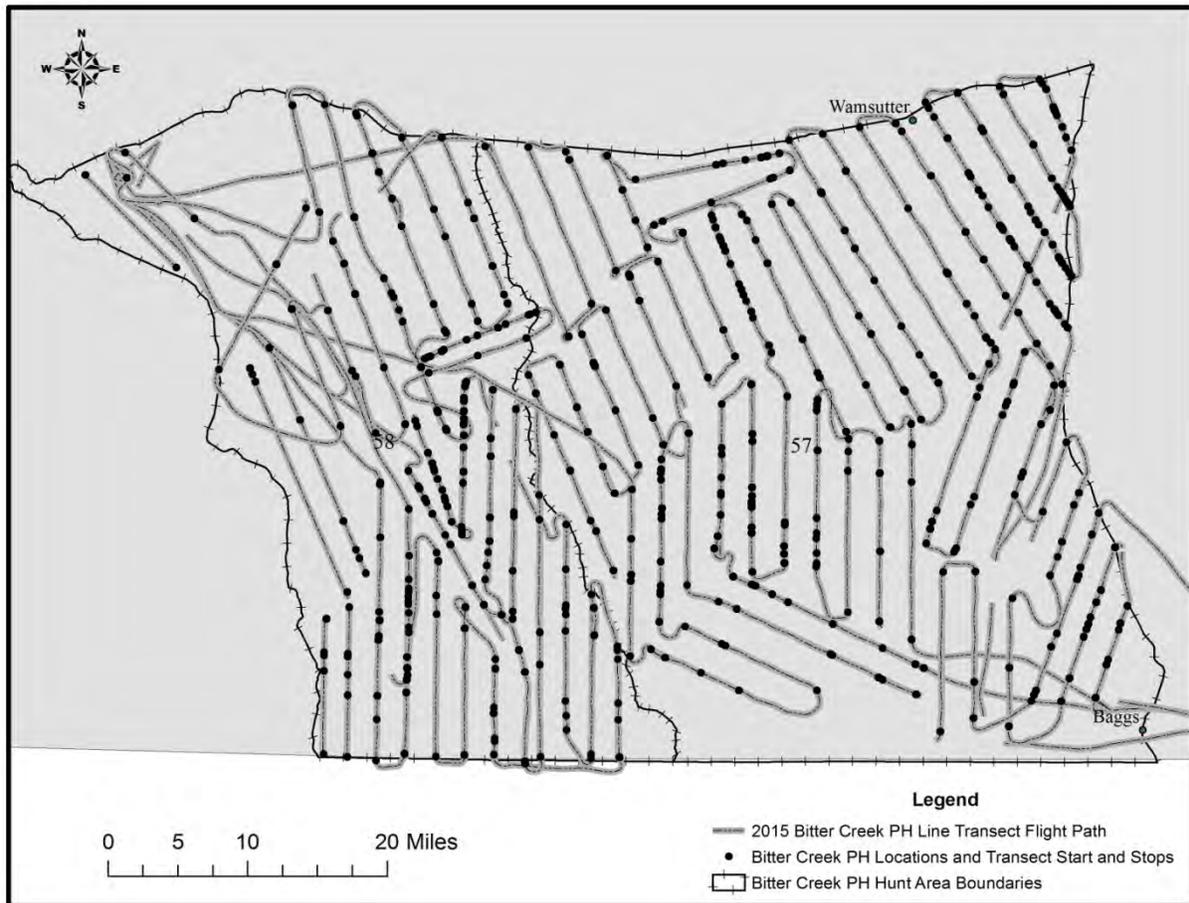
2015 Bitter Creek Line Transect

In late May/ early June we flew 1001 miles of transect lines throughout the Bitter Creek herd unit. We utilized GPS technology to design a line transect pattern that took into consideration typical pronghorn distribution, topography and line length (Figure 2). We abandoned the previous line transect line patterns which involved flying up to 50 miles on one line and over major changes in topography. This new design yielded 85 sample lines and 334 cluster observations. Despite the large amount of samples and clusters there were analysis issues stemming from the detection probabilities for each of the distance bands. The probability of detection with the distance bands B, C and E were much higher than they should have been indicating we were detecting pronghorn in those bands more readily than would have been projected. After running the typical modeling structures for the data (see LT manual), it was apparent the estimate was much larger ($19,949 \pm 2,513SE$) than the last line transect flown for this herd (flown in 2010, $7,048 \pm 960SE$) and much higher than the estimate from spreadsheet modeling.

After investigating the 2010 analysis and binning the A, B, C distance bands together and then doing the same for the D and E distance bands a more realistic estimate was obtained for both the

2010 and 2015 line transect analyses. Upon inspecting the 2010 LT analysis it was found that the wrong “occupied habitat” size was used which caused the 2010 estimate to be smaller than it should have been (new 2010 estimate, $10,944 \pm 1491SE$). In addition, binning the 5 distance bands into 2 bands decreased the estimate without increasing the Coefficient of Variation (new 2015 estimate, $14,195 \pm 1625SE$). These estimates and associated standard errors “reset” the spreadsheet model to estimate closer to these new data. We feel fairly comfortable with the new spreadsheet model and associated LT estimate from 2015 however, it should be taken with a note of caution as is the case when any estimate causes a completely new interpretation of the status of a herd. Discussions need to continue between all managers involved to ensure everyone is comfortable with the new estimates for both hunt areas.

Figure 2. Bitter Creek pronghorn line transect flight path, cluster locations and transect start and end points.



2015 PR414 - BITTER CREEK Pronghorn Line-Transect Summary

Survey Dates: 5/28/2016 - 6/1/2016
Survey Cost: \$ 12,000.00
Flight Service: OWYHEE AIR, LLC.
Aircraft: MAUL
Observers: Tony Mong Patrick Burke

Weather Conditions:

Temperature (Degrees Fahrenheit): 45
Cloud Cover (%): 10
Wind Speed (MPH): 5 - 15

Transect Limits: 41.3232 to 107.2510

Transect Direction: North/South

Transect Interval (Minutes of Longitude): 1.0

Transect Length: (Mi.): 20

Transect Altitude (AGL): 312 ft.

Occupied Habitat (mi²): 2,641

Density Estimate (Animals/mi² with Confidence Intervals): 5.4 (4.3 - 6.7)

Population Estimate (with Confidence Intervals): 14,195 (11,339 - 17,771)

Harvest Data

Hunters within the Bitter Creek herd unit are finding great success and are extremely satisfied with their experience in both hunt areas. Hunter success has decreased from 2014 (102%) but remains high at 92%, many of the hunter comments we receive at check stations and field checks in hunt area 57 revolve around the number of bucks available and the number of pronghorn seen. The 2015 season brought a large difference in hunter success between the two hunt areas within the Bitter Creek herd unit. Prior to the 2015 season the two hunt area hunter success rates were not much different with the previous 5-year average at 96% for 57 and 90% for 58. 2015 rates were much different with only 74% of hunt area 58 hunters finding success and 93% of 57 hunters finding success. We are not certain of the reason for this lower hunter success but one possibility is that the hunters that drew this area were only interested in taking a large trophy sized animal and if that animal was not found, they did not care to harvest. The satisfaction survey did not reveal that hunters were dissatisfied with their hunt in area 58 as 100% of those surveyed (n=17) were either “satisfied” or “very satisfied” with the overall hunt quality. And an overall rating of 94% “satisfied” or “very satisfied” for the herd unit indicates the quality hunters are finding a quality hunt across the herd unit.

Population

The spreadsheet model was “reset” through the adjustment of a 2010 LT estimate and the addition of a 2015 LT estimate (see above “Field Data” for details). The current population model estimates the 2015 end-of-bio-year population to be 12,318 animals. Despite the CJ, CA model having the lowest AICc value 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

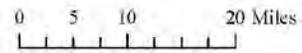
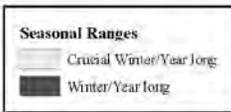
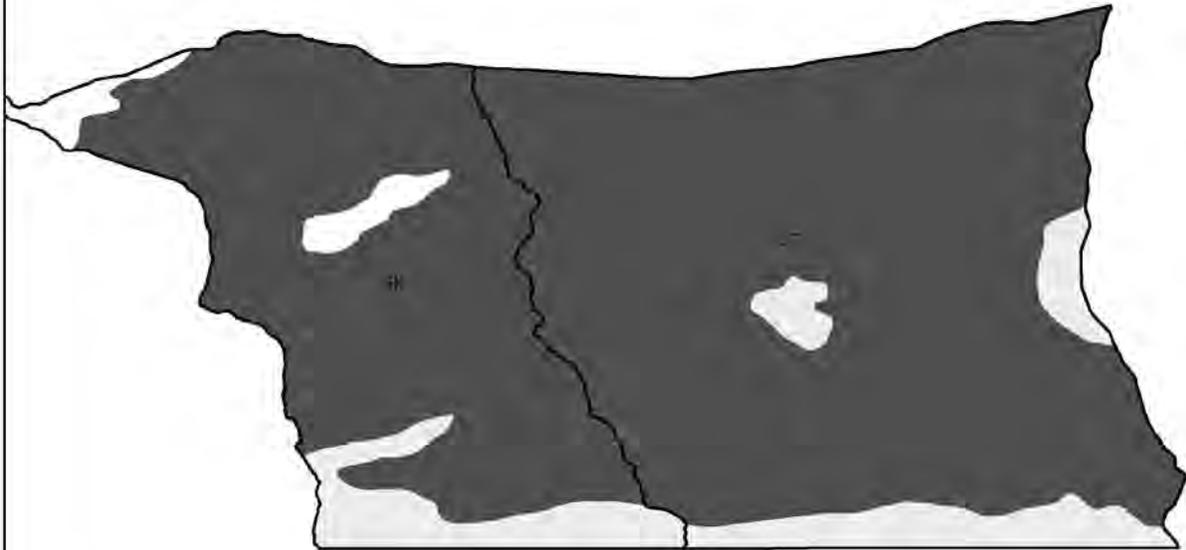
estimates obtained in 2009 and 2015 and also on model fit (CJ, CA = 57; SCJ, SCA = 53). Within the SCJ, SCA model we restrained juvenile survival rates for 2007 (0.1 to 0.4) and 2010 (0.1 to 0.4) based on known winter die off occurring at a higher rates than normal (model estimate for all other years, 0.454). We also restrained adult survival for the same reason for 2007 (0.4 to 0.75) and 2010 (0.6 to 0.85).

Management Summary

The hunting seasons in 2016 will allow us to begin to change our management strategy for this herd unit based on a mix of decreasing the population objective and new LT analyses. We are again increasing type 1 licenses in hunt area 57 in order to continue to allow more opportunity because of high buck ratios. We are cautiously increasing type 1 licenses in hunt area 58 based on field knowledge and a mistrust of the estimates created from the spreadsheet and 2015 LT flight. With the potential of having a population approaching the population objective range, we are allowing new doe pronghorn opportunities in hunt area 57 through a type 6 to maintain population sizes near objective. In addition, the increase in hunt area 57 type 7 licenses is a direct result of a request from the landowners in the SE portion of the hunt area to decrease the number of pronghorn on their hay meadows and private property.

High pronghorn numbers and a lack of hunter use in the northern portion of hunt area 57 are the basis for the hunt area 57 type 2 license in 2016. Based on data collected by the Green River Access Coordinator and his staff very little hunting effort is occurring in the northern portion of hunt area 57 and the specific type 2 licenses in that area will increase opportunity for hunters and will result in more use in that portion of hunt area 57.

Bitter Creek PR414 Herd Seasonal Ranges



2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR419 - CARTER LEASE

HUNT AREAS: 94, 98, 100

PREPARED BY: JEFF SHORT

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	6,413	6,180	6,145
Harvest:	1,545	1,404	1,350
Hunters:	1,617	1,489	1,450
Hunter Success:	96%	94%	93 %
Active Licenses:	1,800	1,679	1,630
Active License Success:	86%	84%	83 %
Recreation Days:	5,801	6,160	6,000
Days Per Animal:	3.8	4.4	4.4
Males per 100 Females	63	56	
Juveniles per 100 Females	64	68	

Population Objective (± 20%) : 6000 (4800 - 7200)

Management Strategy: Recreational

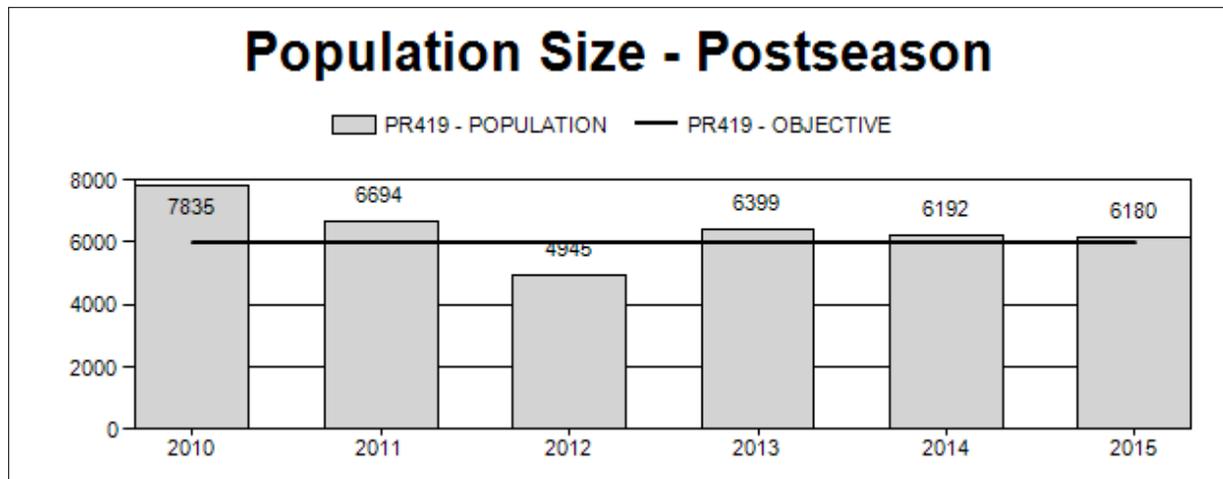
Percent population is above (+) or below (-) objective: 3%

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

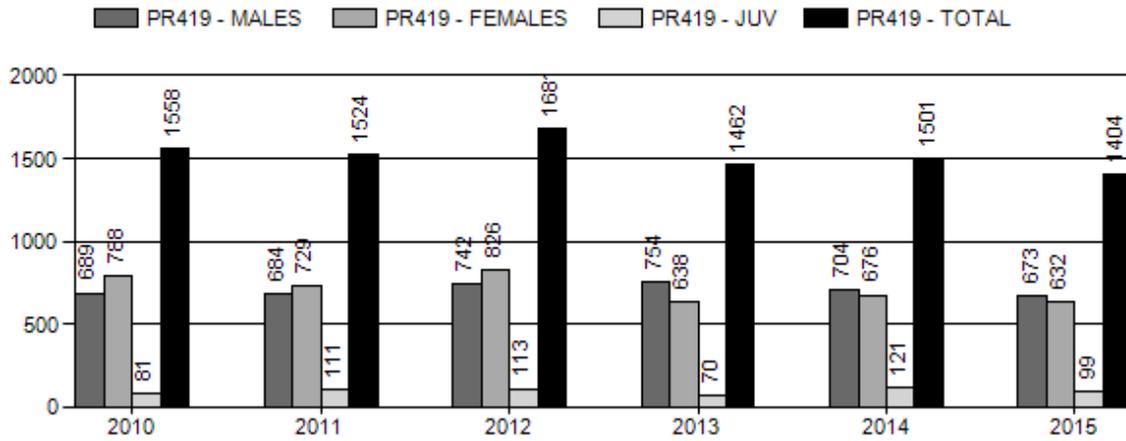
Model Date: 02/16/2016

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

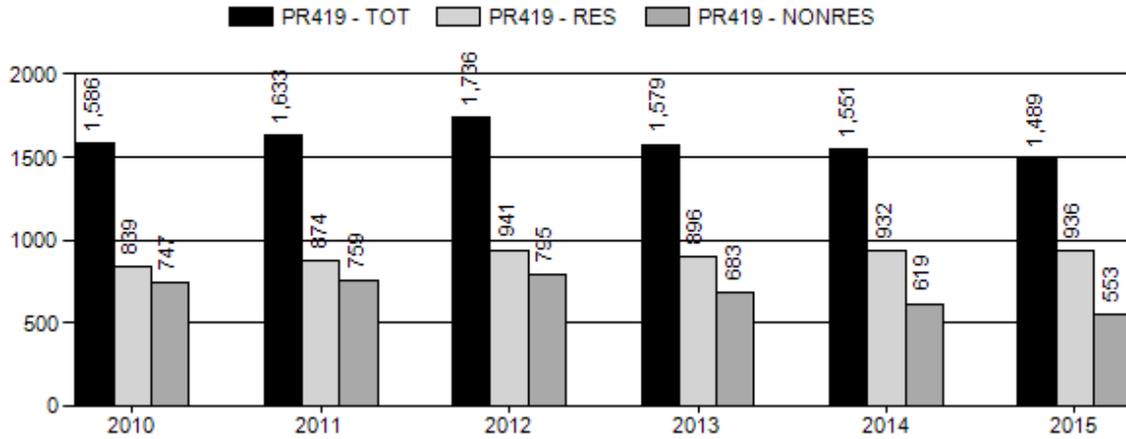
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	13.7%	13.2%
Males ≥ 1 year old:	28.6%	28.4%
Juveniles (< 1 year old):	2.4%	2.3%
Total:	13.0%	12.3%
Proposed change in post-season population:	-1.5%	-0.6%



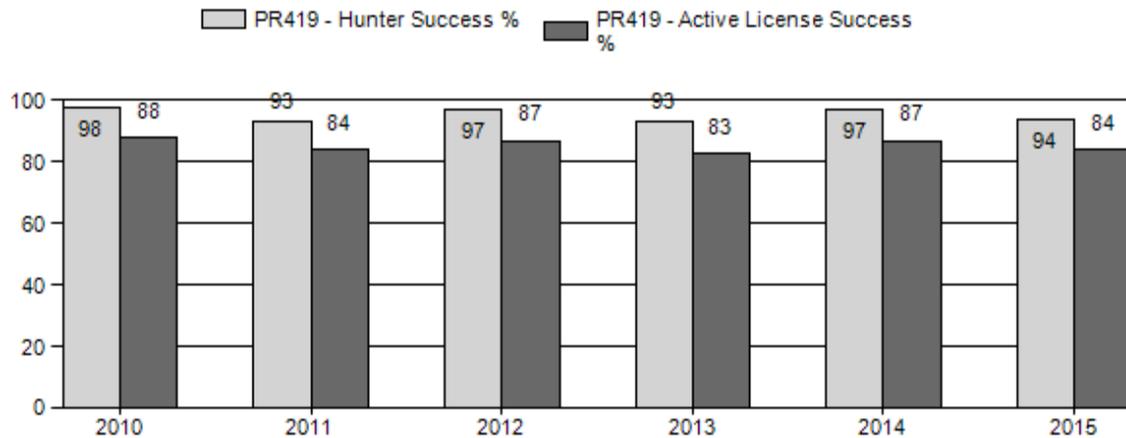
Harvest



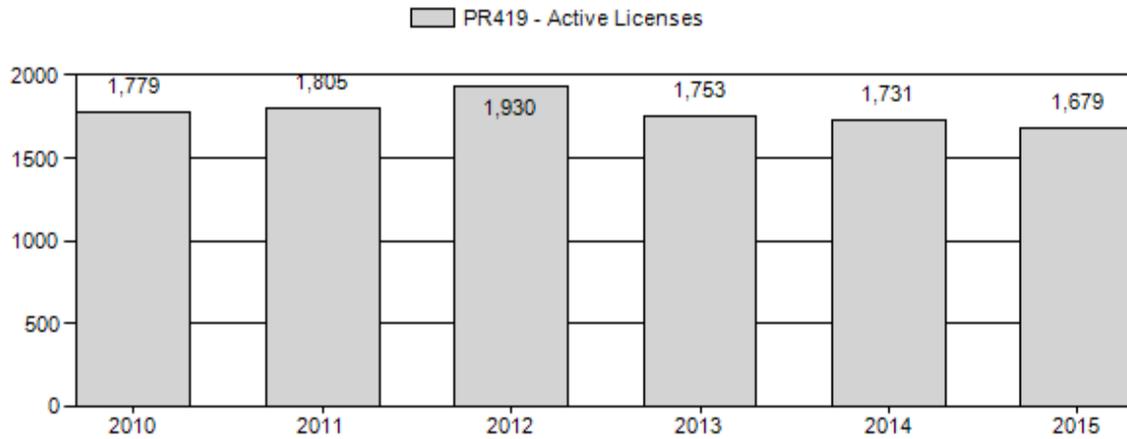
Number of Hunters



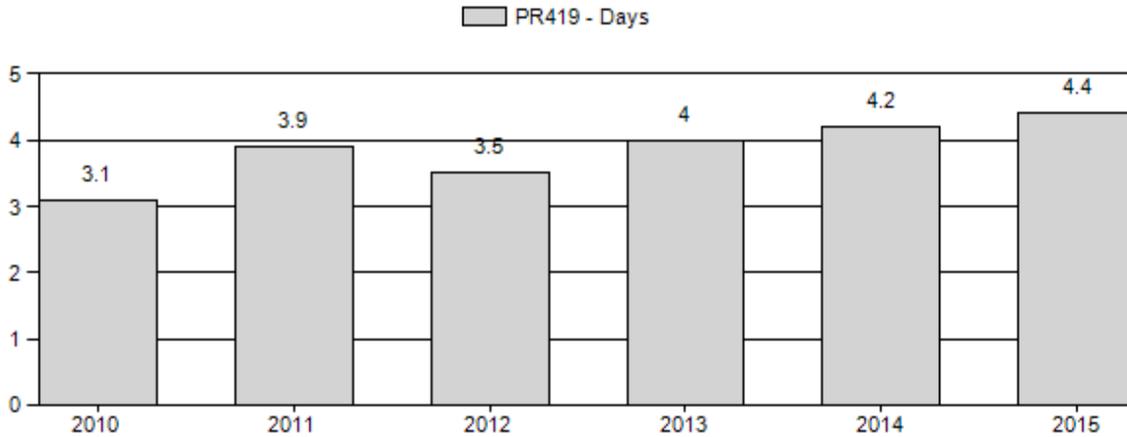
Harvest Success



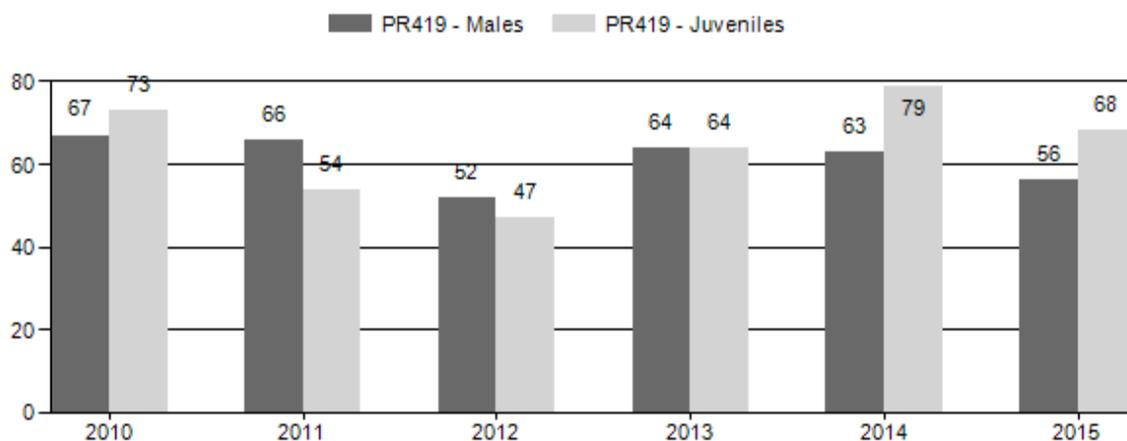
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR419 - CARTER LEASE

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	6,984	281	419	700	25%	1,252	45%	849	30%	2,801	0	22	33	56	± 3	68	± 4	43

2016 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	Sep. 10	Oct. 31	500	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	250	Limited quota	Doe or fawn
	7	Sep. 10	Oct. 31	200	Limited quota	Doe or fawn valid on or within one (1) mile of irrigated land
98	1	Sep. 10	Oct. 31	200	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	200	Limited quota	Doe or fawn
100	1	Sep. 10	Oct. 31	200	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	225	Limited quota	Doe or fawn
	7	Sep. 10	Oct. 31	25	Limited quota	Doe or fawn valid west of the Bear River Divide
94, 98, 100	Archery	Aug. 15	Sept. 9		Limited quota	Refer to Section 2 of this chapter

Hunt Area	License Type	Quota change from 2015
94	1	+50
98	6	-100
100	6	+75
100	7	-75
Herd Unit Total	1	+50
	6	-25
	7	-75

Management Evaluation

Current Postseason Population Management Objective: 6,000

Management Strategy: Recreation

2015 Postseason Population Estimate: ~6,180

2016 Proposed Postseason Population Estimate: ~6,358

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 such 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. 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.

Weather

Weather during 2015 and into 2016 has been highly variable. In the early part of 2015 the winter was very mild and dry. A moist spring and summer followed. In late August conditions dried considerably and a relatively dry fall continued into late December. Winter did not set in until mid December but it came in abruptly. The winter of 2015-2016 has been very cold with high snow loads to this point and pronghorn have migrated to crucial winter ranges. A much needed warming trend has occurred in February and it remains to be seen how the winter will ultimately shape out. The winters from 2011 to 2015 were very mild with low snowpack and relatively warm temperatures resulting in very 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. 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 pre-season fawn mortality. In 2013, 2014 and 2015 Herd Unit fawn ratios rebounded greatly to 64:100 in 2013 and 79:100 in 2014 and 66:100 in 2015.

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. Starting in 2006 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. Due to low field observations in the area we are reducing the hunt area 100 type 7 permits and moving those licenses into the type 6 hunt. 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.

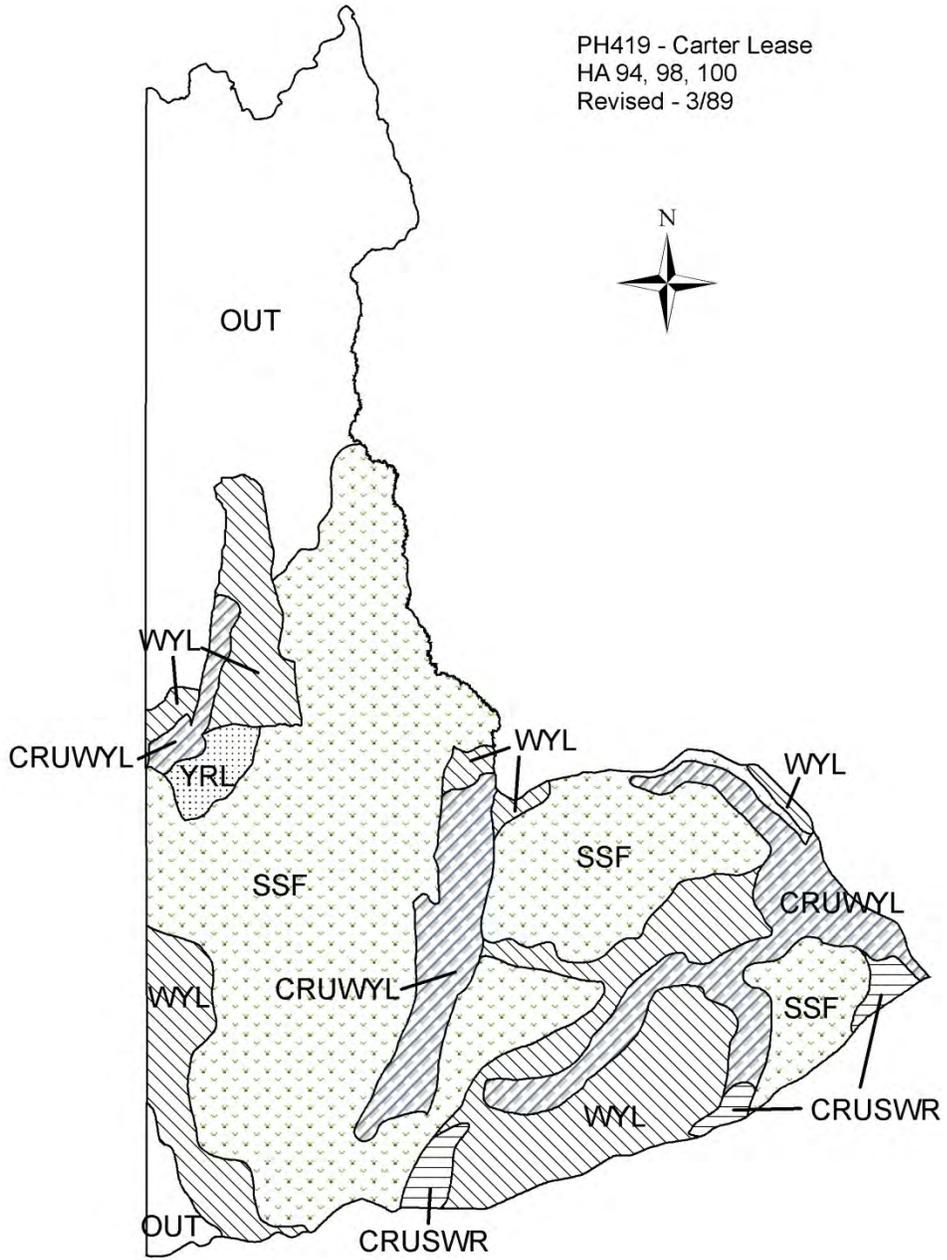
Currently the model is estimating we have around 5,180 pronghorn following the 2015 season in hunt area 94. This is very near the population objective of 5,000 animals for that area. The model estimates that we were on a steep downward trend from 2009 to 2012. This was due to a

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 2016 we will have reductions in antlerless licenses issued in the Herd Unit. We will also slightly increase hunt area 94 type 1 licenses. 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 2015 and no changes were made.

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



2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR438 - BAGGS

HUNT AREAS: 53, 55

PREPARED BY: TONY MONG

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	7,848	8,700	9,100
Harvest:	187	299	350
Hunters:	203	295	350
Hunter Success:	92%	101%	100 %
Active Licenses:	214	344	395
Active License Success:	87%	87%	89 %
Recreation Days:	628	817	1,000
Days Per Animal:	3.4	2.7	2.9
Males per 100 Females	56	49	
Juveniles per 100 Females	60	58	

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

Management Strategy: Recreational

Percent population is above (+) or below (-) objective: -3.3%

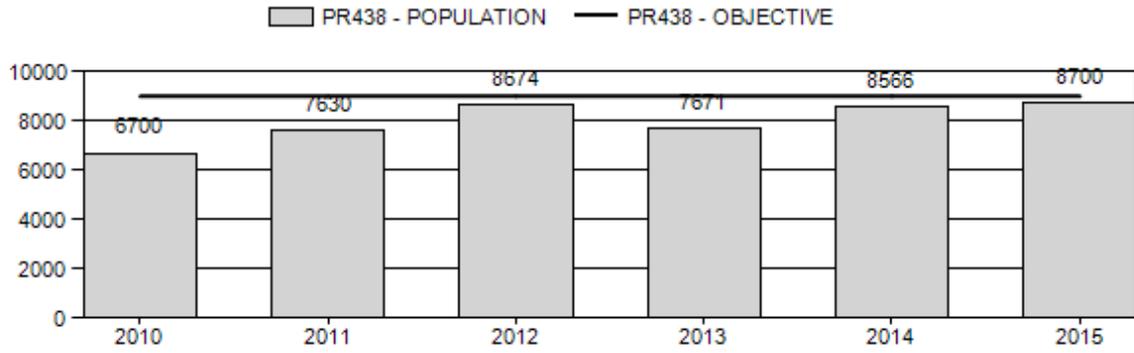
Number of years population has been + or - objective in recent trend: 0

Model Date: 02/20/2016

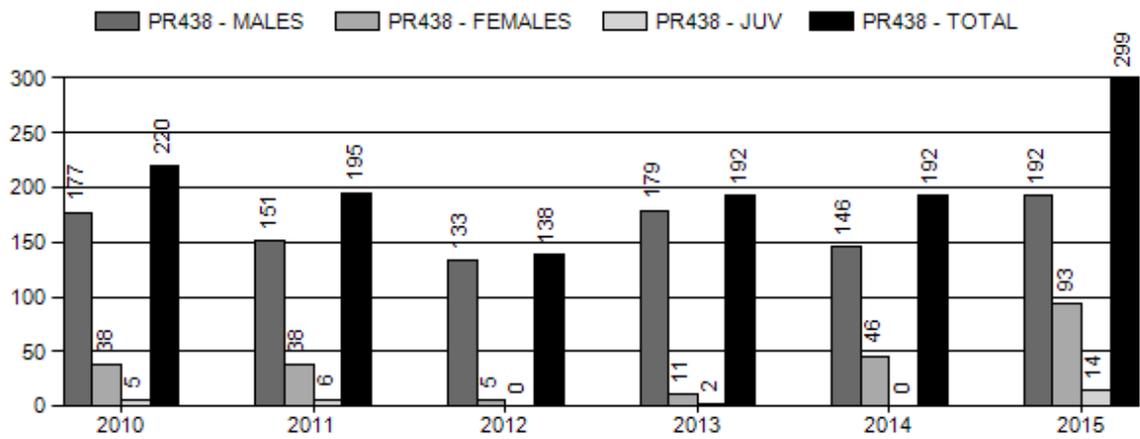
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	2.0%	2.7%
Males ≥ 1 year old:	7.5%	7.3%
Juveniles (< 1 year old):	0.5%	0.5%
Total:	2.7%	2.5%
Proposed change in post-season population:	2.0%	3.0%

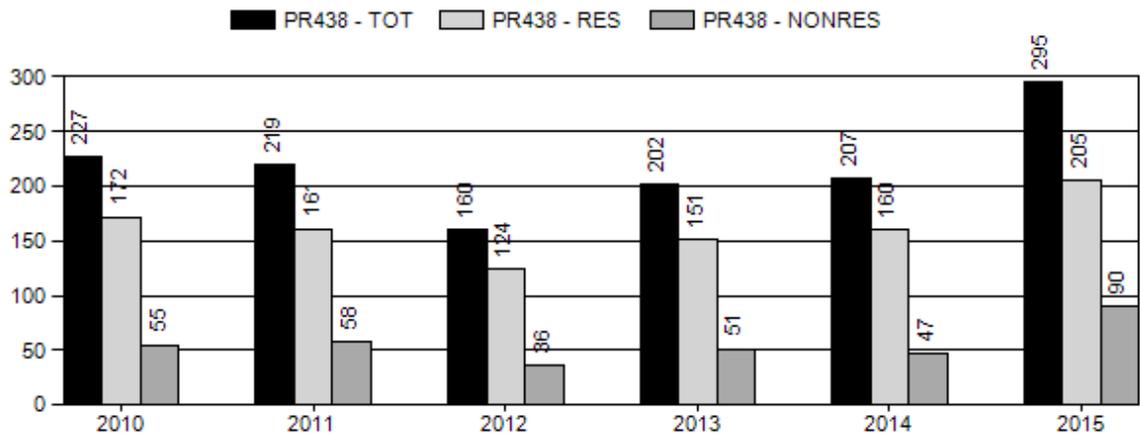
Population Size - Postseason



Harvest

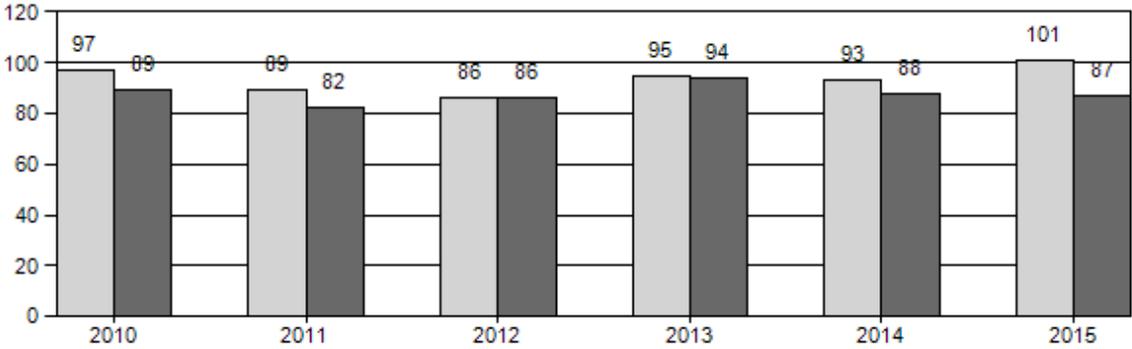


Number of Hunters

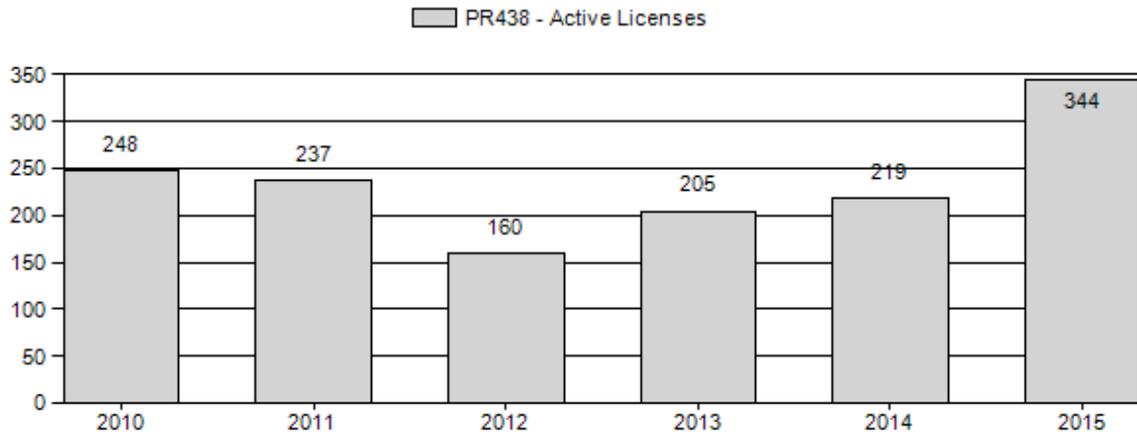


Harvest Success

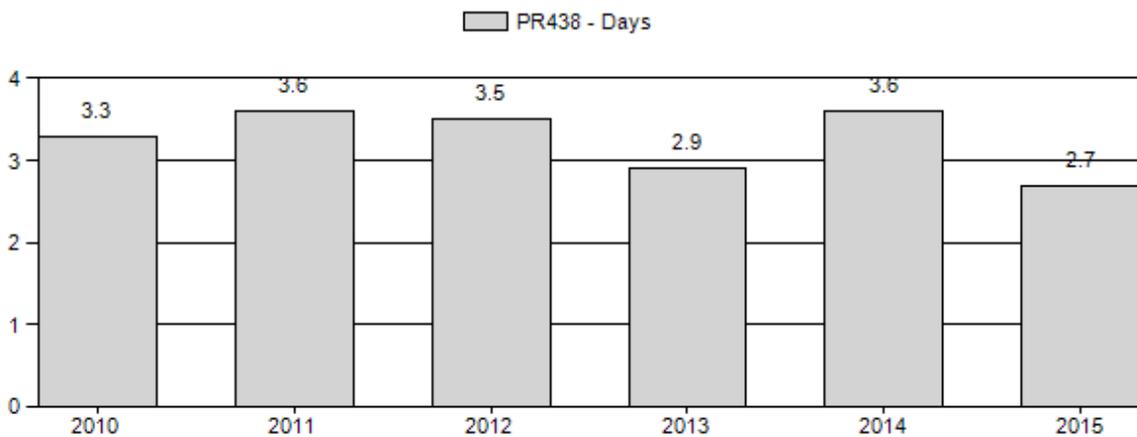
PR438 - Hunter Success % PR438 - Active License Success %



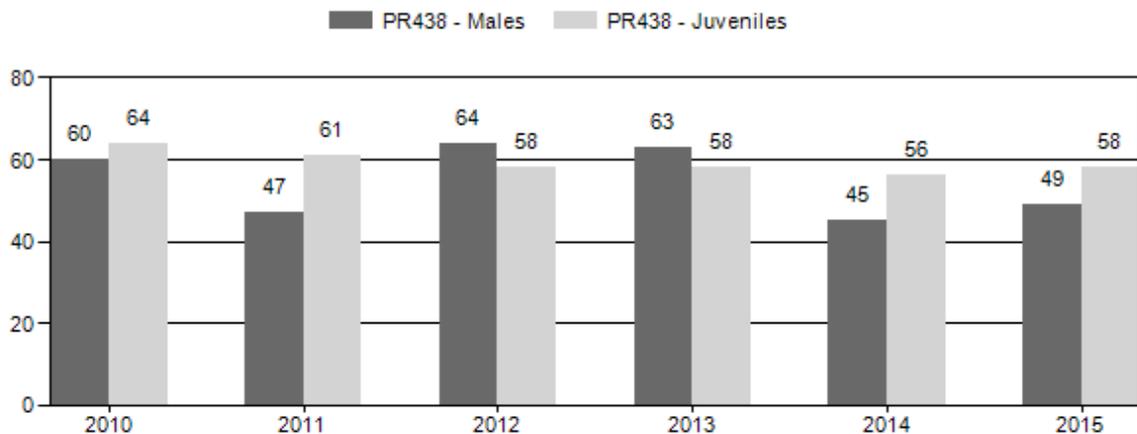
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary																			
for Pronghorn Herd PR438 - BAGGS																			
Year	Pre Pop	MALES				FEMALE		JUVENIL		Males to 100 Females						Young to			
		Ylg	Adult	Total	%	Total	%	Total	%	Tot		Yng	Adult	Total	Conf		100 Fem	Conf Int	100 Adult
										Cls	Obj				Int	±			
2010	7000	221	248	469	0	782	0	499	0	1750	0	28	32	60	± 0	64	± 0	40	
2011	7884	75	222	297	0	628	0	381	0	1306	0	12	35	47	± 5	61	± 6	41	
2012	8825	107	358	465	0	728	0	425	0	1618	0	15	49	64	± 6	58	± 5	36	
2013	9571	89	314	403	0	638	0	373	0	1414	0	14	49	63	± 6	58	± 6	36	
2014	8783	92	258	350	0	776	1	437	0	1563	0	12	33	45	± 4	56	± 5	39	
2015	9000	89	265	354	0	728	0	422	0	1504	0	12	36	49	± 5	58	± 5	39	

2016 HUNTING SEASONS

SPECIES : **Pronghorn**

HERD UNIT : **Baggs (438)**

HUNT AREAS: **53, 55**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
53	1	Sep. 20	Oct. 31	100	Limited quota	Any antelope
	6	Sep. 20	Oct. 31	100	Limited quota	Doe or fawn
	7	Sep. 1	Oct. 31	50	Limited quota	Doe or fawn valid on private land within one (1) mile of Wyoming Highway 70 or Carbon County Road 561
55	1	Sep. 20	Sep. 31	150	Limited quota	Any antelope
	6	Sep. 20	Oct. 31	100	Limited quota	Doe or fawn

Special Archery Season Hunt Areas	Opening Date	Limitations
53, 55	Aug. 15	Refer to Section 2 of this Chapter

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2015</i>
53	1	0
	6	+25
	7	+25
55	1	+50
	6	+50
Herd Unit Total	1	+50
	6	+75
	7	+25

Management Evaluation

Current Management Objective: 9,000 (2015)

Management Strategy: Recreation

2015 End-of-bio-year Estimate: 7,100

2016 Proposed Postseason Population Estimate: 9,100

The Baggs Pronghorn Herd is at the objective of 9,000 (reset in 2015) therefore our current management strategy is to maintain current population levels through doe harvest. However, buck ratios in the herd unit have been stagnate over the last few years so we are going to maintain buck harvest at current levels. In addition, we are adding 50 doe/fawn licenses across the herd unit.

Herd Unit Issues

There are four main issues impacting the Baggs herd including energy production, public land access in hunt area 55, dichotomy of buck ratios between hunt areas 55 and 53 and increasing numbers of summering pronghorn along the irrigated meadows along the two main rivers in the herd unit. Throughout the Baggs herd we continue to see development of oil and gas fields associated with the Atlantic Rim Project and within 2 years we could begin to see the development of the largest wind turbine project in North America, the Chokecherry-Sierra Madre Wind Project. We are uncertain of the potential impacts to the herd however it is an issue we must continue to monitor with the increasing pressures on this herd.

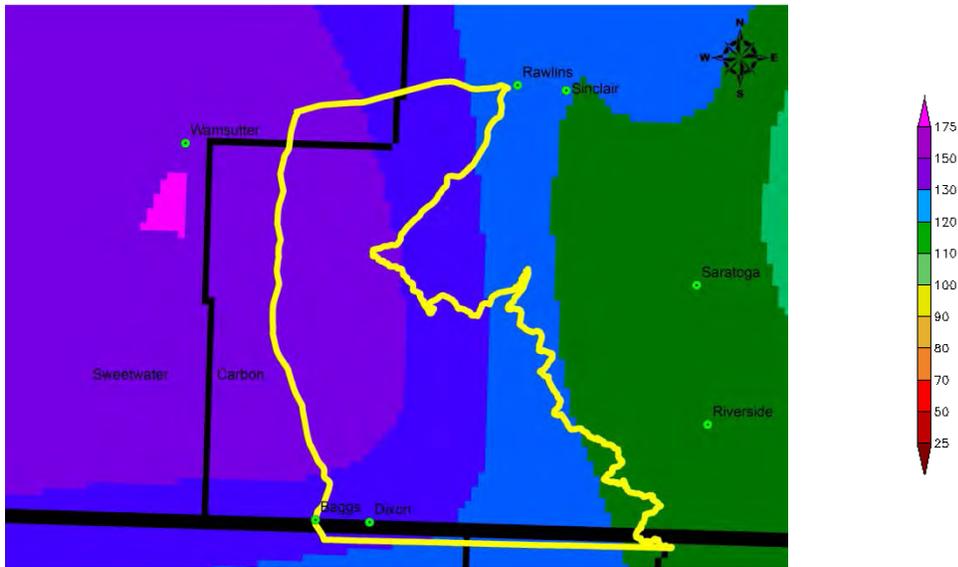
Hunt area 53 remains relatively open to public hunting with a majority of the land under public ownership; however in hunt area 55 we continue to see public access problems with a checkerboard landscape and much of the private land under lease from outfitters or shut down from any use. These landownership issues will become more of an issue if the herd continues to grow and a larger doe harvest is needed throughout the area. In addition to difficulties gaining access to harvest animals in hunt area 55, this restricted access may also be inflating buck ratios and causing a large difference between hunt area 53 and 55 buck ratios. Over the last 2 years we have seen an average buck ratio in hunt area 53 of 35:100 compared to 58:100 in hunt area 55. Determination of all factors contributing to these differences will be important as management continues into the future.

Over the last 3 years we have seen a large increase of pronghorn using irrigated meadows along the Little Snake River and the lower end of Savery Creek. This issue was originally contained within the Little Snake River drainage however, over the course of the last year we have seen pronghorn numbers increase in the Savery Creek drainage. Landowner complaints on pronghorn numbers in these areas and interest in private land only licenses have been increasing throughout this time period along with the numbers. Because of the willingness of the landowners to address this issue through harvest we have designated licenses for those areas and propose to do so into 2016 with an expansion of the area where these private land licenses are valid.

Weather

The Baggs herd unit has benefited from higher moisture levels in the lower elevation regions allowing for maximum vegetative response and the filling of many previously dry reservoirs (Figure 1). The 2015 winter started similar to the previous 4 winters with mild temperatures early however, beginning in mid-December we saw a shift to higher snow fall and colder temperatures that may result in some higher winter mortality than seen in previous years.

Figure 1. Percent of normal precipitation for the herd unit from February 2015 to February 2016.



Field Data

Recent higher fawn ratios (5-year average 59:100) and favorable winters have allowed survival to increase for both fawns and adults which has led to increases in the herd population size. As mentioned above we continue to see a difference in adult buck ratios between hunt areas 53 (38) and 55 (59).

Harvest Data

Hunters within the Baggs pronghorn herd have been extremely successful and satisfied during their hunts in 2015. Hunter success rates were the highest seen in the herd unit with an overall rate of 101%, however, a better indication of success may be the active license success rate of 87% which is similar to the previous 5-year average of 88%. This success equated to 93% of hunters surveyed indicated they were either satisfied or very satisfied with the overall quality of the hunt in the Baggs herd unit.

The previous year's pattern of separation between the hunt area hunter success rates disappeared this year with hunt area 53 showing a 100% hunter success on the Type 1 license compared to a 85% hunter success rate in hunt area 55. This reverse from the previous year possibly indicates that the buck numbers and quality have increased in hunt area 53.

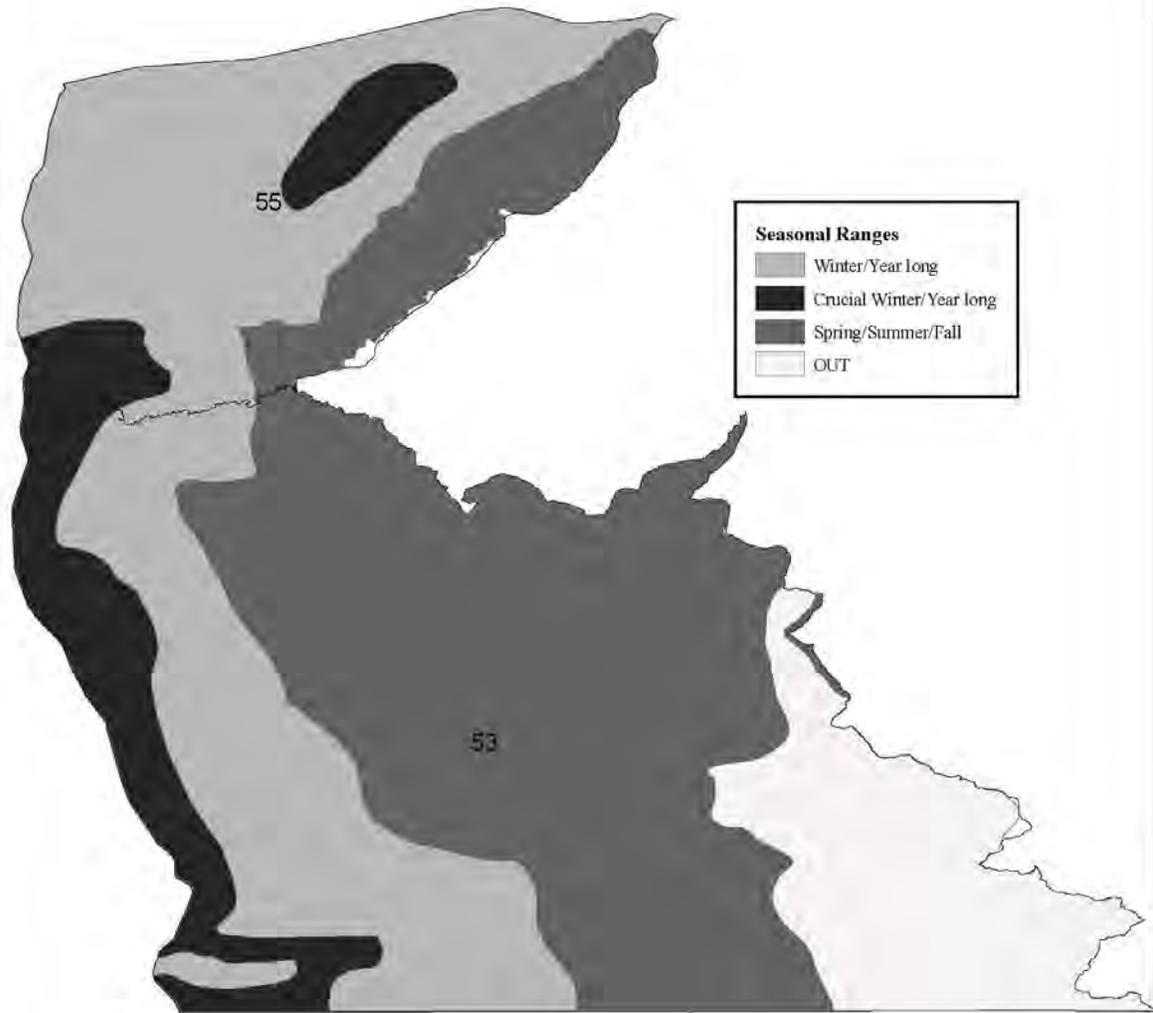
Population

The current population model estimates the 2015 posthunt population to be 8,700 pronghorn. The CJ, CA model was selected based on the lowest AICc value and what we believe to be the best representation of the actual population trend and size based on the line transect estimates obtained in 2008 and 2012. The spreadsheet model is tracking below the 2012 line transect population estimate and despite efforts to parameterize the model to try and better fit the line transect estimate, efforts were not successful. Buck ratios in this model have not been able to track actual ratios. This may be related to the highly variable nature of buck ratios in this herd.

Management Summary

The main challenge with managing this herd is the overall increase in population size coupled with the differences in access and buck ratios between hunt areas 53 and 55. Hunter access within hunt area 55 will need to be addressed to allow for adequate harvest of doe pronghorn to ensure the population is maintained near the population objective. Because of the overall population levels, we are going to maintain population levels near the objective through another increase in doe/fawn licenses however, maintaining current levels of type 1 licenses in hunt area 53 to allow for buck ratios to increase to a more acceptable level and increasing type 1 licenses in hunt area 55 to allow for more hunter opportunity. It will be important to monitor population response closely as there may be an impact from the oil and gas production in hunt area 53 we do not yet understand.

Baggs PR438 Herd Seasonal Ranges



2015 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD423 - UINTA

HUNT AREAS: 132-133, 168

PREPARED BY: JEFF SHORT

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	15,477	15,060	15,513
Harvest:	1,107	1,274	1,110
Hunters:	2,494	2,613	2,500
Hunter Success:	44%	49%	44 %
Active Licenses:	2,518	2,637	0
Active License Success:	44%	48%	0 %
Recreation Days:	12,034	13,385	12,000
Days Per Animal:	10.9	10.5	10.8
Males per 100 Females	27	30	
Juveniles per 100 Females	60	56	

Population Objective ($\pm 20\%$) : 20000 (16000 - 24000)

Management Strategy: Recreational

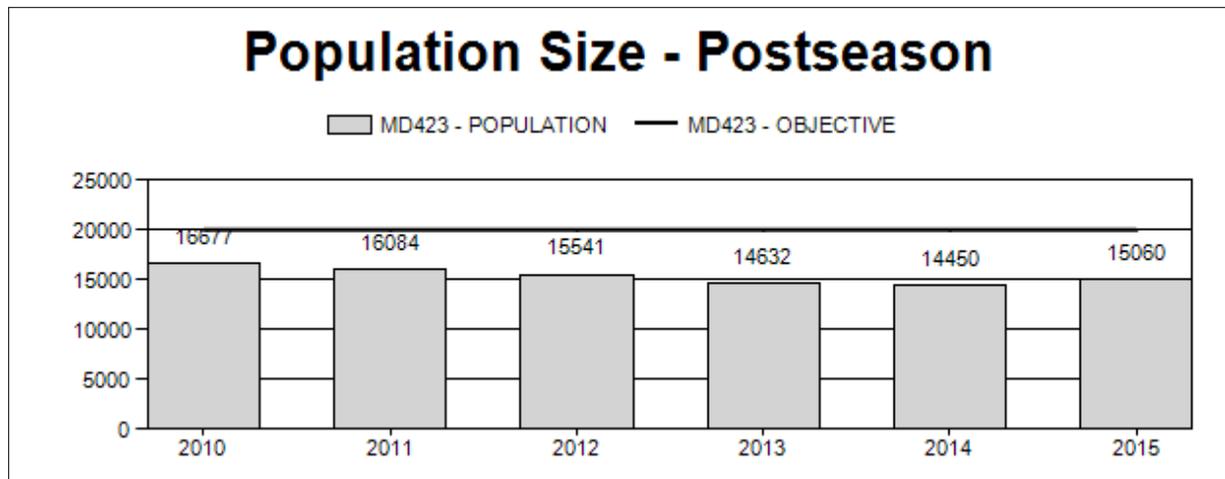
Percent population is above (+) or below (-) objective: -24.7%

Number of years population has been + or - objective in recent trend: 10

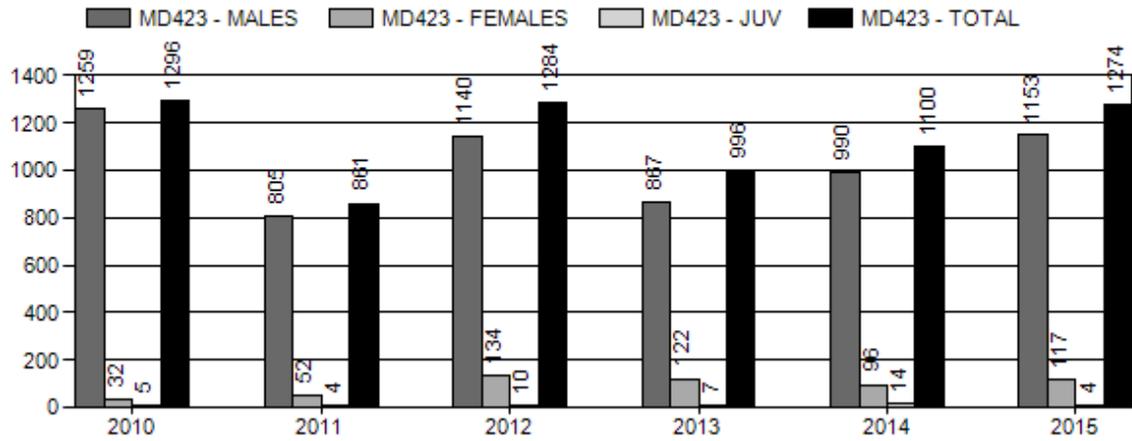
Model Date: 02/16/2016

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

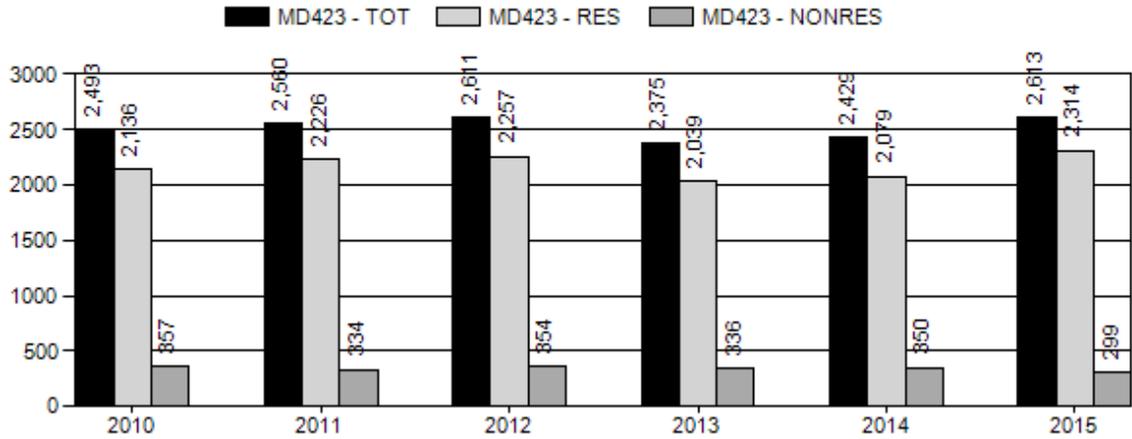
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.3%	1.3%
Males ≥ 1 year old:	34.4%	34.4%
Juveniles (< 1 year old):	0.1%	0.2%
Total:	7.7%	6.6%
Proposed change in post-season population:	+8.5%	+3.0%



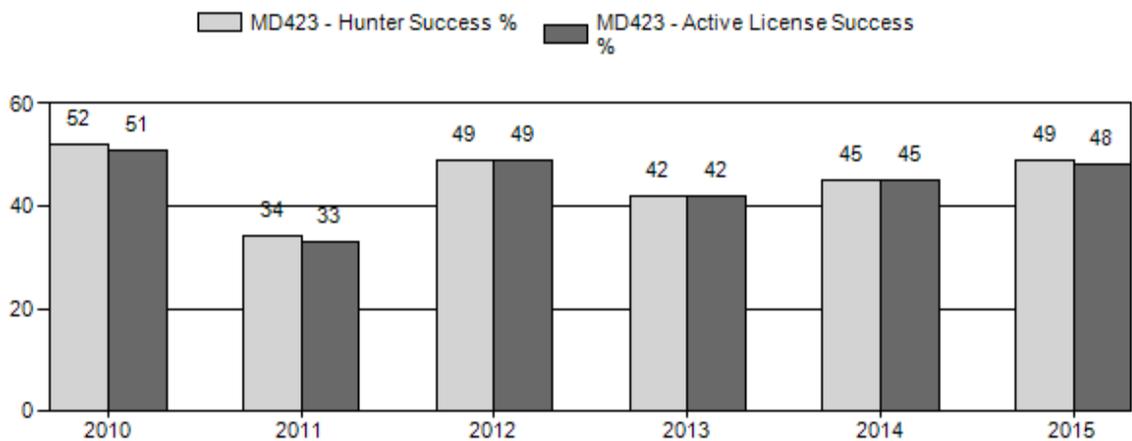
Harvest



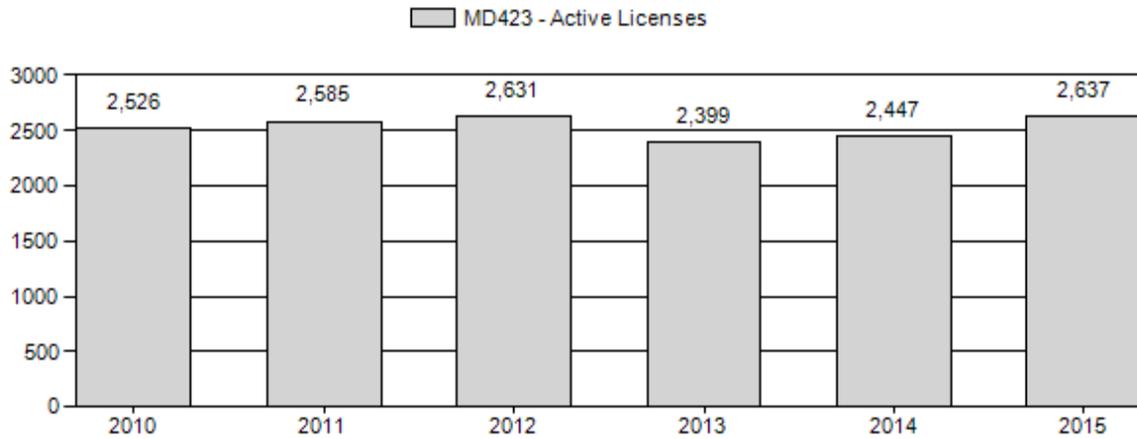
Number of Hunters



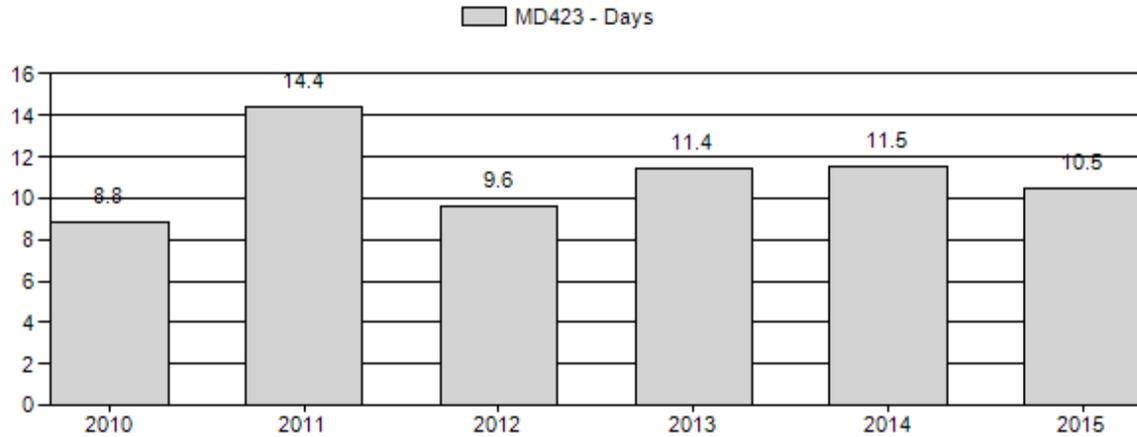
Harvest Success



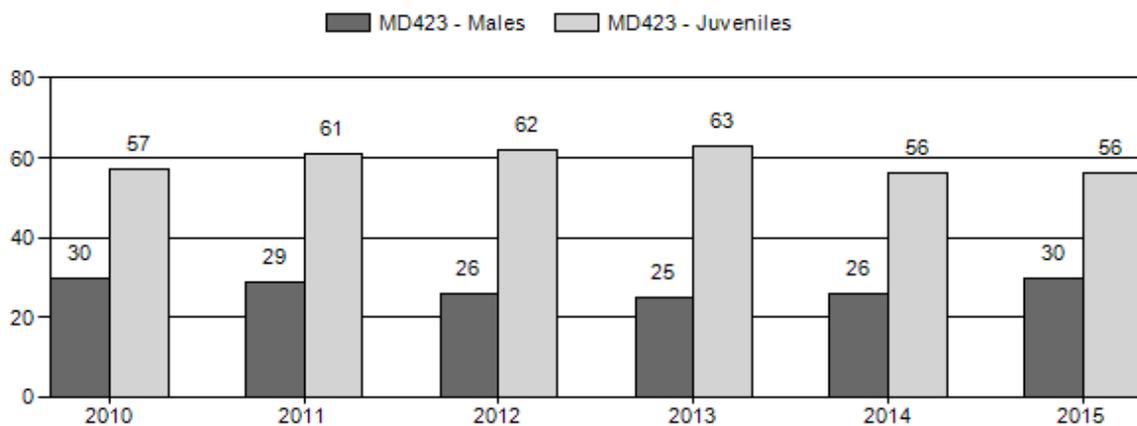
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD423 - UINTA

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	15,060	176	95	74	12	0	357	16%	1,204	54%	675	30%	2,236	0	15	15	30	± 2	56	± 3	43

2016 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 mule deer three (3) points or more on either antler or any white-tailed deer
132, 133, 168	7	Oct. 1	Oct. 14	50	Limited quota	Doe or fawn valid on irrigated land
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	Archery	Sep. 1	Sep. 30		General	Refer to Section 2 of this chapter

Region K Nonresident Quota: 500

Hunt Area	License Type	Quota change from 2015
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: 20,000

Management Strategy: Recreational

2015 Postseason Population Estimate: ~15,060

2016 Proposed Postseason Population Estimate: ~15,513

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 severe winters over 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 2015 and into 2016 has been highly variable. In the early part of 2015 the winter was very mild and dry. A moist spring and summer followed. In late August conditions dried considerably and a relatively dry fall continued into late December. Winter did not set in until mid December but it came in abruptly. The winter of 2015-2016 has been very cold with high snow loads to this point and mule deer have migrated to crucial winter ranges. A much needed warming trend has occurred in February and it remains to be seen how the winter will ultimately shape out. The winters from 2011 to 2015 were very mild with low snowpack and relatively warm temperatures resulting in very 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

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 2015 were very good with 29 bucks per 100 does. This is the high end of the range for the objective in the herd unit. Yearling buck ratios and adult buck:doe ratios were good at 14:100 and 15:100.

For 2015 the fawn:doe ratios as a whole are low at 56:100. This was the second year in a row that we had this fawn ratio. This is interesting considering excellent conditions were in place for fawn recruitment during 2014 and 2015 and surrounding mule deer herds had 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 but project opportunities are difficult to find and costly to implement.

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 multiyear project.

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 archery, youth hunters and in a very limited type 7 hunt on irrigated lands. The overall doe harvest is negligible and insignificant. Buck 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 very 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.

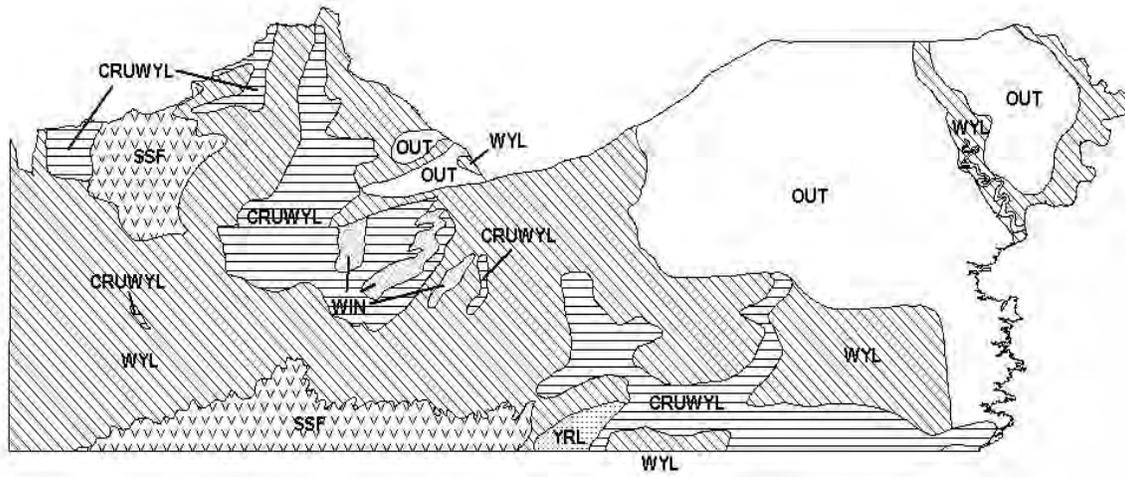
In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

The model predicts a post-season population of around 15,060 mule deer in 2015. 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 2016 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 2015. The Objective and management strategy were last revised in 2014.



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



2015 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD424 - SOUTH ROCK SPRINGS

HUNT AREAS: 101-102

PREPARED BY: PATRICK BURKE

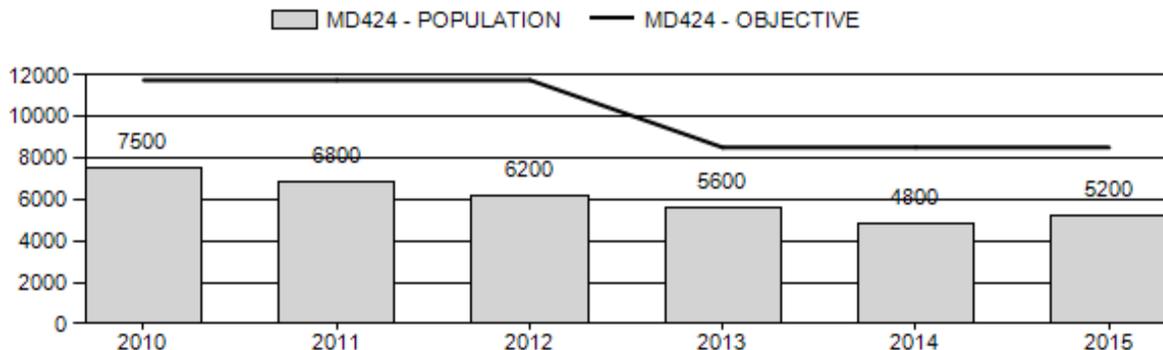
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	6,180	5,200	5,400
Harvest:	338	148	150
Hunters:	420	202	200
Hunter Success:	80%	73%	75 %
Active Licenses:	420	202	200
Active License Success:	80%	73%	75 %
Recreation Days:	2,807	1,328	1,400
Days Per Animal:	8.3	9.0	9.3
Males per 100 Females	26	0	
Juveniles per 100 Females	59	0	

Population Objective (± 20%) : 8500 (6800 - 10200)
 Management Strategy: Special
 Percent population is above (+) or below (-) objective: -38.8%
 Number of years population has been + or - objective in recent trend: 10
 Model Date: 2/21/2016

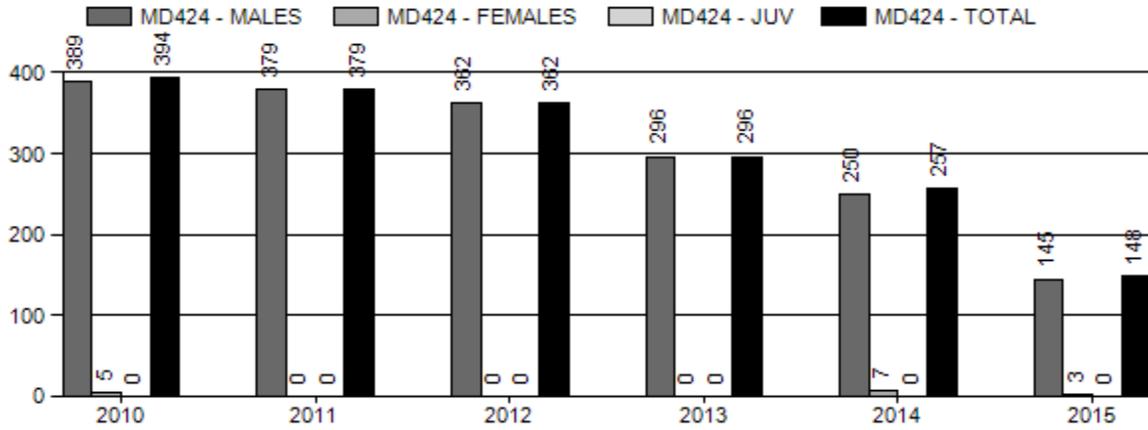
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	.1%	0%
Males ≥ 1 year old:	20%	20%
Juveniles (< 1 year old):	0%	0%
Total:	4%	3%
Proposed change in post-season population:	10%	10%

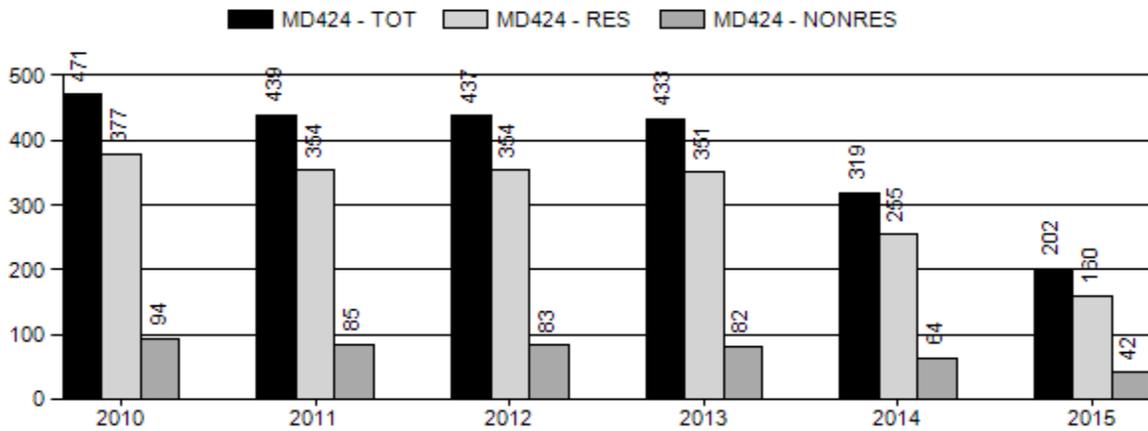
Population Size - Postseason



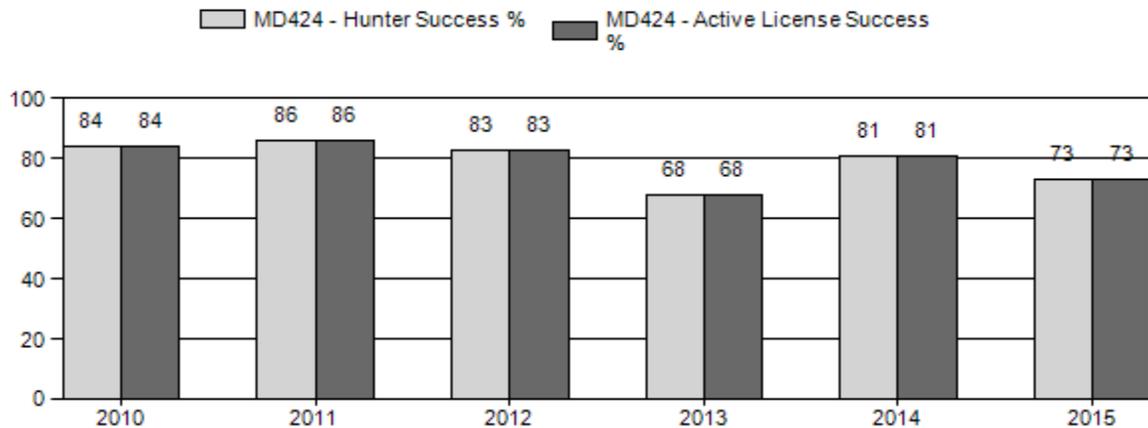
Harvest



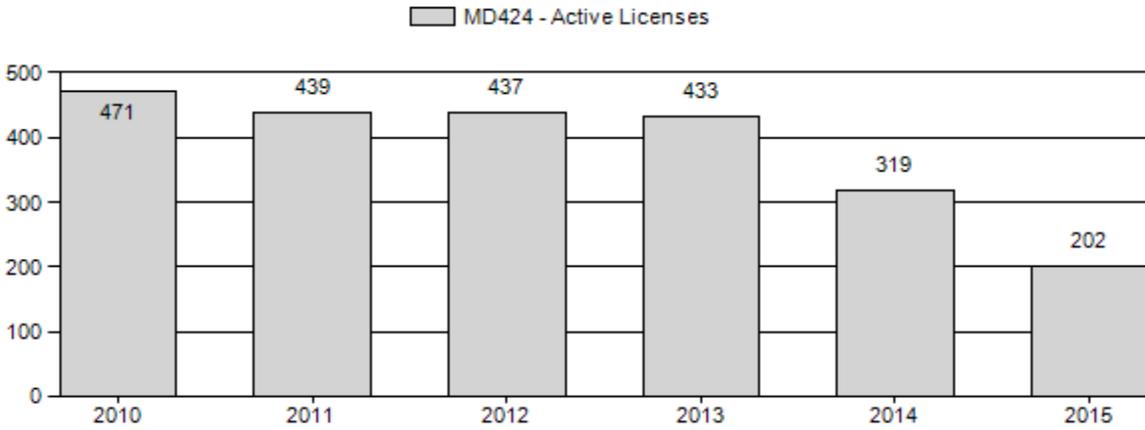
Number of Hunters



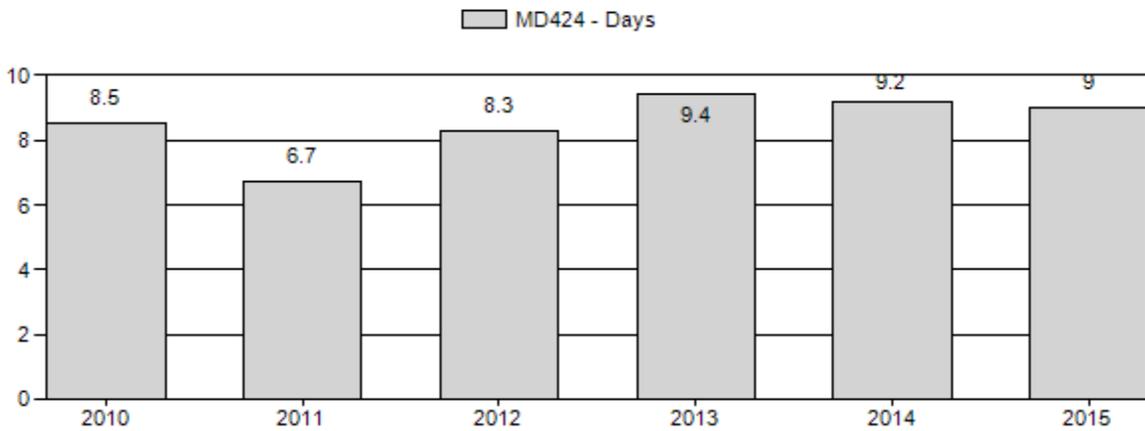
Harvest Success



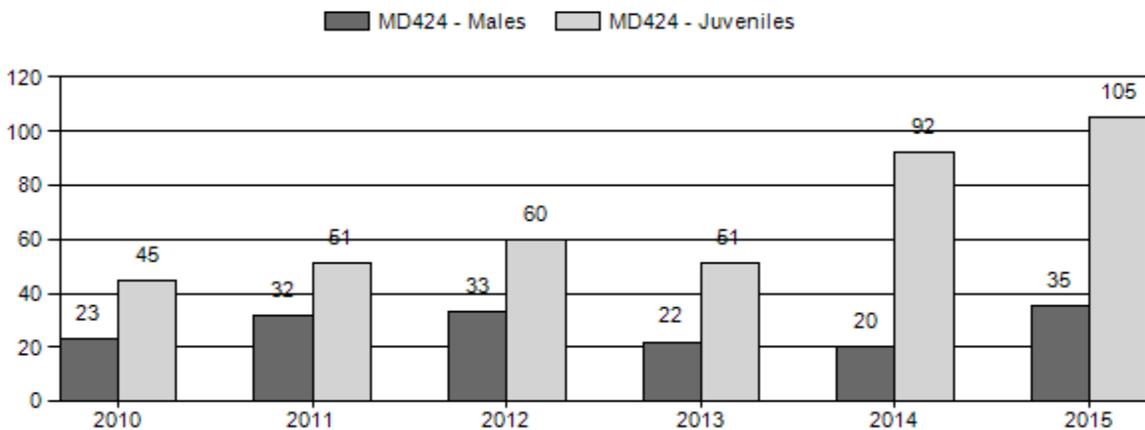
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD424 - SOUTH ROCK SPRINGS

Year	Post Pop	MALES							FEMALES		JUVENILES		Males to 100 Females				Young to				
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Tot Cls	Clis Obj	Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	5,200	22	0	0	0	23	45	15%	129	42%	135	44%	309	1,124	17	18	35	± 8	105	± 16	78

**2016 HUNTING SEASONS
SOUTH ROCK SPRINGS MULE DEER HERD (MD424)**

Hunt Area	Type	Season Dates		Quota	License	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

Special Archery Season Hunt Areas	Season Dates	
	Opens	Closes
101,102	Sep. 1	Sep. 30

Hunt Area	Type	Quota change from 2015
Herd Unit Total		No Changes

Management Evaluation

Current Management Objective: 8,500

Management Strategy: Special

2015 Postseason Population Estimate: ~5,200

2016 Proposed Postseason Population Estimate: ~5,500

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

The largest issue facing this herd is its consistent underperformance both in relation to its population objective and in quality of bucks its able to produce compared to what is expected by the public. 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. Current population estimates suggest this herd may be around 5,200 deer after the 2015 hunting season.

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. Observed fawn ratios from the last two years do show much improved ratios of around 100 fawns:100 does, but this is due to small sample size and probably does not represent anything near the actual fawn ratio for the herd. The other major issue for this herd is that despite increasingly conservative buck harvests, managers have been unable to increase the observed buck to doe ratio for the herd.

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 from 2012 to 2014 and to a lesser extent the summer of 2015. The summer of 2012 was the driest on record at the Rock Springs monitoring station with only 3.13 inches of precipitation recorded, 2013 was the 5th driest with 4.68 inches of precipitation measured and 2014 was the second driest on record with only 4.24 inches of precipitation for the year. Near normal precipitation levels were documented in 2015, with 8.62 inches of precipitation recorded at the Rock Springs monitoring site. Most of the moisture came in July, however which did not benefit plant growth as much as if it had arrived earlier in the growing season. 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 caused this herd to lose ground in relation to its population objective. 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. Portions of the 2015-2016 winter did see colder temperatures and some portions of the herd unit did receive significant snowfall, but since this period was fairly short in duration and was followed by warm weather and significant snowmelt it probably won't have a significant negative affect on the population. 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 and 2015 post-season classifications gives cautious optimism that this population may begin to grow in the future, however the physical condition of some deer witnessed during November 2015 suggest that the herd is still experiencing tough times due to nutritional deficiencies.

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, four of the five monitored sites showed positive LD values for 2015, while four of the sites had LD values at or below zero.

Table 1. Trends in aspen regeneration LD Index values (vertical inches) for the SRS herd unit 2012-2015

Monitoring site	2012	2013	2014	2015
Pine Mt/Red Ck.	-3.0	NA	-7.8	-1.8
Tri-State /Red Ck.	NA	NA	+3.36	+7.2
Miller Mt.	+5.3	+6.6	+4.6	+3.6
Aspen Mt.	-6.0	+4.6	-4.5	+1.2
Little Mt./Dipping Spr.	-2.6	0	-0.9	+1.2
Little Mt./West Currant Ck.	0	0	-1.6	0

Field Data

This herd was classified only from the ground in November 2015. Due to other projects occurring during that month, only 309 deer were classified, with resulting ratios of 105 fawns : 100 does and 34 total bucks per 100 does, with 17 yearling bucks per 100 does. This observed fawn ratio is extremely high for this herd and should probably be regarded with skepticism since the classification was so small. These observed ratios are almost certainly due to the extremely small sample size and do not reflect the actual condition of the population.

In past years, 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. Also in the winter of 2014-2015, Utah Division of Wildlife Resources collared a doe mule deer 10 miles north of Vernal, UT. That doe moved into Wyoming in late April and spent the summer on top of Little Mountain, she then left Wyoming and returned to Utah in late September. 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 2015 season saw the lowest harvest documented in this herd in quite some time. A reported total of 148 bucks and 3 doe mule deer were harvested in the herd unit. Success rates for the two hunt areas that make up this herd unit were 67% for HA101 and 74% for HA102, giving the herd unit as a whole a success rate of 73%. This herd unit usually exhibits success rates in the mid-80s, so the success rates reported in 2015 were below average success rates but were a slight improvement over 2013's harvest success rate of 68% in the herd unit. The number of deer harvested in HA102 in 2015 can partly be explained by the reduction in the number of licenses issued with only 200 licenses being issued in the hunt area instead of the 400 that were usually issued.

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 62 samples for analysis from the 2015 hunting season. Based on those samples, the average age of harvested bucks was just under 5.3 years old in 2015. The average age of harvested deer was also 5.3 years old in 2014, 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 2015 season was a 10.5-year-old buck from HA102 and a 9.5 year old buck from HA101. It should be noted that despite the average age of over 5 years old based on laboratory aging estimates that antler size of field checked deer was not what would be expected from that age class of deer.

Population

The model for this herd tracks only moderately well 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 on 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 year's 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 higher levels 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.

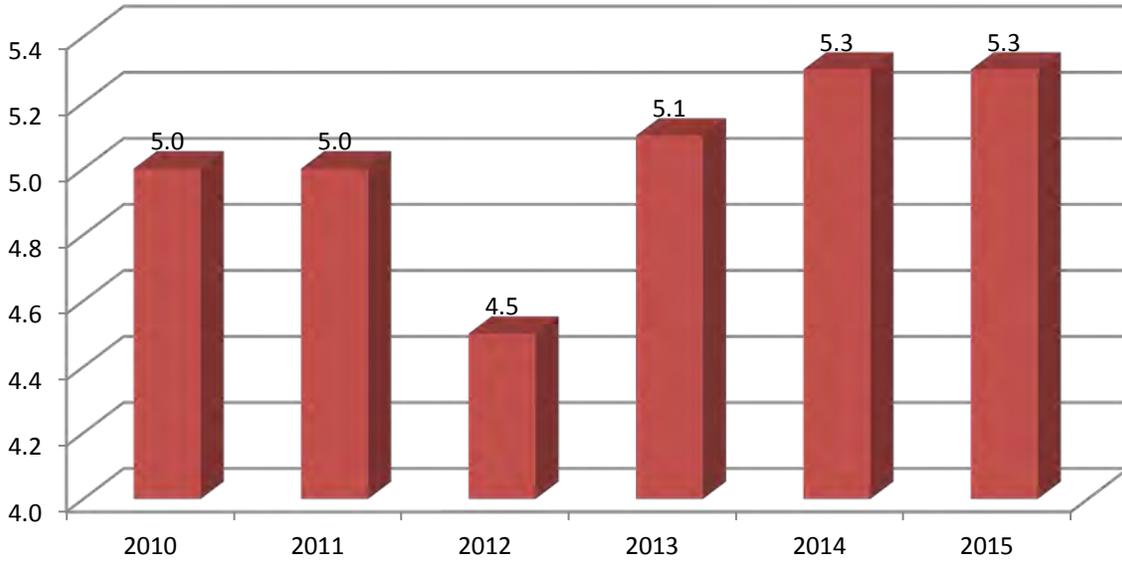
Additional information from the harvest survey, classifications, and age data from lab-aged teeth from hunter-harvested deer combined with the model help in management of this locally high profile herd.

Management Summary

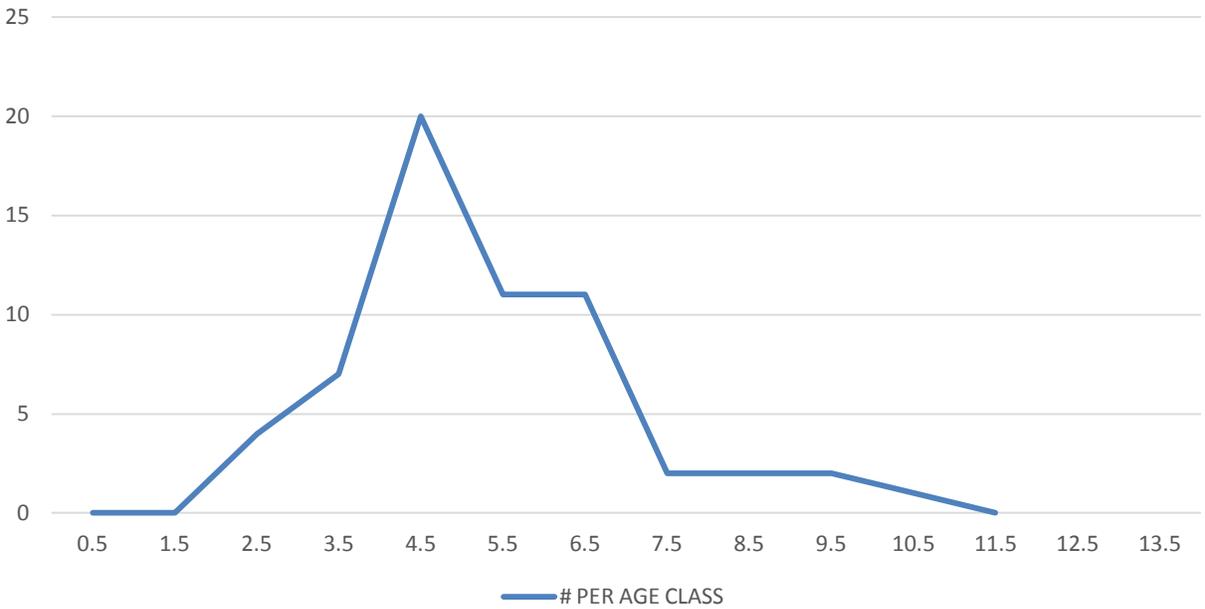
The 2016 hunting season is identical to the 2015. Because of the problems with the model for this herd and fact that management actions seem to have no impact on herd size or observed buck to doe ratios, this herd is managed mostly by political pressure from those members of the public desiring larger antlered deer and a less crowded hunting experience.

Despite the conservative seasons that have been set for this herd unit for the last several years, 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. 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.

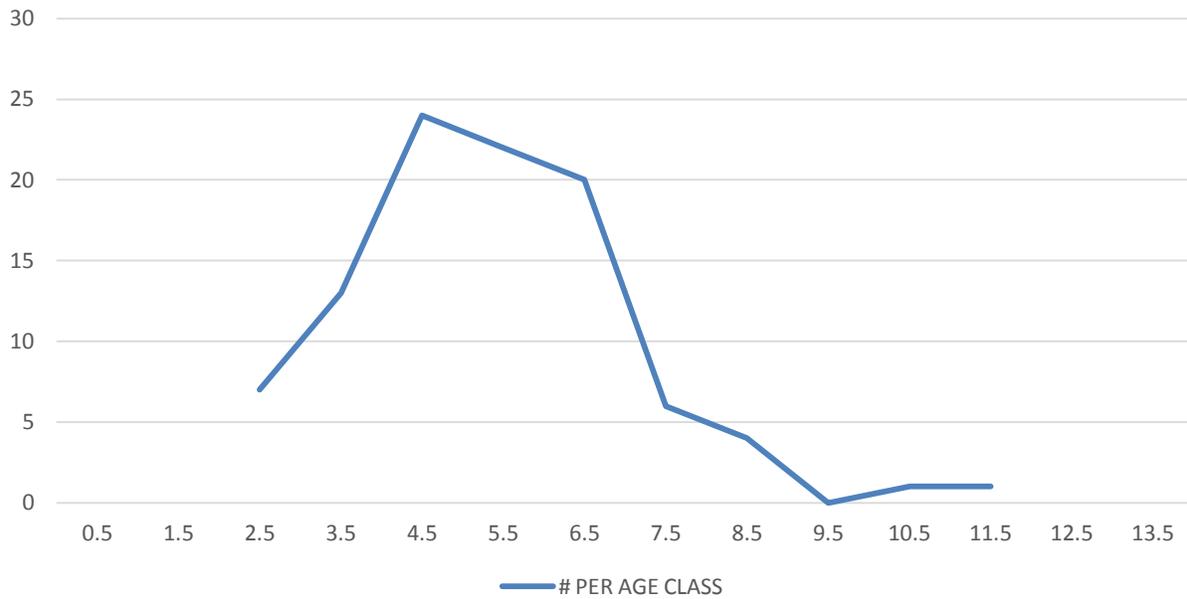
SRS Deer Average Age of Harvested Bucks



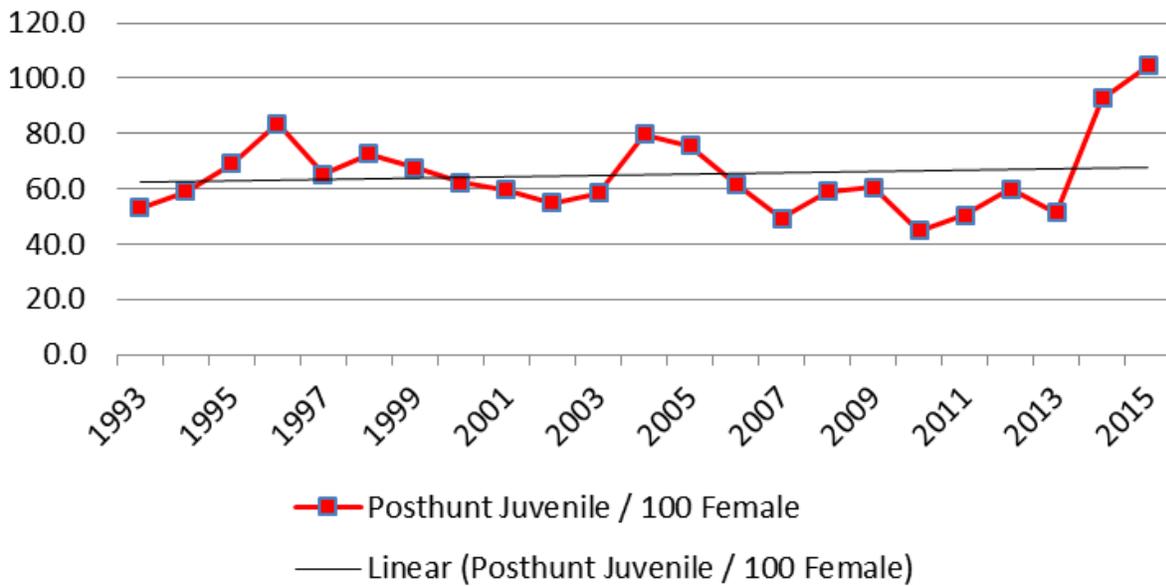
2015 SRS DEER # HARVESTED PER AGE CLASS

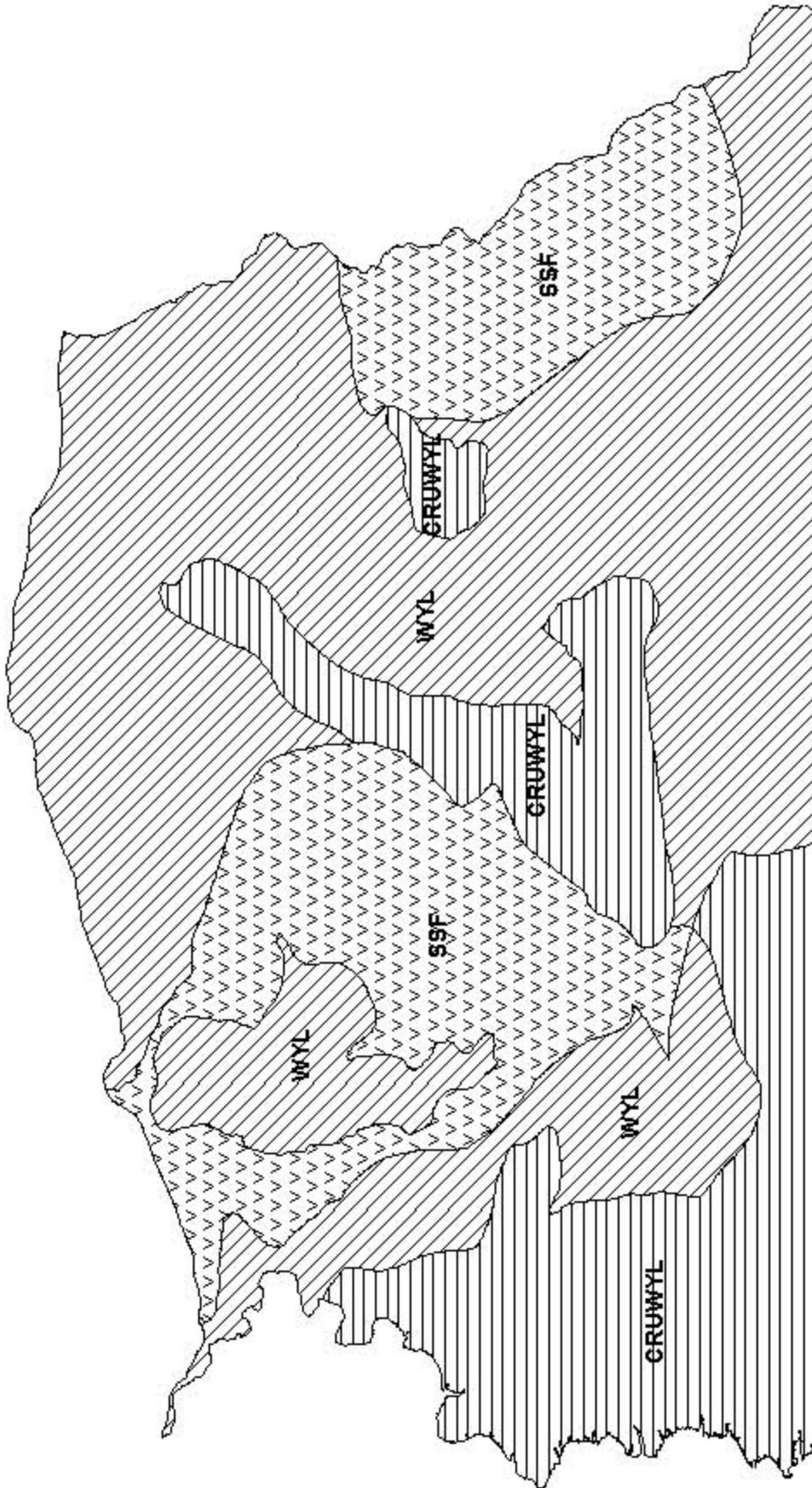


2014 SRS DEER # HARVESTED PER AGE CLASS



Posthunt Juvenile / 100 Female





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

2015 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD427 - BAGGS

HUNT AREAS: 82, 84, 100

PREPARED BY: TONY MONG

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	18,200	25,100	23,605
Harvest:	1,167	1,878	2,300
Hunters:	2,420	3,062	3,000
Hunter Success:	48%	61%	77 %
Active Licenses:	2,432	3,112	3,200
Active License Success:	48%	60%	72 %
Recreation Days:	11,580	13,517	15,000
Days Per Animal:	9.9	7.2	6.5
Males per 100 Females	31	33	
Juveniles per 100 Females	60	62	

Population Objective (± 20%) : 19000 (15200 - 22800)

Management Strategy: Recreational

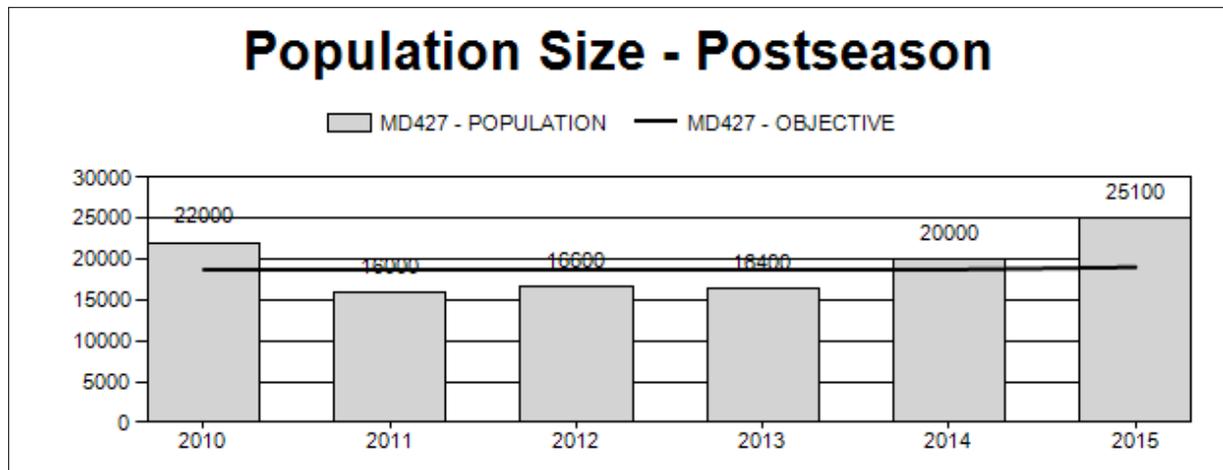
Percent population is above (+) or below (-) objective: 32%

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

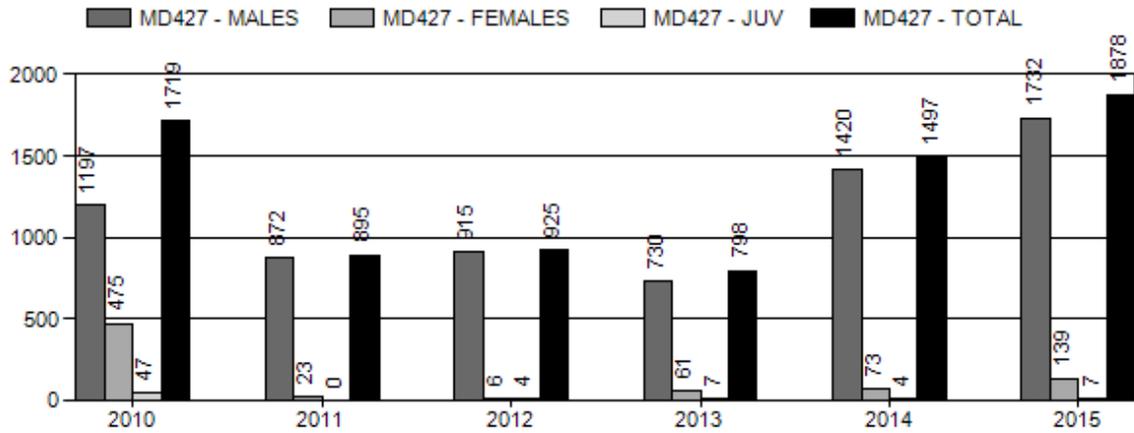
Model Date: 02/20/2016

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

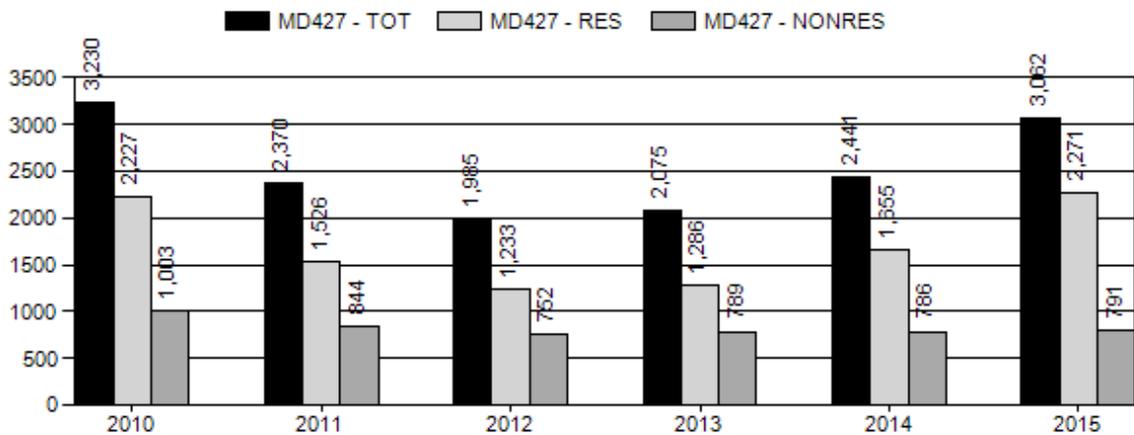
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.8%	3.4%
Males ≥ 1 year old:	27.3%	35.2%
Juveniles (< 1 year old):	0.1%	0.1%
Total:	7%	9%
Proposed change in post-season population:	0%	6%



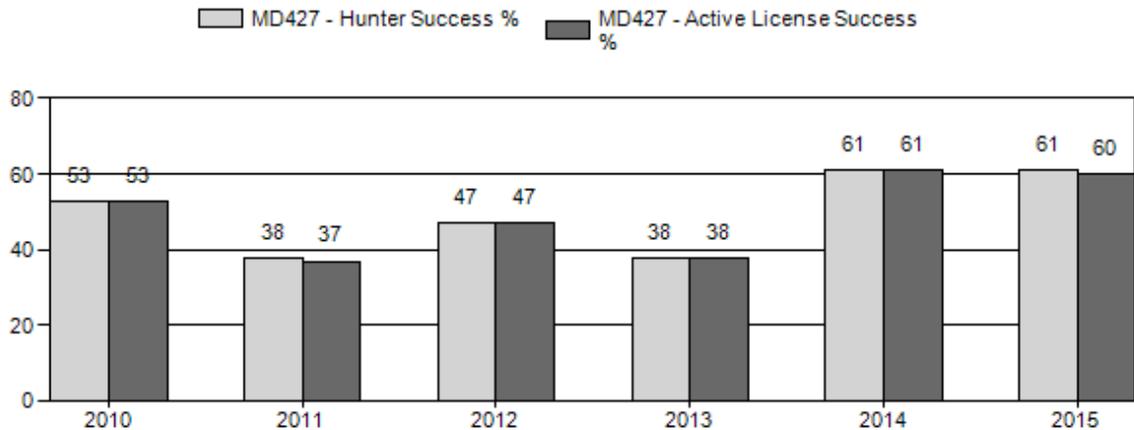
Harvest



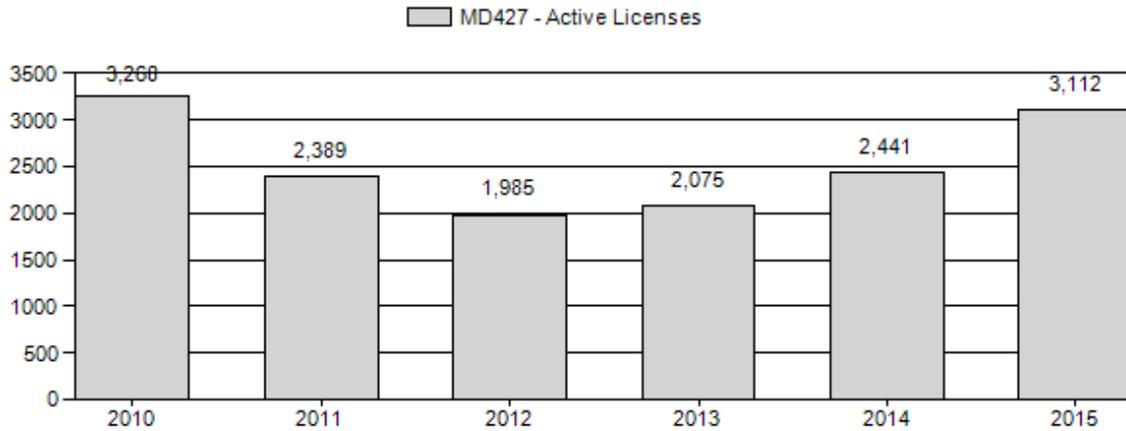
Number of Hunters



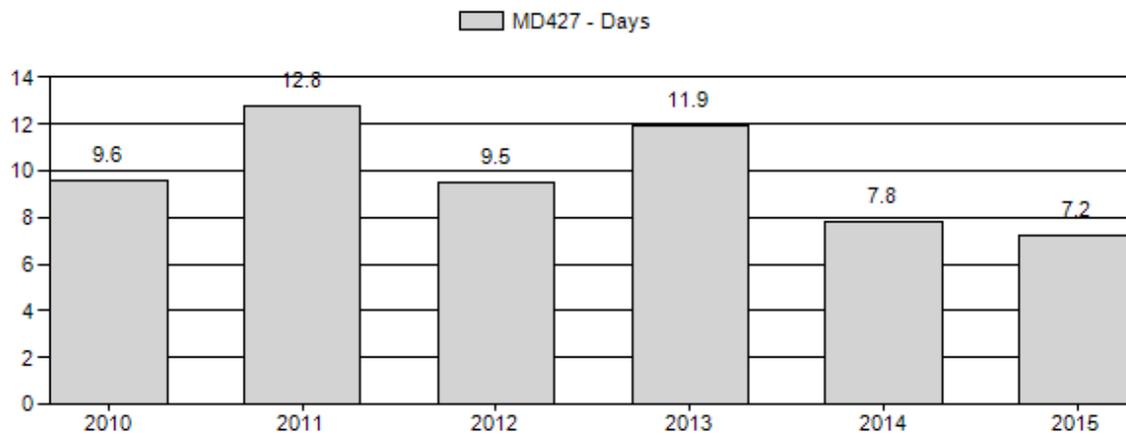
Harvest Success



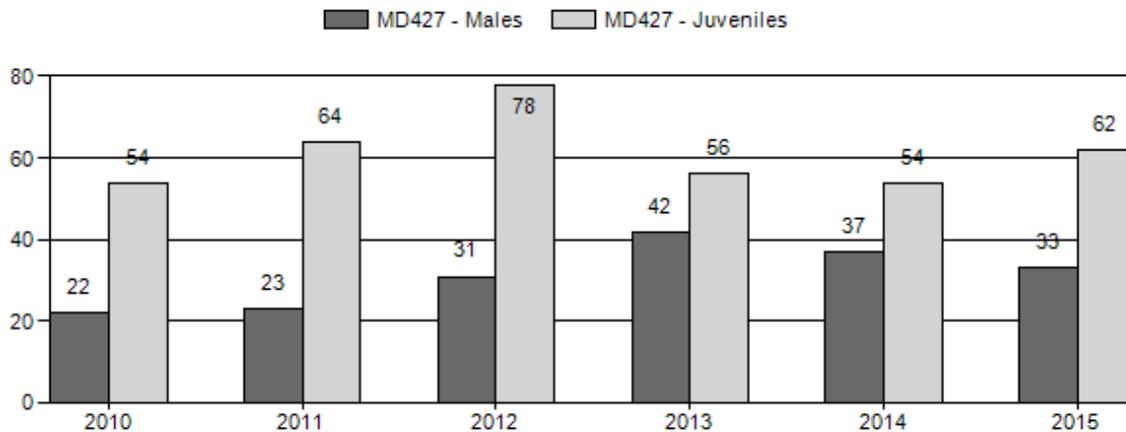
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD427 - BAGGS

Year	Post Pop	MALES							FEMALE		JUVENIL		Males to 100 Females				Young to				
		Ylg	2+	2+	2+	2+	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
			Cls 1	Cls 2	Cls 3	UnCls															
2010	22,000	241	0	0	0	178	419	13%	1,892	57%	1,018	31%	3,329	0	13	9	22	± 0	54	± 0	44
2011	16,000	133	0	0	0	337	470	12%	2,059	54%	1,308	34%	3,837	0	6	16	23	± 1	64	± 3	52
2012	16,600	198	130	112	47	0	487	15%	1,592	48%	1,235	37%	3,314	0	12	18	31	± 2	78	± 3	59
2013	16,400	346	274	168	72	0	860	21%	2,066	51%	1,152	28%	4,078	0	17	25	42	± 2	56	± 2	39
2014	20,000	272	230	189	82	0	773	19%	2,112	52%	1,151	29%	4,036	0	13	24	37	± 2	54	± 2	40
2015	25,100	267	300	212	77	0	856	17%	2,603	51%	1,604	32%	5,063	0	10	23	33	± 1	62	± 2	46

2016 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. 12		General	Antlered mule deer or any white-tailed deer
		Oct. 1	Oct. 14		General youth	Any deer
	6	Oct. 1	Oct. 12	250	Limited quota	Doe or fawn
	8	Nov. 1	Dec. 15	25	Limited quota	Doe or fawn white-tailed deer valid on private land
84	1	Oct. 1	Oct. 14	75	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

Special Archery Season Hunt Areas	Season Dates	
	Opens	Closes
82	Sep. 1	Sep. 30
84	Sep. 1	Sep. 30
100	Sep. 1	Sep. 30

Hunt Area	Type	Quota change from 2015
<i>Region W</i>	<i>Gen</i>	<i>0</i>
82	7	-100
	6	+250
84	1	+25
Herd Unit Total	1	+25
	7	-100
	6	250
	Region W	0

Management Evaluation

Current Management Objective: 19,000 (2015)

Management Strategy: Special (2015)

2015 End-of-bio-year Estimate: 25,000

2016 Proposed Postseason Population Estimate: 23,600

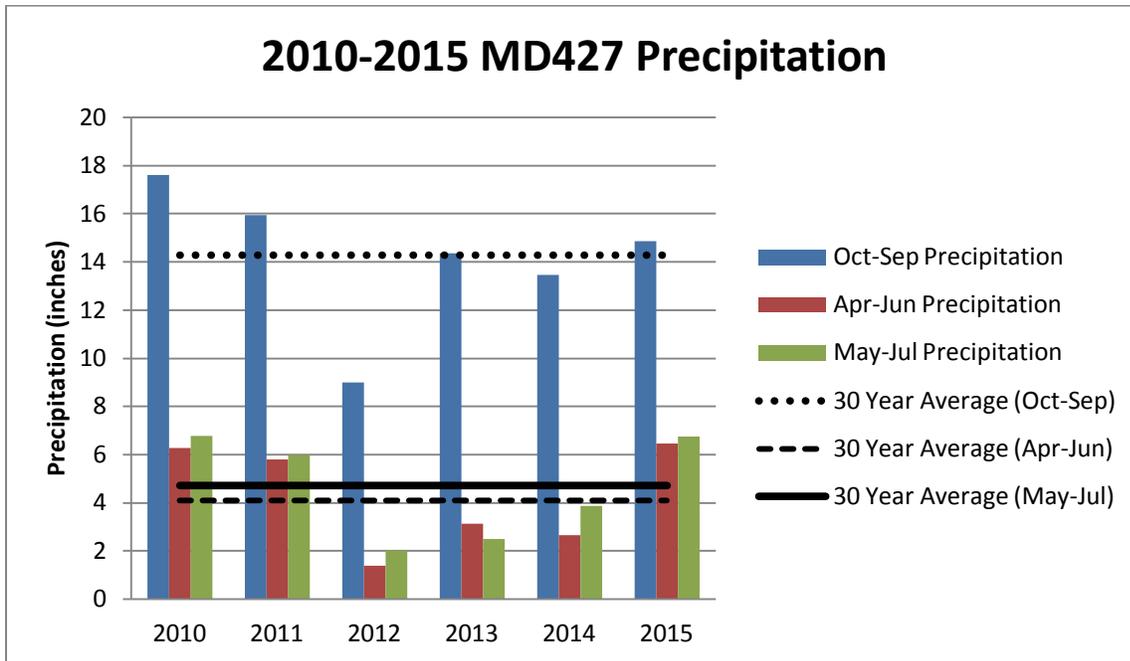
The Baggs Deer herd is above the population objective range of 15,200 – 22,800 (set in 2015) but within the special management parameter of buck ratio, therefore our current management strategy is to decrease population size through increased doe harvest.

Herd Unit Issues

Major issues impacting the Baggs mule deer herd include energy development, winter range and transitional range habitat quality and the desert portion of the herd. Throughout the Baggs herd we continue to see development of oil and gas fields associated with the Atlantic Rim Project that has the potential to impact migration routes and winter range. During the summer of 2015 a new gas and oil development project started in the Horse Mtn to Muddy Mtn area with 3 exploratory wells and plans to drill 5 more in the summer of 2016. This has the potential to impact migration routes, winter range and parturition areas by not only increased gas and oil activity but also winter maintenance on roads not currently open to the public. Within 2 years we may begin to see the development of the largest wind turbine project in North America, the Chokecherry-Sierra Madre Wind Project which will impact summer range and migration routes in the Miller Hill area.

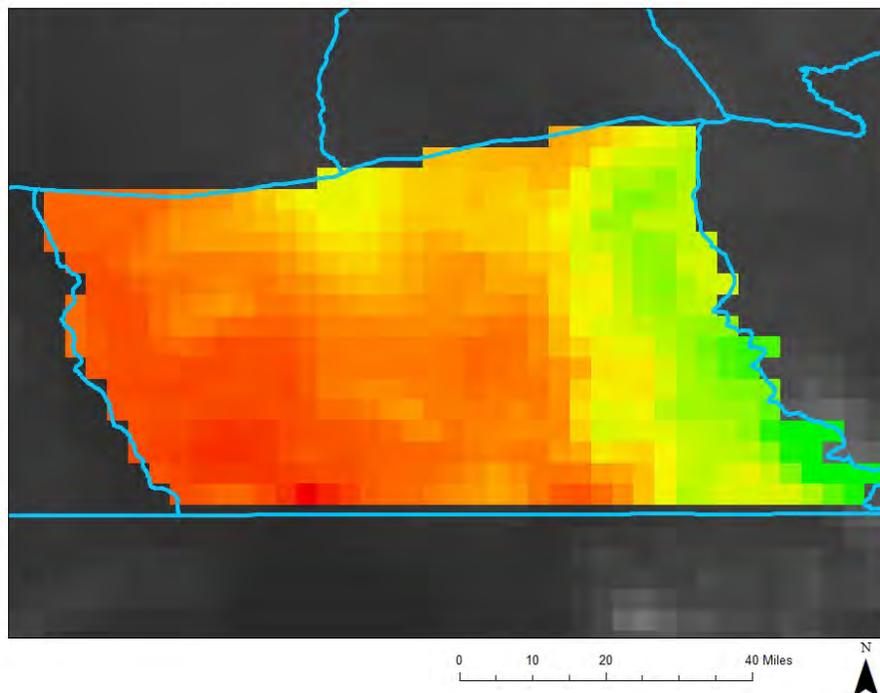
In hunt areas 84 and 100 we are not seeing the same population response as we are seeing in hunt area 82. Although hunt areas 84 and 100 have typically been more xeric, the divergence between the “core” population in hunt area 82 and these “fringe” areas is becoming more prominent. This issue may become more relevant if we do not see a response by resident mule deer in these hunt areas in the next few years.

Weather



Parameter-Elevation Relationships on Independent Slopes Model (PRISM) was utilized to estimate precipitation by calculating a climate-elevation regression for each Digital Elevation Model grid cell (4 km resolution).

BMDHU Growing Season Precipitation (Apr-Jun)



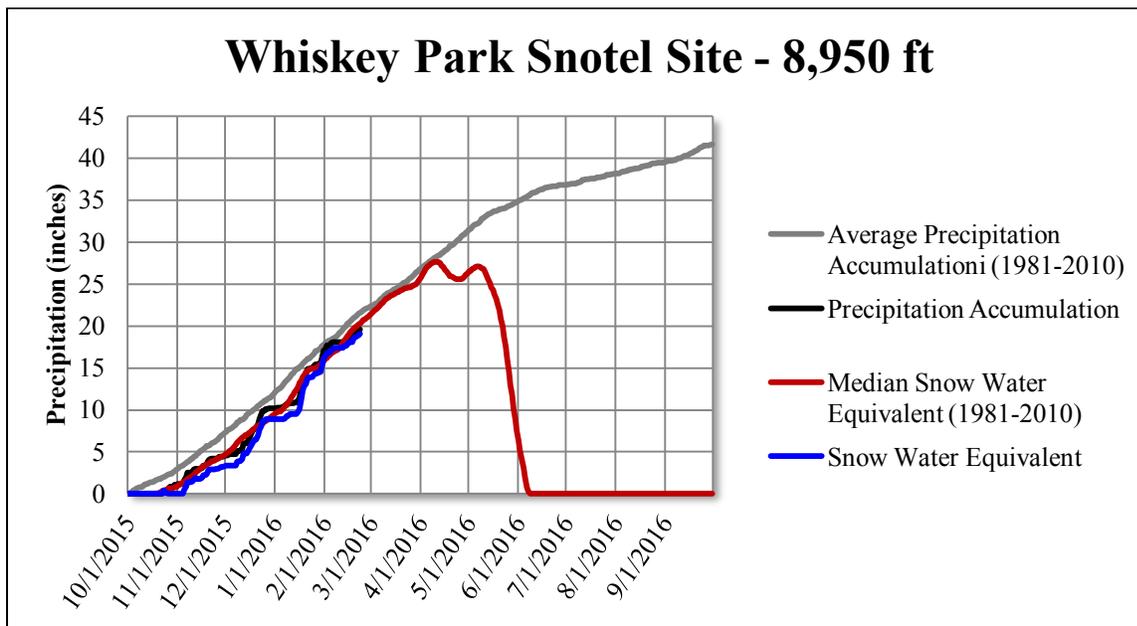
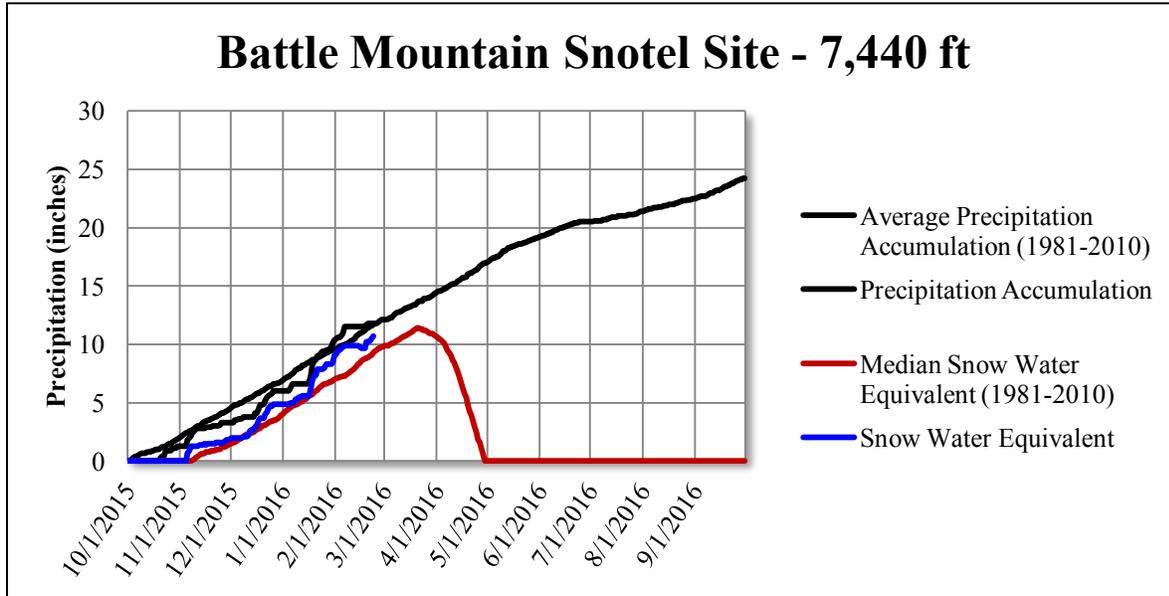
Precipitation

Annual bio-year precipitation from October 2014 through September 2015 was slightly higher than the 30 year average. Growing season precipitation (April-June 2015) and precipitation in high elevation spring/summer/fall ranges (May-July 2015) were notably higher than the 30 year average. As illustrated by the above graph, most of the precipitation occurred outside of the primary growing season, likely in the form of snow. There was significant spring moisture in

2015 from both early spring snows and significant late spring rain events. Although August was fairly dry, there was some early fall moisture in September.

Winter Severity

As of mid-February the Baggs mule deer herd unit has seen fairly average winter conditions across elevations with the exception of particularly high wind speeds in February. At lower elevations, as reported by the Battle Mountain Snotel Site, snowpack (snow water equivalent) is at 113% of normal. Higher elevations have slightly lower winter snowpack with the Whiskey Park Snotel Site reporting a snowpack that is 94% of normal.



Habitat

Exceptional fall precipitation in 2014 and mild 2014-2015 winter conditions allowed deer to enter winter with above average body condition. Growing season precipitation was higher than the 30 year average in 2015, resulting in excellent production of grasses, forbs, and shrubs across all seasonal ranges providing for ample forage during early parturition. However, despite

favorable early season precipitation, many important shrub habitats continue to underperform due to maturity and decadence caused by a lack of disturbance.

No permanent vegetative transects were analyzed this year within the herd unit, but the new Rapid Habitat Assessment (RHA) methods developed by the WGFD were initiated in the BMDHU. During the 2015 field season, 25 RHAs were completed, of these sites, 15 were in winter/yearlong range and 10 were completed in summer/transition range (four of which were aspen sites, figure 4).

Figure 1. Baggs Rapid Habitat Assessment site distribution across the Baggs herd unit. Points outside of delineated crucial winter range and transitional habitat are in winter/year long range.

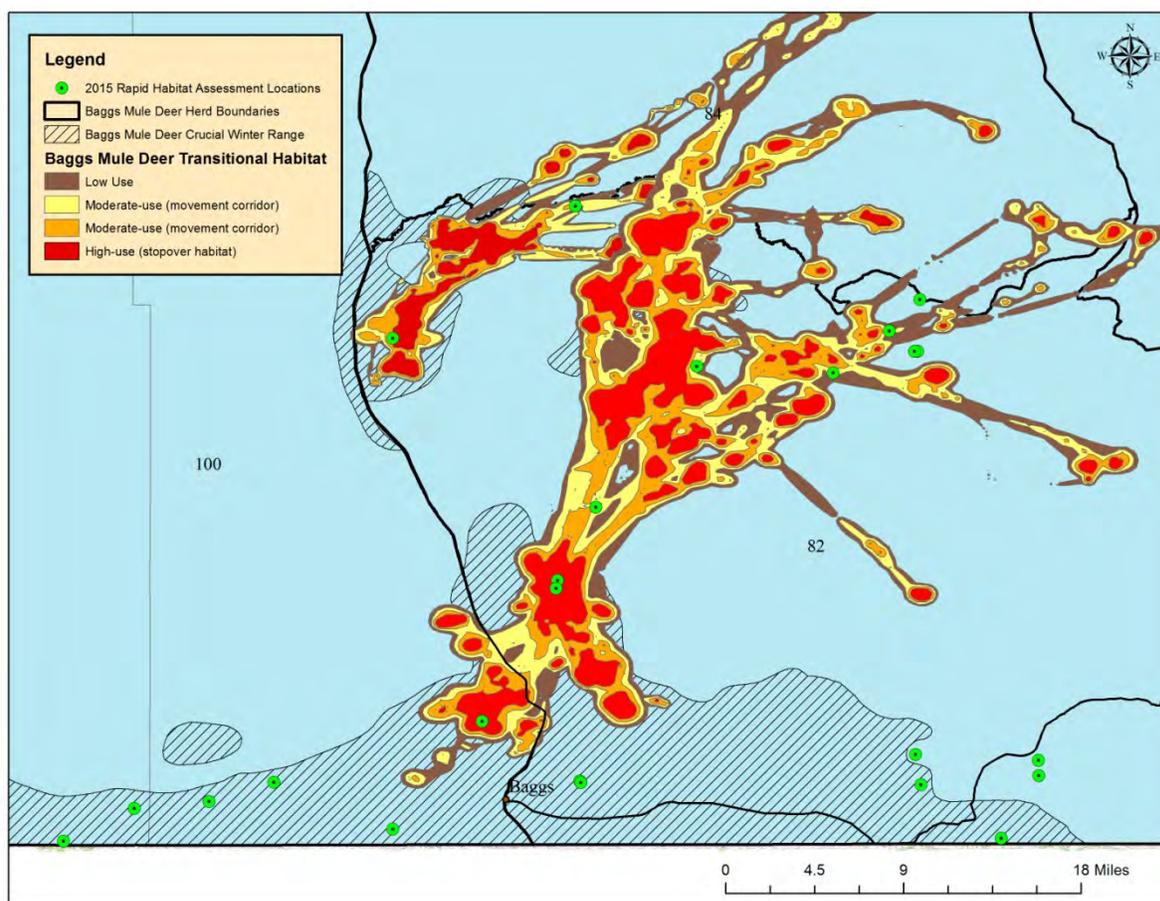


Table 1 summarizes age class, hedge class, and sagebrush canopy cover for assessment sites. From these data it appears that for both winter/yearlong and summer/transitional ranges in the BMDHU, deer browse species are trending toward mature and decadent age classes with low percentages of seedling & young age classes present (Figure 2). At each site, the two primary shrubs were assessed for long-term browse levels and an overall hedge class was determined (Table 1, Figure 3). The summarized hedge class data show that the primary browse species for both winter/yearlong and summer/transition ranges are moderately hedged (55-60%). Lastly, 40% of the winter/yearlong sites assessed had sagebrush canopy cover >25%, while summer/transition range typically was not associated with sagebrush cover. The shrub summary data suggests that the majority of preferred mule deer browse species through the BMDHU seasonal ranges are trending toward an older age class while receiving moderate browse pressure with high sagebrush canopy covers in winter range. As such, many of these

sites would be good candidates for some sort of shrub treatment to set back age class and nutritive quality of shrubs for preferred mule deer browse species.

Table 1. Baggs 2015 Rapid Habitat Assessment Shrub Summary

	Age Class					Hedge Class			Sagebrush Cover Class			
Mule Deer Seasonal Range	Seedling	Young	Mature	Decadent	Dead	Light	Moderate	Severe	<5%	5-15%	16-25%	>25%
Winter/Yearlong Sites	4%	6%	71%	16%	4%	24%	57%	19%	7%	20%	33%	40%
Summer/Transition Sites	6%	15%	63%	12%	5%	20%	60%	20%	0%	75%	0%	25%

Figure 2. Baggs 2015 RHA shrub age class summary

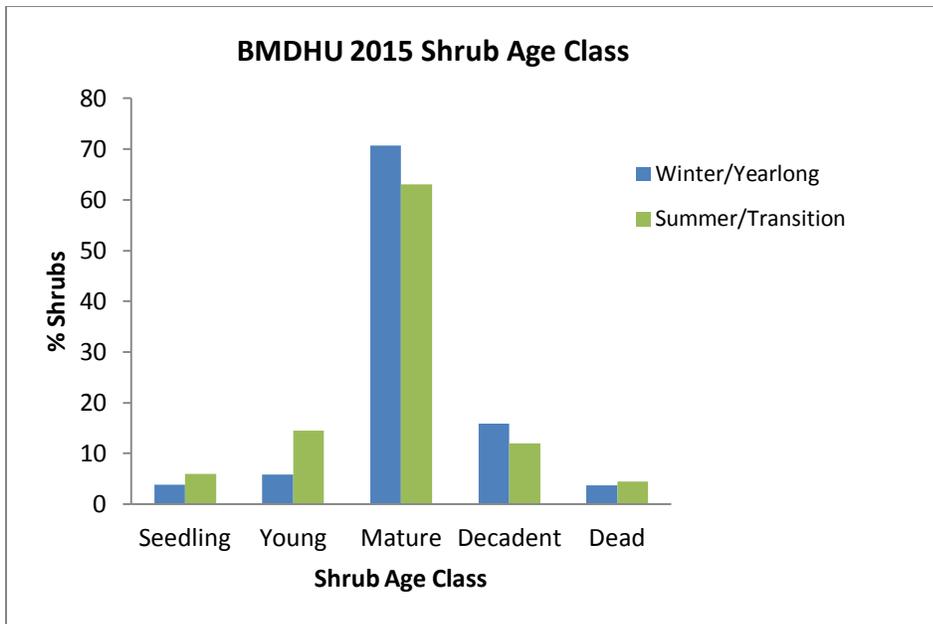
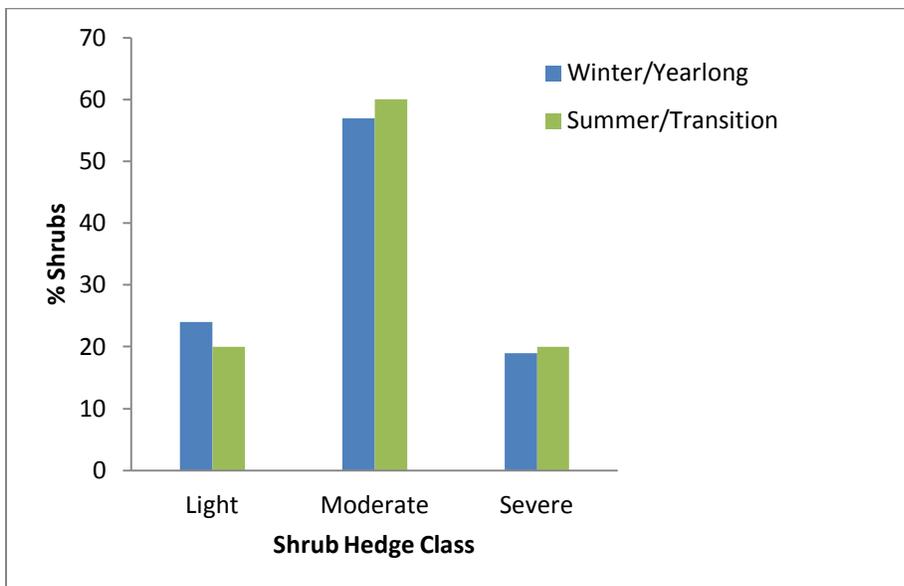


Figure 3. Baggs 2014 RHA shrub hedge class summary.



Overall habitat condition was determined by assessing the following habitat traits: seedling/young shrubs present, shrub mortality/decadence, relative composition (shrubs, grasses, forbs), species diversity, conifer encroachment, invasive plants, plant litter, erosion, and percent bare ground. Table 2 and Figure 4 summarize the overall habitat condition for sites assessed within mule deer winter/yearlong and summer/transition ranges within the BMDHU. These data suggest that habitat condition is better in summer/transition range with a greater percentage of sites in neutral and poor condition in winter/yearlong sites.

Cheatgrass and alyssum were the major invasive plant species found at assessment sites in 2015 (Table 2, Figure 4). These invasive species were much more prevalent in winter/yearlong sites, with 47% having significant presence. Although there were invasives present in summer/transition sites, there were sites with no invasives and no sites with a significant presence. As such, it may be important to specifically address invasive species issues on

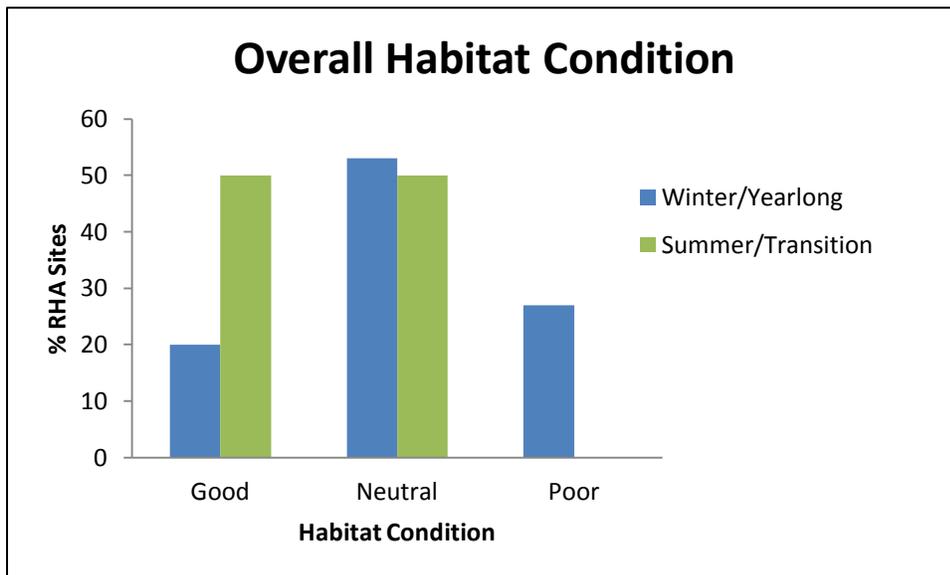
winter/yearlong range within the BMDHU and carefully consider invasives in all habitat treatments.

Lastly, Table 2 summarizes conifer encroachment issues in winter/yearlong range. For the sites that were adjacent to conifer habitats, 33% had phase 1 (low density) encroachment and 27% had moderate density (phase 2) encroachment. Conifer encroachment treatments should be considered in phase 1 & phase 2 areas dependent upon understory species, presence of invasive species, and cost of removal. Summer/transitional sites assessed did not have conifer encroachment issues, however, aspen sites were not analyzed in this summary.

Table 2. Baggs 2015 Rapid Habitat Assessment General Condition Summary

Mule Deer Seasonal Range	Overall Condition			Invasives			Conifer Encroachment			
	Good	Neutral	Poor	None	Some	Many	N/A	Phase 1	Phase2	Phase 3
Winter/Yearlong Sites	20%	53%	27%	0%	53%	47%	40%	33%	27%	0%
Summer/Transition Sites	50%	50%	0%	33%	67%	0%	*100%	0%	0%	0%

Figure 4. Baggs 2015 RHA Habitat Condition Summary



Field Data

The drought impacting this herd coupled with severe winters and increasing human activity in areas that had not had human activity over the last 10 years has been a challenge for the mule deer in the Baggs herd. However, despite these challenges we have seen deer numbers increase to objective levels over the last 3 years due to recent mild winters, higher moisture patterns and conservative hunting seasons. The point-restriction and subsequent removal of the point-restriction has allowed for buck ratios to increase and for a good representation of age classes to be seen in the herd. Currently 36% of bucks are in the class I category, 24% in the class II and 9% in the class III delineation. The remainder, 31% were yearling bucks this year.

Fawn ratios in this herd in recent years have been lower than the prescribed 65:100 (20-year average, 58:100) however, the herd seems to grow despite these lower fawn ratios. Recent data from Colorado Parks and Wildlife indicates that fawn survival has been high in recent years (~88% survival in 2013, pers. comm. Darby Finley, CPW) and may begin to give us insight into why this herd can grow with lower fawn ratios.

Unfortunately, we do not have separate data for those resident mule deer in hunt area 100 and 84 to give us a better indication of the issues facing these portions of the population. However, some potential hindrances to these populations could include poorer habitat conditions or competition with other ungulates. Research and habitat monitoring should be focused on trying to decipher these potential issues.

Harvest Data

The 2015 hunting season saw a return to pre-2007/08 levels (2003 to 2007 average buck harvest, 1600, 2015 buck harvest, 1,700). The 2015 hunting season brought a higher than average (10 year average, 55%) hunter success rate at 61% and a higher than average (10 year average, 2,700) hunter participation at 3,000. These statistics lead to an increase in hunter satisfaction from 53% in 2013 to 72% in 2015 of survey participants that responded they were either “satisfied” or “very satisfied. Despite the great opportunity for youth hunters during the youth only portion of the season, we have not seen many taking advantage of the season. Those that are taking advantage are extremely appreciative of the season and are usually thrilled with the opportunity. Doe harvest was implemented in 2015 to begin to decrease the growth rate of this herd. Hunters that had this license were very successful at 84% in their pursuit of meat for the freezer.

Population

The current post-hunt population model estimates for 2015 indicate we are now above the objective at 25,000 animals. Despite the SCJ, SCA model having the lowest relative AICc value (146), we chose the TSJ, CA model (178) based on what we believe to be a better representation of the actual population trend, buck ratio comparison and size based on hunter satisfaction, plausibility and field observations. The SCJ, SCA model shows a population that was nearly 3 times over objective and that does not seem to be biologically feasible. Within the TSJ, CA model we constrained adult survival to lower levels (0.3 to 0.82) during the 2007-08 and 2010-11 winters to match the difficult winter conditions.

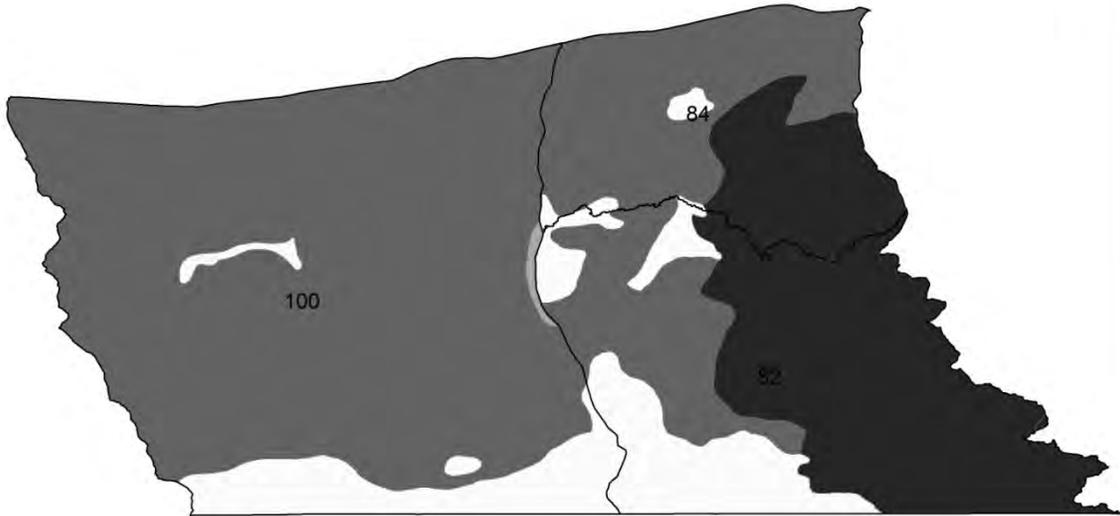
The spreadsheet model seems to be a useful tool for this herd; however, without an independent estimate of the population size and the indication from studies from WGFD and Colorado Parks and Wildlife showing high interchange between the two states, we must be cautious in the use of this model as our only source of information.

Management Summary

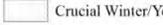
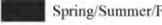
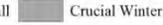
Over the course of the last 1.5 years the Baggs Mule Deer Working group has been meeting to discuss mule deer management and habitat issues occurring within the Baggs mule deer herd unit. Most recently (November 2015) the working group made several recommendations on a new season structure that would attempt to maintain the high amount of opportunity typical of the Baggs mule deer herd but to deal with the issue of overcrowding during the rifle season in hunt area 82. This idea was welcomed by the WGF administration however, a broader scope of public input is needed before moving to a completely new season structure, one not currently in use in any other part of the state. We will fashion a survey that will attempt to gather public input on several different season structures to maintain opportunity and allow for a more quality experience with fewer hunters on the ground at the same time. The working group was in consensus that the population size in relation to habitat quality was not equal therefore they made the recommendation that we offer doe/fawn licenses. We are increasing doe/fawn licenses to 250 and removing the area restrictions we had in place last year with the hunt area 82 type 7 license to allow doe hunting throughout the hunt area.

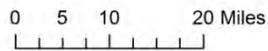
In addition, this year we are proposing to try and spread out harvest pressure by increasing the hunting season from 10 days to 12 days. The continued high buck ratios in hunt area 82 are going to allow us to spread out harvest across more age classes thus giving the opportunity for more bucks to make it into older age classes. We will continue to be conservative in both of our “desert” hunt areas (84 and 100) until we get a good indication from hunters, field managers and locals that the population is on the rebound.

MD427 Baggs Mule Deer Herd Seasonal Ranges



Baggs Mule Deer Seasonal Range

	Winter/Year long		Crucial Winter/Year long		Spring/Summer/Fall		Crucial Winter
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2015 - JCR Evaluation Form

SPECIES: Elk

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

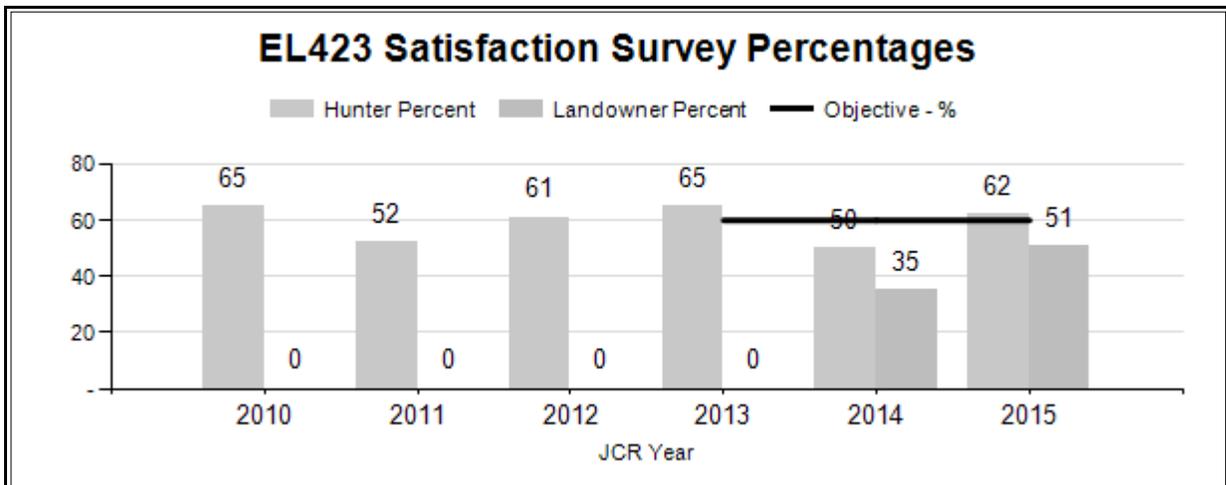
HERD: EL423 - UINTA

HUNT AREAS: 106-107

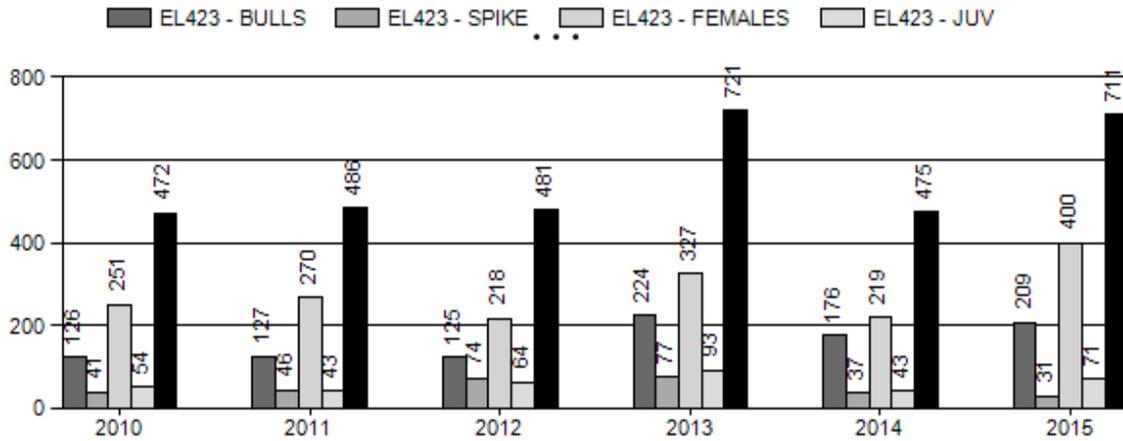
PREPARED BY: JEFF SHORT

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	59%	62%	62%
Landowner Satisfaction Percent	35%	51%	60%
Harvest:	527	711	700
Hunters:	1,439	1,782	1,800
Hunter Success:	37%	40%	39 %
Active Licenses:	1,473	1,890	1,900
Active License Success:	36%	38%	37 %
Recreation Days:	9,049	12,326	12,400
Days Per Animal:	17.2	17.3	17.7
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	

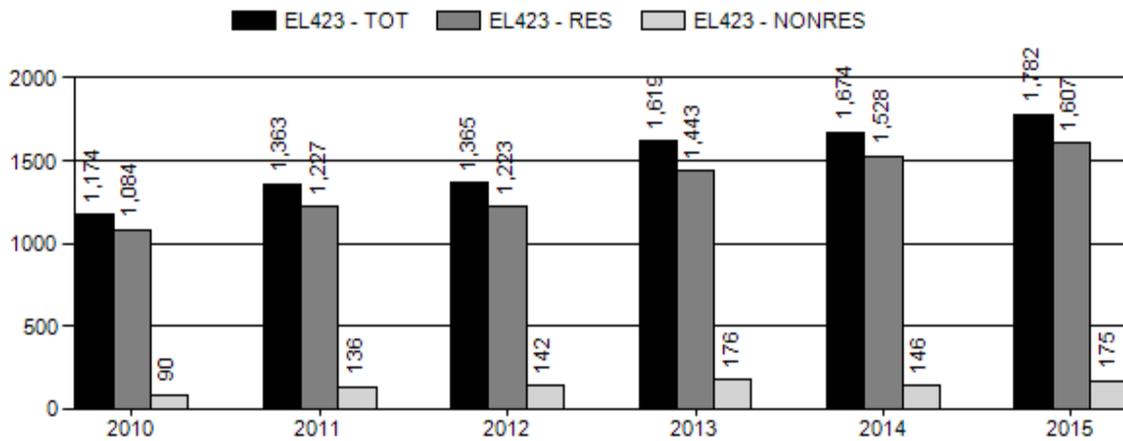
Satisfaction Based Objective	60%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	-4%
Number of years population has been + or - objective in recent trend:	2



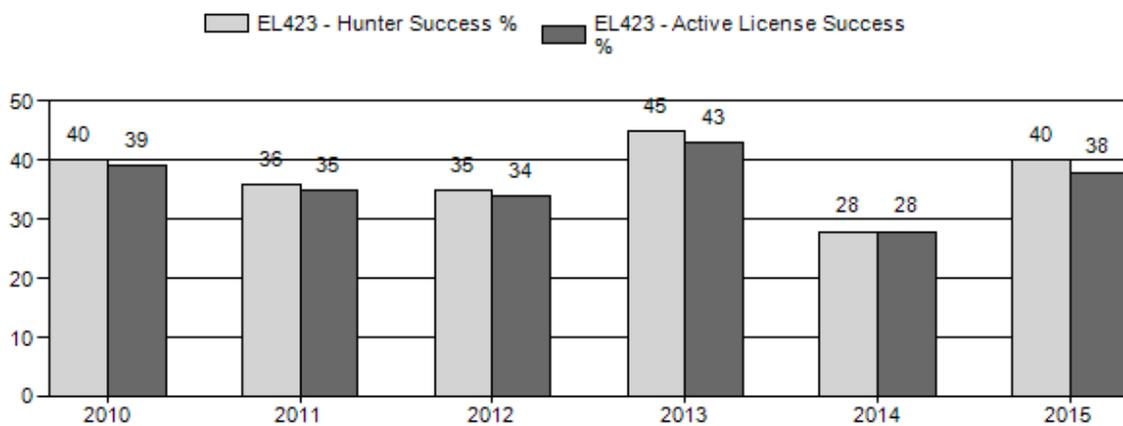
Harvest



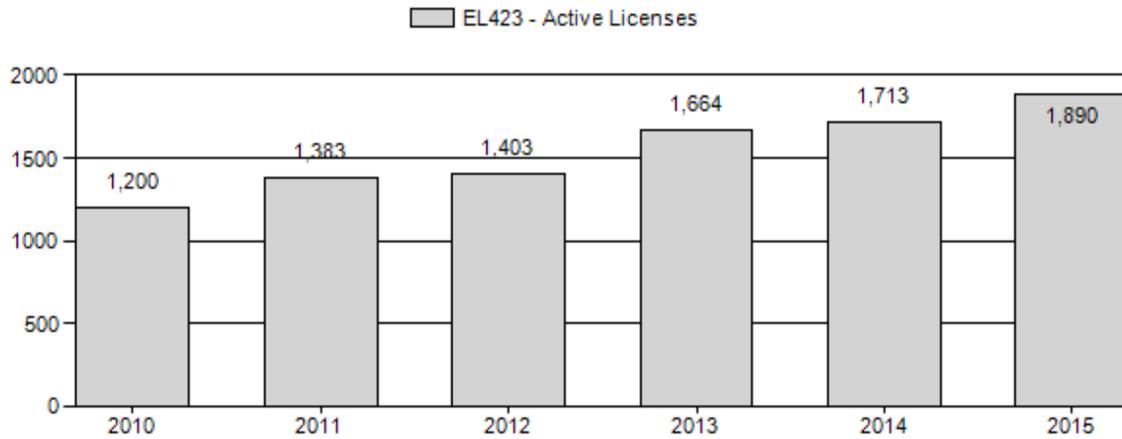
Number of Hunters



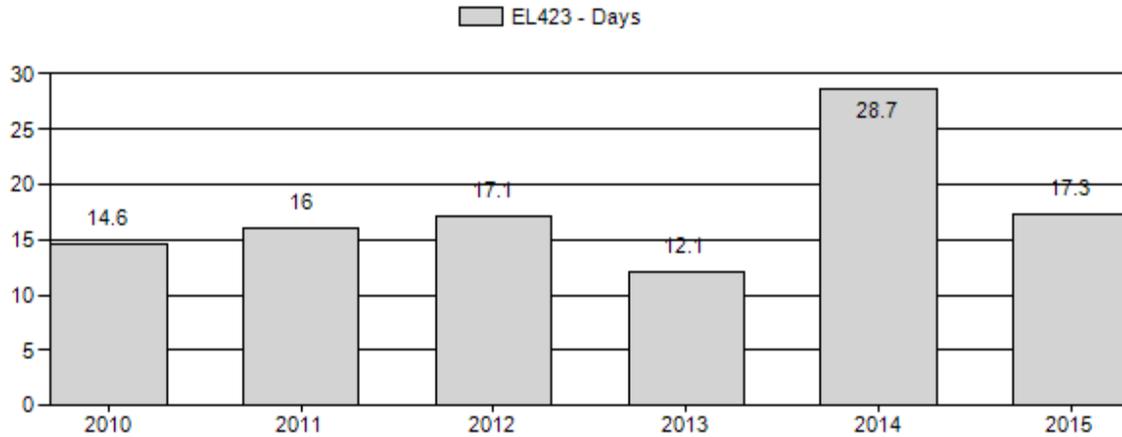
Harvest Success



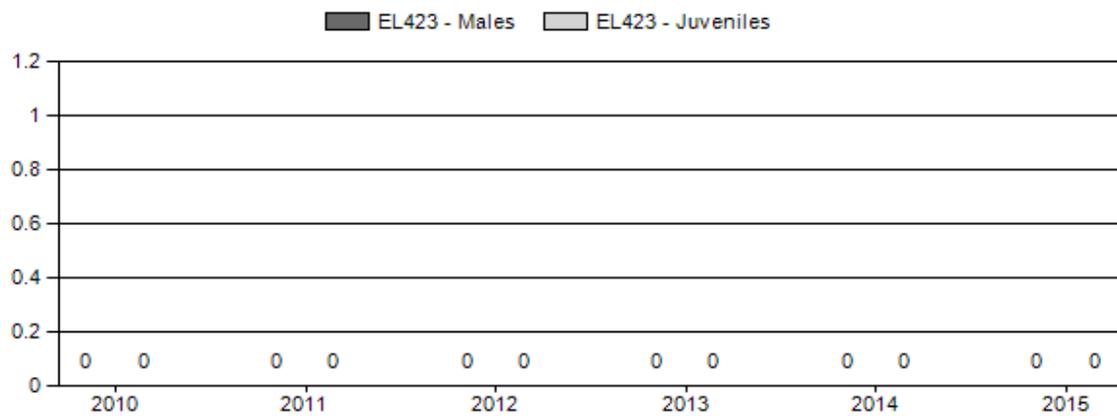
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



No classification data for this herd

2016 HUNTING SEASON

SPECIES : **Elk**

HERD UNIT : **Uinta (423)**

HUNT AREAS: **106, 107**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
106		Oct. 15	Oct. 31		General	Any elk
106		Nov. 1	Nov. 14		General	Antlerless elk
106	1	Nov. 15	Dec. 31	50	Limited quota	Any elk valid west of the Black's Fork River or north of Wyoming Highway 410; also valid in Area 105 west of the Bear River
106	1	Jan. 1	Jan. 31			Any elk valid in Area 105 west of the Bear River
106	4	Nov. 15	Dec. 31	100	Limited quota	Antlerless elk
106	4	Jan. 1	Jan. 31			Antlerless elk valid on private land or west of the Black's Fork River or north of Wyoming Highway 410
106	7	Aug. 15	Jan. 31	300	Limited quota	Cow or calf valid on private land or west of the Black's Fork River or north of Wyoming Highway 410
107		Oct. 15	Oct. 31		General	Any elk
107		Nov. 1	Nov. 14		General	Antlerless elk
107	4	Nov. 15	Dec. 31	150	Limited quota	Antlerless elk
107	4	Jan. 1	Jan. 31			Antlerless elk valid off national forest within the Henry's Fork River drainage
107	7	Aug. 15	Aug. 31	50	Limited quota	Cow or calf valid on private land in Sweetwater County
107	7	Dec. 15	Jan. 31			Cow or calf valid off national forest within the Henry's Fork River drainage

Hunt Area	License Type	Quota change from 2015
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: Satisfaction

Management Strategy: Recreational

2015 Postseason Population Estimate: ~1300

2016 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 severe winters. 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 second year of this objective we are meeting the hunter satisfaction objective but are not meeting the landowner satisfaction objective. However, the landowner satisfaction is rising and on the survey returns the majority of the landowners are satisfied with the current season structure. 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 2015 and into 2016 has been highly variable. In the early part of 2015 the winter was very mild and dry. A moist spring and summer followed. In late August conditions dried considerably and a relatively dry fall continued into late December. Winter did not set in until mid December but it came in abruptly. The winter of 2015-2016 has been very cold with high snow loads to this point and elk have migrated winter ranges. A much needed warming trend has occurred in February and it remains to be seen how the winter will ultimately shape out. The winters from 2011 to 2015 were very mild with low snowpack and relatively warm temperatures resulting in very 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

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
Total	1550	1339	2243	1298	1536	1377	1837	1991	3871

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 and 2015 we continued that harvest strategy. In 2014, weather conditions made elk hunting more difficult and harvest was lower at 489 animals harvested. In 2015 weather was more favorable and harvest was back up at 711 for the herd unit. For 2016 we will continue this aggressive 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 unreliable.

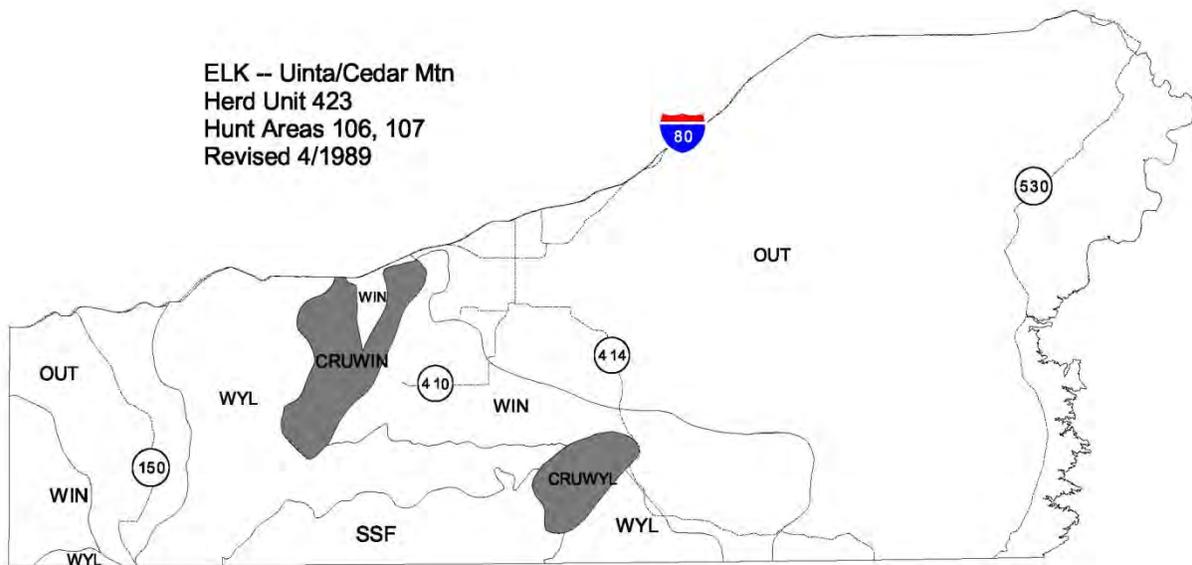
Since data is very limited in this herd it is very difficult to look at data trends. It is not possible to model this interstate herd. Classification data is not collected. Harvest rates are highly variable due to weather conditions pushing elk into the state from Utah. Harvest survey data indicate that 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 large 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. It appears that these

new season structures will reduce this elk herd. An August 15 – 31 portion of the area 107 type 7 hunt will be added to address specific damage issues on private lands. The Hunt Area 106 Type 1 licenses are in place to help deal with late damage problems in the area for which they are valid. We are proposing to also make them valid in a far western portion of HA 105 and extend that part of the season into January. This is to address a specific problem where Utah elk from Deseret Land and Livestock are coming over to Wyoming and damaging stored hay on years with hard winters.

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



2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL424 - SOUTH ROCK SPRINGS

HUNT AREAS: 30-32

PREPARED BY: PATRICK BURKE

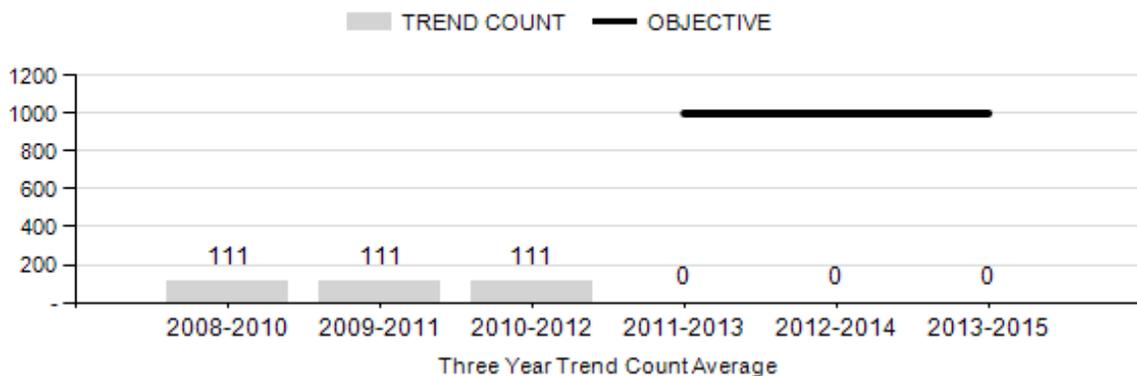
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Trend Count:	67	0	0
Harvest:	304	220	300
Hunters:	469	323	395
Hunter Success:	65%	68%	76 %
Active Licenses:	469	323	395
Active License Success	65%	68%	76 %
Recreation Days:	3,663	2,294	3,000
Days Per Animal:	12.0	10.4	10
Males per 100 Females:	45	0	
Juveniles per 100 Females	38	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

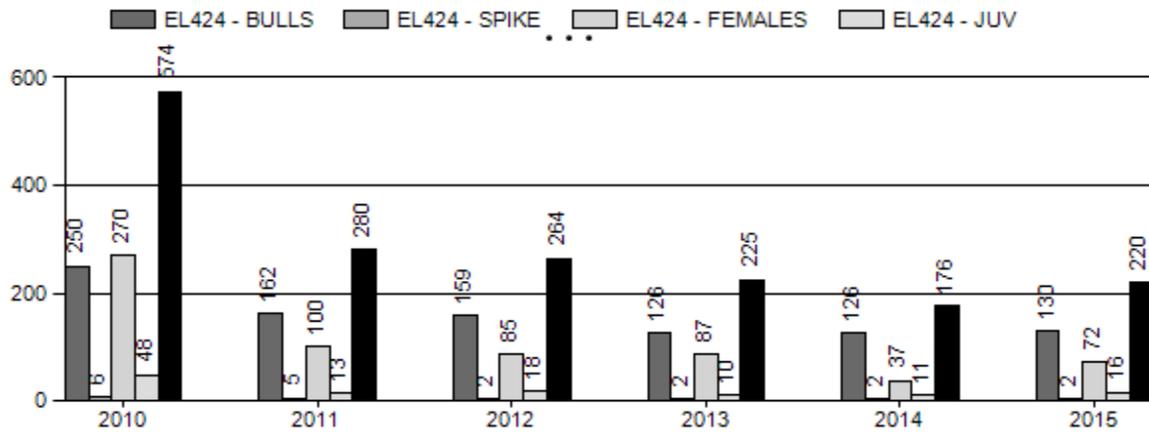
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

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

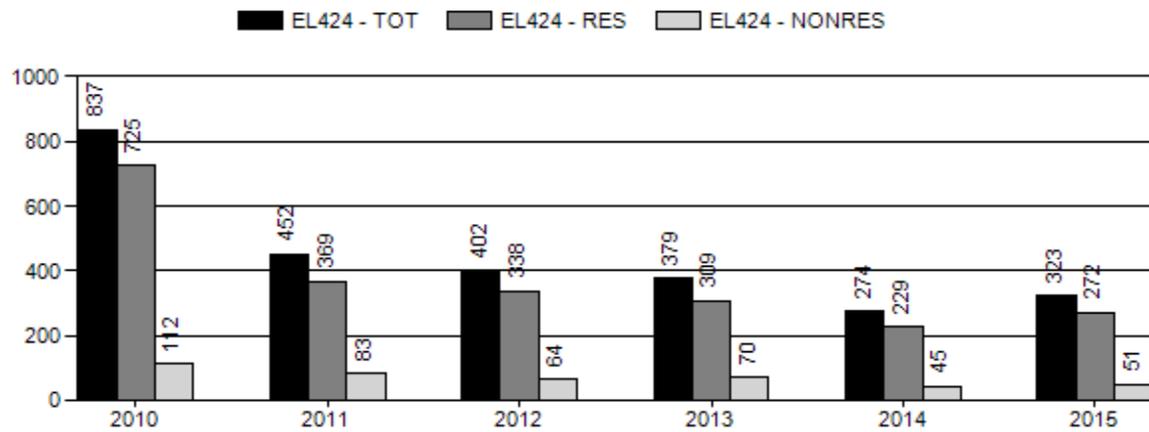
EL424 Trend Count



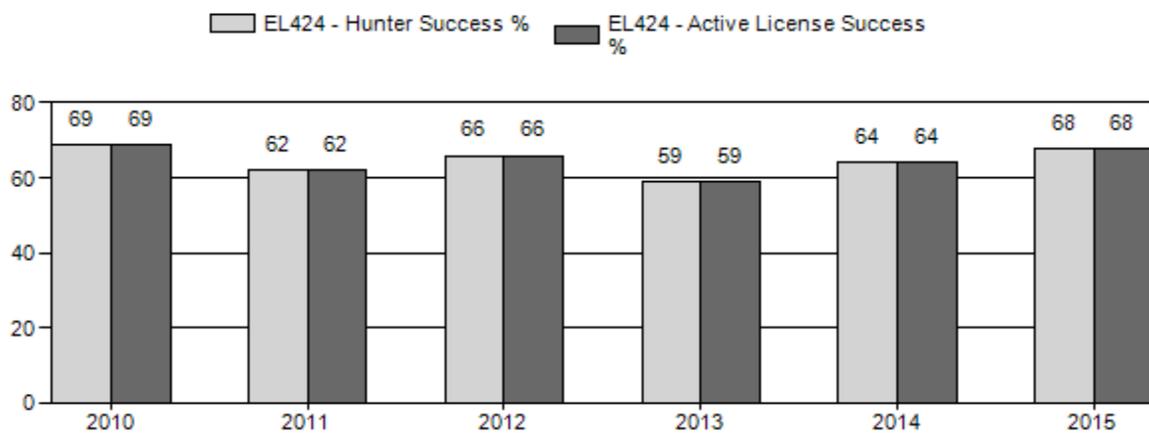
Harvest



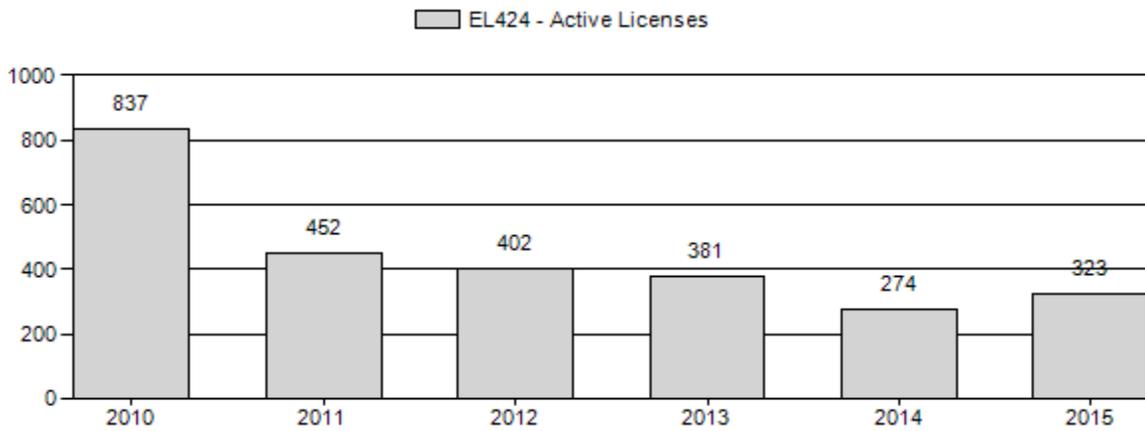
Number of Hunters



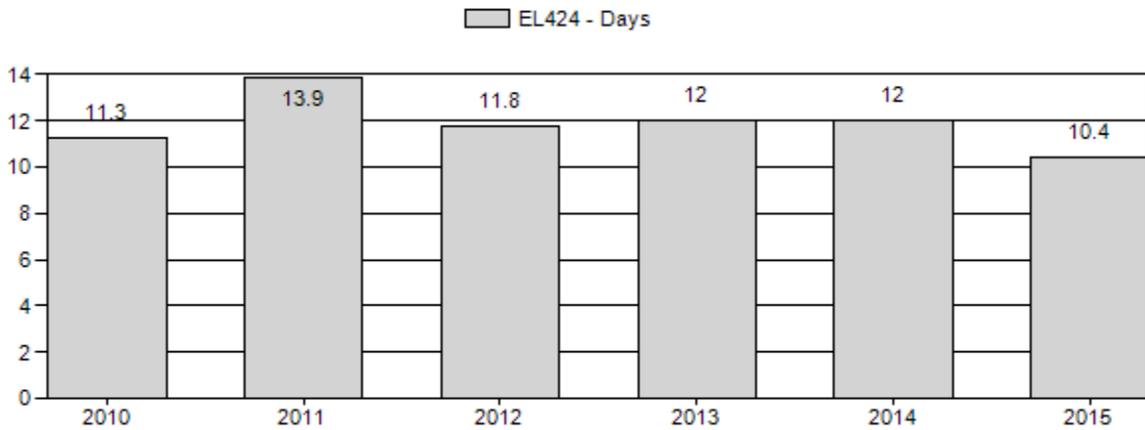
Harvest Success



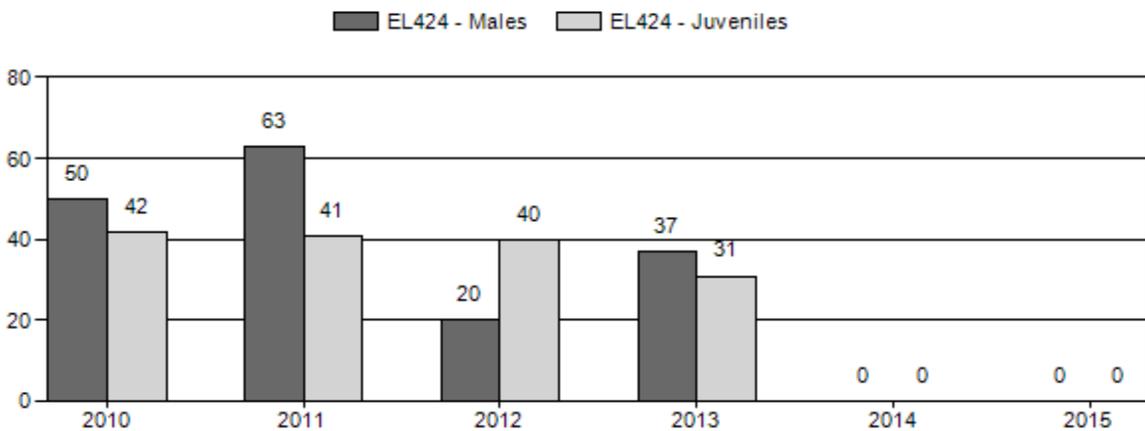
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 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	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	397	0	0	0	± 0	0	± 0	0
2015	0	0	0	0	0%	0	0%	0	0%	0	397	0	0	0	± 0	0	± 0	0

**2016 HUNTING SEASONS
SOUTH ROCK SPRINGS ELK HERD (EL424)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
30	1	Oct. 1	Oct. 31	40	Limited quota	Any elk
	4	Oct. 1	Oct. 31	30	Limited quota	Antlerless elk
31	1	Oct. 1	Oct. 31	100	Limited quota	Any elk
	4	Oct. 1	Oct. 31	100	Limited quota	Antlerless elk
32	1	Oct. 1	Oct. 31	50	Limited quota	Any elk
	4	Oct. 1	Nov. 16	50	Limited quota	Antlerless elk
	9	Sept. 1	Sept. 30	25	Limited quota	Antlerless elk, archery only

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
30-32	All	Sept. 1	Sept. 31	Valid in the entire area(s)

Hunt Area	Type	Quota change from 2015
30	1	+10
	4	+10
31	1	+25
	4	+25
Herd Unit	1	+35
Total	4	+35

Management Evaluation

Current Management Objective: 1,000

Management Strategy: Special

2015 Postseason Population Estimate: N/A

2016 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.

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. 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 to 2014 were all extremely dry with little summer precipitation, especially the summer of 2012. The summer of 2012 was the driest on record at the Rock Springs monitoring station with only 3.13 inches of precipitation recorded, 2013 was the 5th driest with 4.68 inches of precipitation measured and 2014 was the second driest on record with only 4.24 inches of precipitation for the year. 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. 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. Near normal precipitation levels were documented in 2015, with 8.62 inches of precipitation recorded at the Rock Springs monitoring site. Most of the moisture came in July, however which did not benefit plant growth as much as if it had arrived earlier in the growing season.

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, four of the five monitored sites showed positive LD values for 2015, while two of the sites had LD values at or below zero.

Table 1. Trends in aspen regeneration LD Index values (vertical inches) for the SRS herd unit 2012-2015.

Monitoring site	2012	2013	2014	2015
Pine Mt/Red Ck.	-3.0	NA	-7.8	-1.8
Tri-State /Red Ck.	NA	NA	+3.36	+7.2
Miller Mt.	+5.3	+6.6	+4.6	+3.6
Aspen Mt.	-6.0	+4.6	-4.5	+1.2
Little Mt./Dipping Spr.	-2.6	0	-0.9	+1.2
Little Mt./West Currant Ck.	0	0	-1.6	0

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. This herd was last classified from a helicopter in 2013, since that time, funds have not been available for aerial classification efforts. During the ground classification efforts in 2014 and 2015, insufficient numbers of elk were observed to obtain classification ratios for the herd. This was most likely because during November, when the classifications were conducted, the elk were in areas that were inaccessible from the ground. 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 2015 there were a total of 323 active licenses in the herd unit. The overall harvest success rate for those 323 licenses across all hunt areas and license types in the herd unit in 2015 was 68% and it took the average hunter just under 10.5 days to harvest an elk in the herd unit. A total of 220 elk were harvested during the 2015 hunting season, with 130 two year or older bulls, two spike bulls, 72 cows and 16 calves harvested. The hunt area with the highest harvest success rate was HA30, with reported an 83% success rate, although the number of licenses issued in that hunt area was relatively small with only 34 Type 1 licenses and 20 Type 4 licenses in the hunt area. Hunt area 31 reported a 90% success rate for the Type 1 licenses and a 65% success rate for Type 4 license holders. Hunt area 32 reported a 79% success rate for Type 1 license holders and a 33% success rate for Type 4 license holders, along with a 19% success rate for the Type 9 license holders.

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 2015, tooth samples were submitted from 69 bull elk or about 52% of the bull elk harvested based on the harvest survey. Based on these

submissions, the average age of harvested bulls in 2015 was 5.6 years old. This compares with an average age of 6.2 in 2014, and 5.7 in both 2013 and 2012. Three 9.5 year old bulls were harvested and aged from the herd unit in 2015. One of those bulls came from HA30 and the other two were submitted from HA32. In past years, the oldest age class of bull harvested was 10.5 in 2014, 9.5 in 2013, 7.5 in 2012, and 11.5 in 2011.

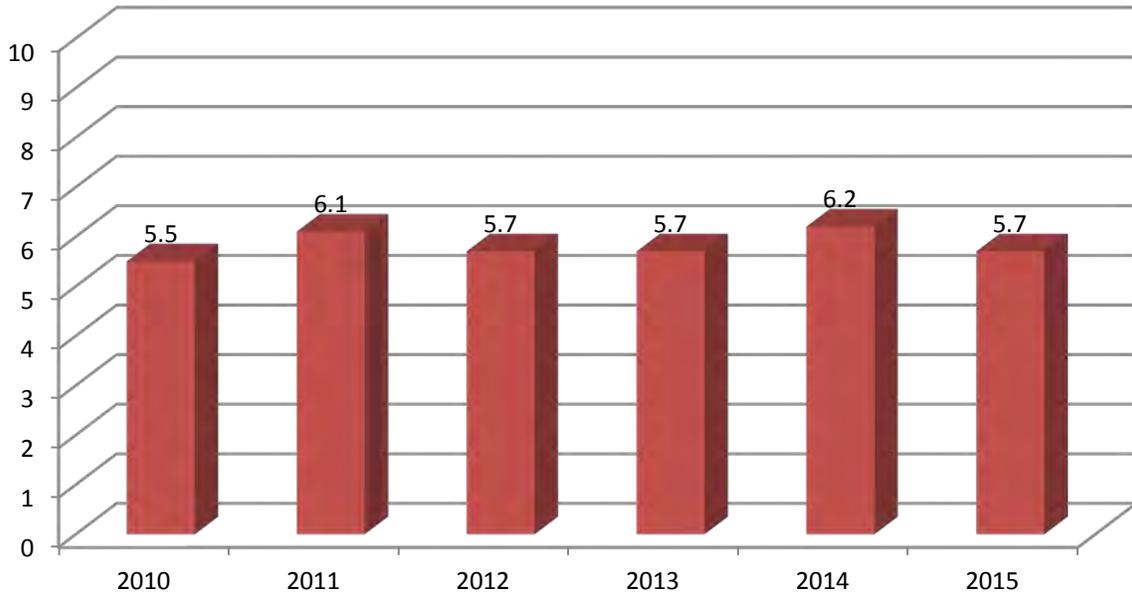
Population

Since collar data from three separate studies being conducted in Colorado, Utah, and Wyoming 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. Due to budget restrictions and the need for data from higher profile herds in the region, no flights have been conducted in the herd unit since 2013.

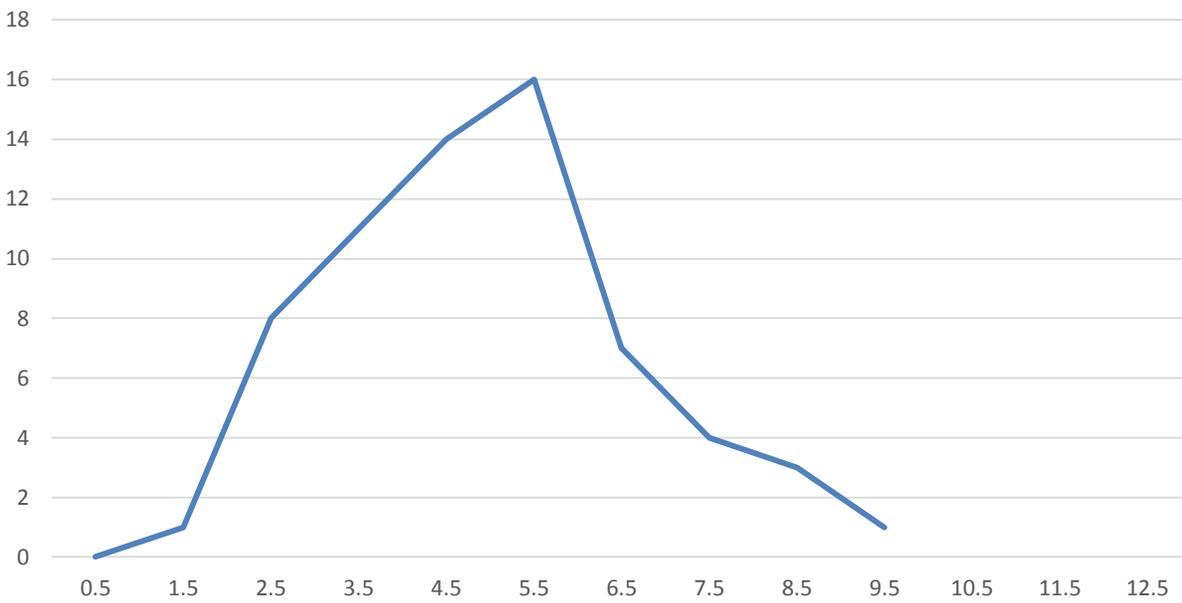
Management Summary

The 2016 hunting season is generally similar to season structures from the past few years. The only changes for 2016 season are slight increases in both the Type 1 and Type 4 license types in Hunt Areas 30 and 31. These increases were instituted due to the feeling by the local managers that the available elk population in those two hunt areas would allow for some increased hunter opportunity. License increases were not being proposed for Hunt Area 32 due to the lower success rates for hunters in that area and due to the fact that almost all of the elk in the hunt area leave the state and move into Colorado as soon as hunters show up for rifle season. One of the hunter comments received from the 2015 hunting season sums up the experience of many HA32 license holders: "The number of cow elk located in this area was very minimal. Most of the cow elk had moved over into the Colorado area the very first day of the rifle hunt. I spoke with several other area 32 hunters that observed the same thing. The overall hunting experience was extremely disappointing". Instead of increasing Type 4 license numbers, which will probably not result in an increased elk harvest, the 2016 season package includes again offering the Type 9 license valid in September for cow elk only. While success was minimal on this license type in 2015, it is hoped that this strategy will help harvest some cow elk from the hunt area before they move into Colorado.

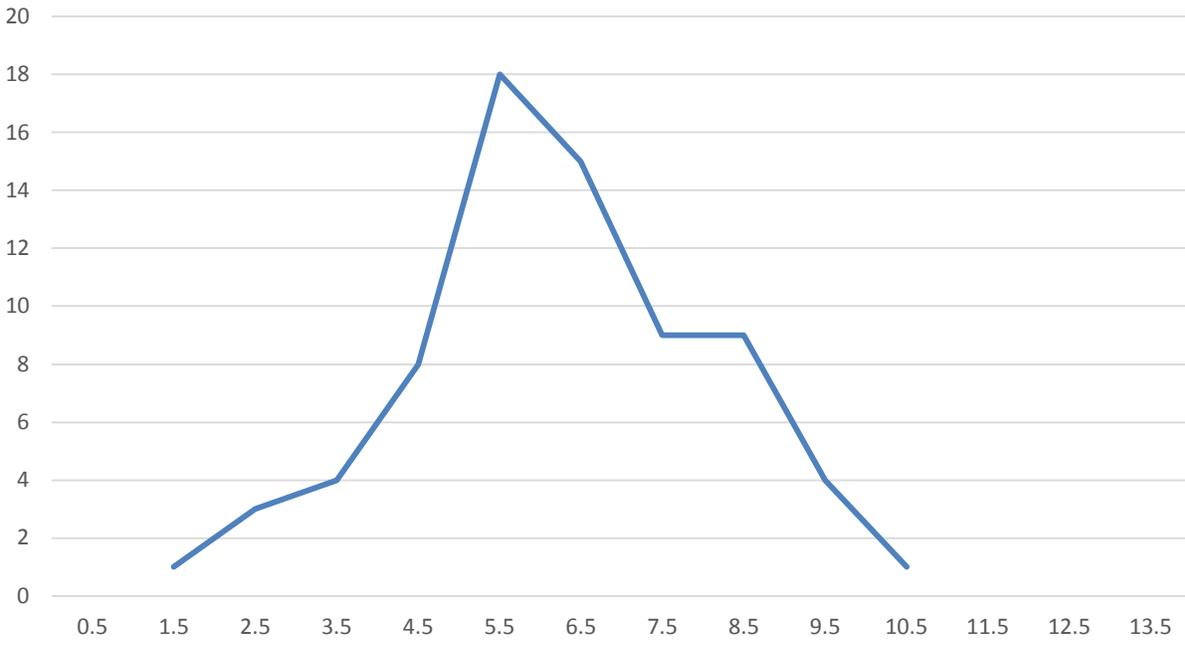
SRS Elk Average Age of Harvested Bulls



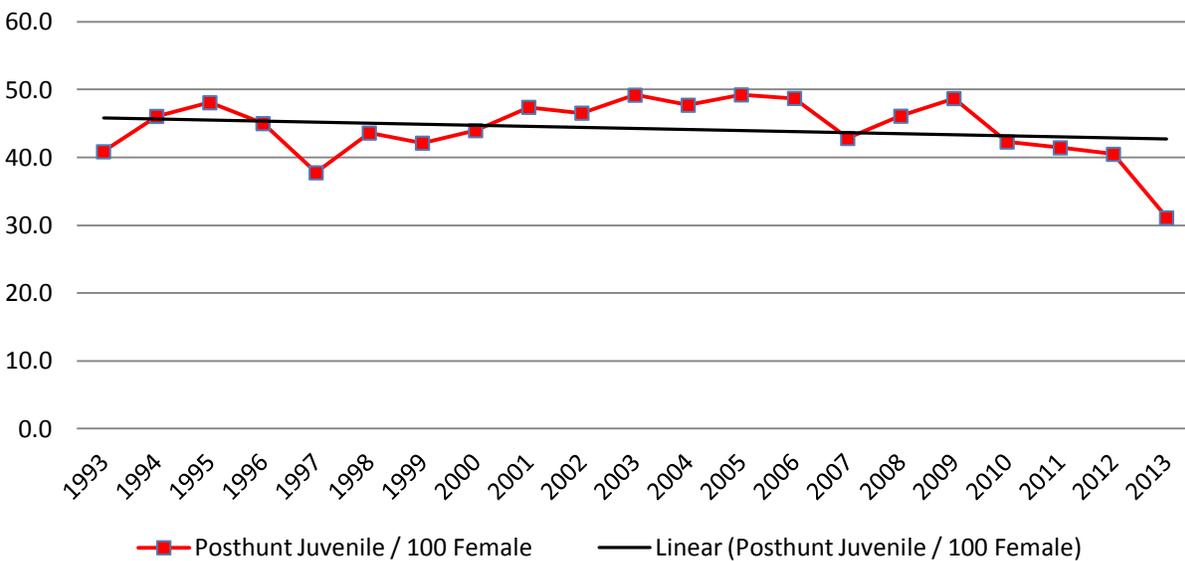
2015 SRS BULL ELK HAVESTED # PER AGE CLASS



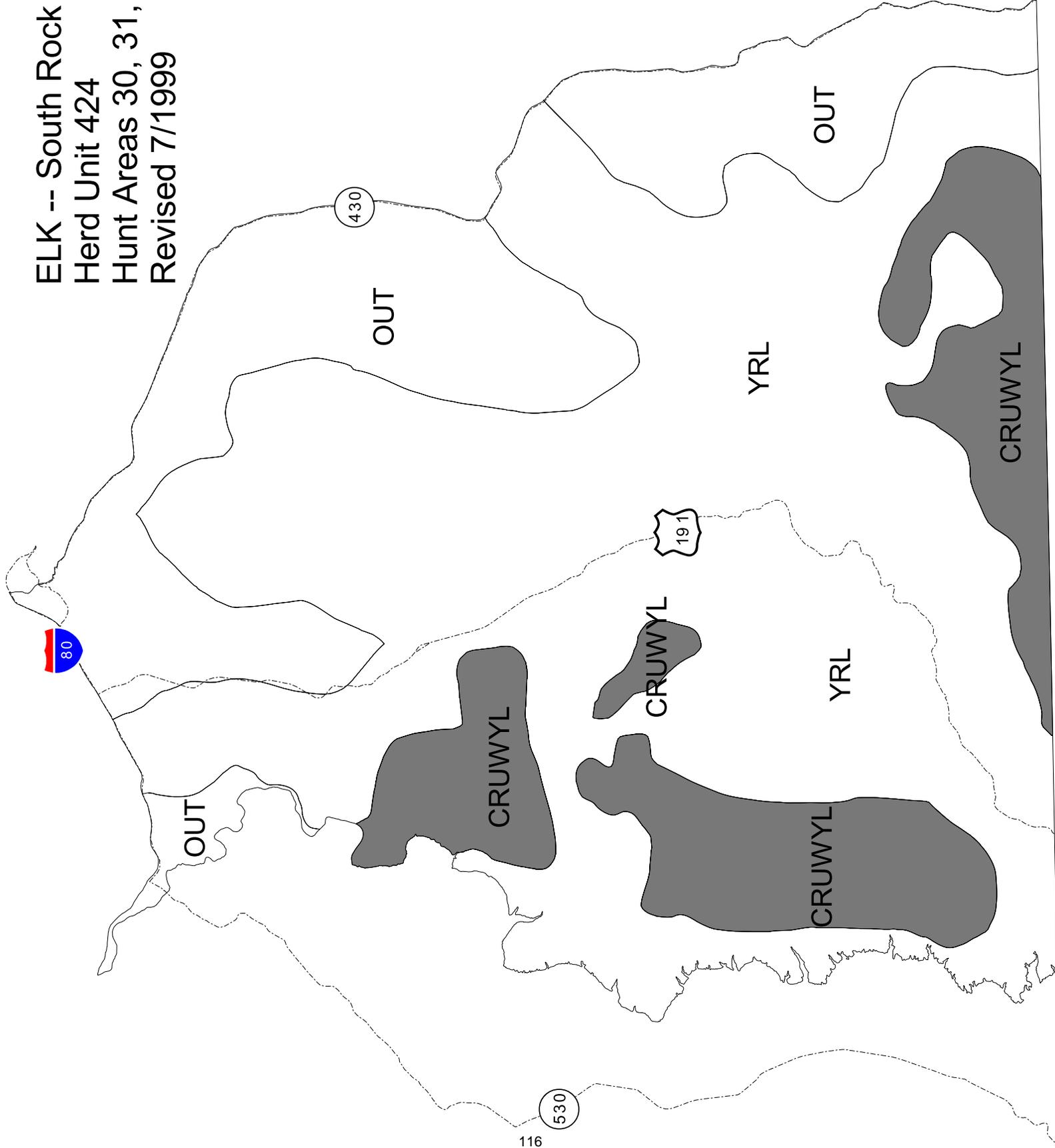
2014 SRS BULL ELK HAVESTED # PER AGE CLASS



Posthunt Juvenile / 100 Female



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



2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL425 - SIERRA MADRE

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

PREPARED BY: TONY MONG

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	11,624	8,295	6,800
Harvest:	2,390	2,306	2,000
Hunters:	5,669	6,183	5,800
Hunter Success:	42%	37%	34%
Active Licenses:	5,891	6,503	6,200
Active License Success:	41%	35%	32%
Recreation Days:	37,898	46,179	42,000
Days Per Animal:	15.9	20.0	21
Males per 100 Females	27	13	
Juveniles per 100 Females	37	42	

Population Objective (\pm 20%) : 5000 (4000 - 6000)

Management Strategy: Recreational

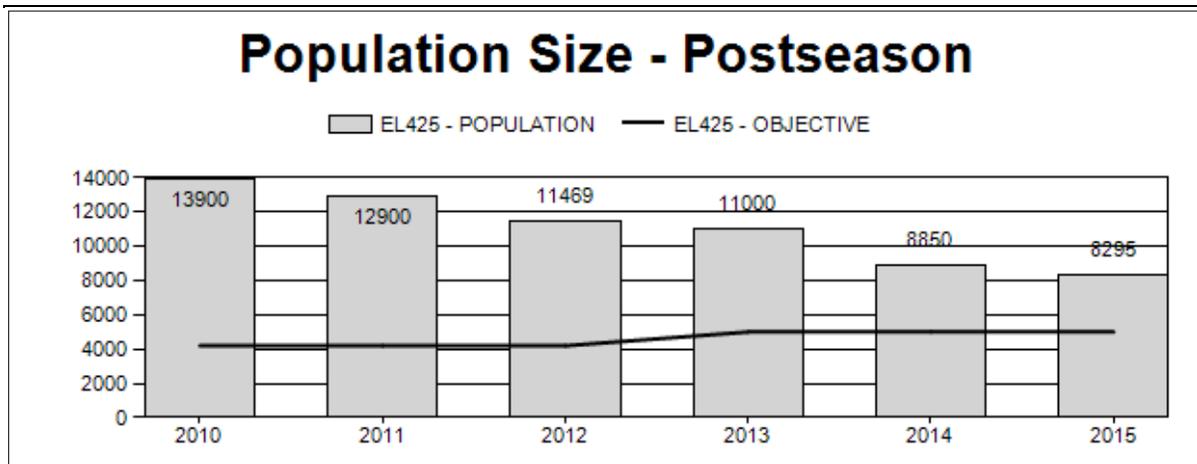
Percent population is above (+) or below (-) objective: 66%

Number of years population has been + or - objective in recent trend: 10

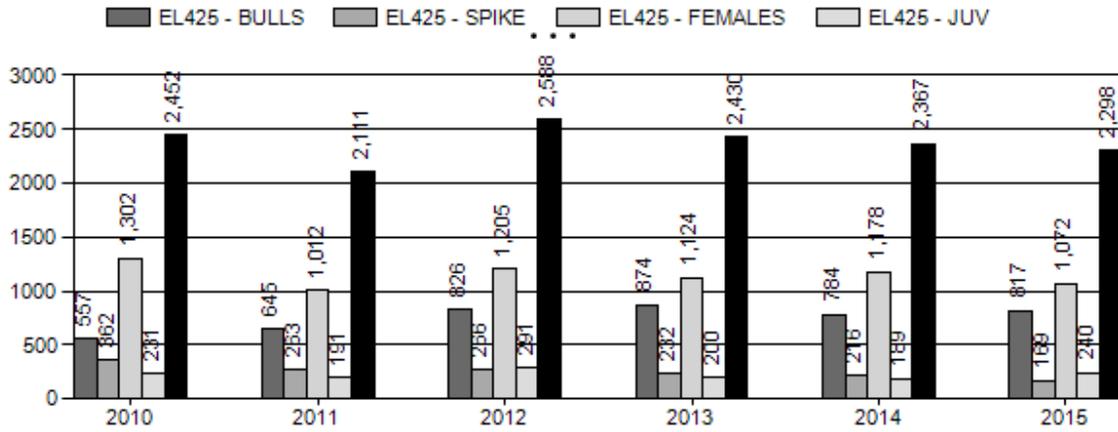
Model Date: 02/20/2016

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

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	15%	18%
Males \geq 1 year old:	62%	55%
Juveniles (< 1 year old):	9%	8%
Total:	22%	22%
Proposed change in post-season population:	9%	10%



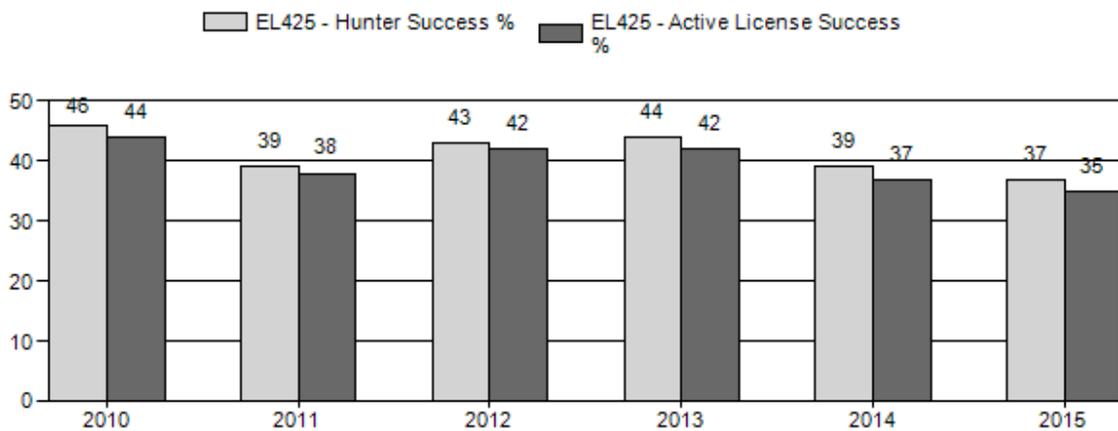
Harvest



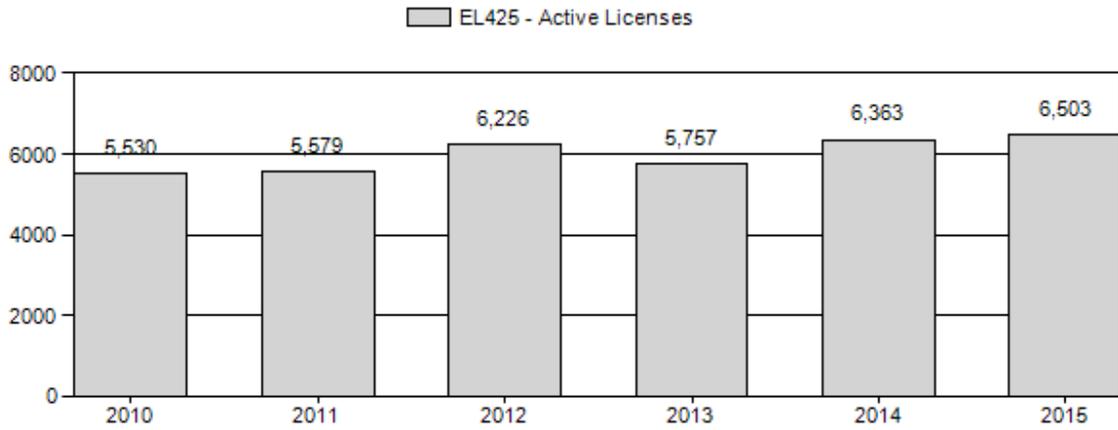
Number of Hunters



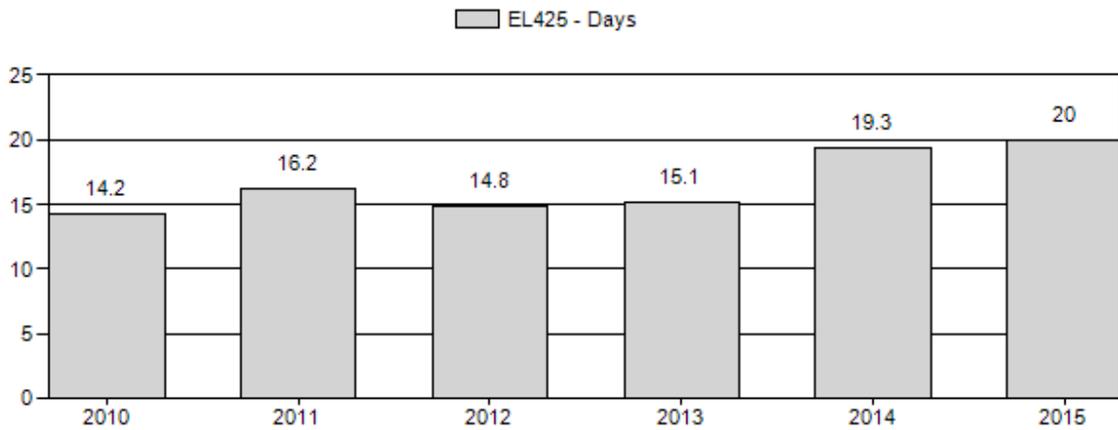
Harvest Success



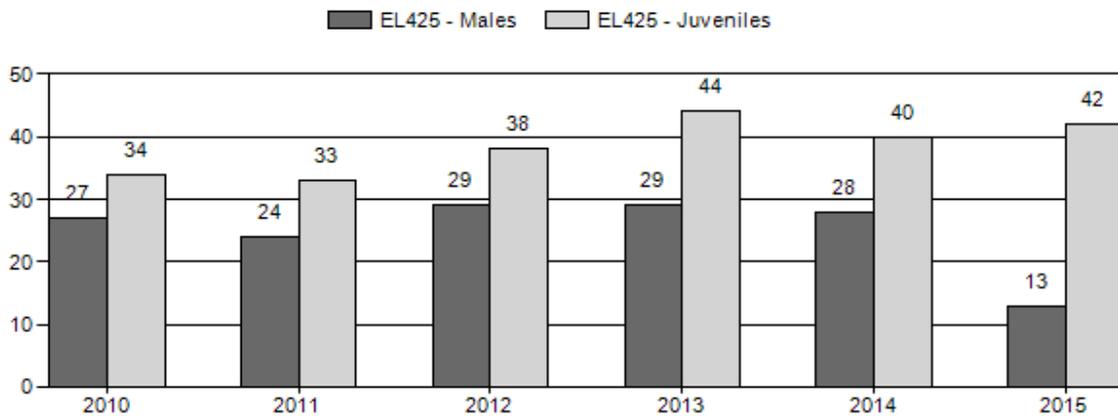
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



- * No data collected in Area 21.

2016 HUNTING SEASONS

SPECIES : Elk

HERD UNIT : Sierra Madre (425)

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

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
13		Oct. 15	Oct. 31		General	Any elk
	6	Oct. 1	Nov. 14	100	Limited quota	Cow or calf
15		Oct. 15	Oct. 31		General	Any elk
	6	Oct. 1	Nov. 14	100	Limited quota	Cow or calf
21		Oct. 13	Oct. 14		General youth	Antlerless elk
		Oct. 15	Oct. 19		General	Antlered elk
		Oct. 20	Oct. 26		General	Any elk
		Oct. 27	Nov. 15		General	Antlerless elk
	6	Oct. 15	Nov. 30	400	Limited quota	Cow or calf
	7	Aug. 15	Dec. 31	25	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	Jan. 31	150	Limited quota	Cow or calf
	7	Dec. 1	Jan. 31	200	Limited quota	Cow or calf
130		Oct. 1	Oct. 23		General	Any elk

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
13	All	Sep. 1	Sep. 30	Valid in the entire area(s)
15	All	Sep. 1	Sep. 30	Valid in the entire area(s)
21	All	Sep. 1	Sep. 30	Valid in the entire area(s)
108	All	Sep. 1	Sep. 30	Valid in the entire area(s)
130	All	Sep. 1	Sep. 30	Valid in the entire area(s)

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2015</i>
13	6	0
15	6	0
21	6	-50
	7	-25
108	1	0
	4	0
	6	0
	7	0

<i>Herd Unit Total</i>	<i>1</i>	<i>0</i>
	<i>4</i>	<i>0</i>
	<i>6</i>	<i>0</i>
	<i>7</i>	<i>0</i>
	<i>Total</i>	<i>-75</i>

Management Evaluation

Current Management Objective: 5,000 (2013)

Management Strategy: *Recreational*

2015 postseason Estimate: 8,300

2016 Proposed Postseason Population Estimate: 6800

The Sierra Madre elk herd (SMEH) is above the objective of 5,000 (set in 2013) therefore our current management strategy is to decrease herd size.

Herd Unit Issues

The SMEH continues to be productive and has not shown negative impacts from the increase in gas and oil activities in the herd unit. The large Choke Cherry-Sierra Madre wind project may impact SMEH negatively because of the proximity of the project to both wintering elk and migrating elk. A new gas/oil project within elk winter range between Battle Mountain and Muddy Mountain has the potential to displace wintering elk onto local private lands.

There were three major issues discussed by hunters in the elk general comments, these issues included number of hunters/ATVs, elk numbers and beetle kill. Again this year we have seen a high number of negative comments related to hunter crowding in the 3 main hunt areas for the SMEH (13, 15, 21). In addition to the common complaint of too many hunters during both the archery and rifle season, it seems more comments were focused on ATV use, with one hunter saying “Ban all atv's from hunting.”

The high harvest and management strategy within the SMEH over the last 5 years has been successful in reducing the number of elk within the herd. Negative comments from hunters regarding elk numbers have increased as elk numbers have decreased. In 2015 harvest reports indicated 6,182 hunters hunted in the SMEH. Population models indicate that population numbers in the SMEH could reach a low of 6,800 post-hunt in 2016. This is alarming as we will have the potential to have close to a 1:1 ratio of hunters and elk which could lead to the potential for over harvest and a population crash. A related emerging issue that will become apparent as we reach objective is maintaining the high level of opportunity for residents and non-residents and maintaining bull ratios at acceptable levels. This may be very difficult with the current objective and current level of hunters using the SMEH.

A landscape wide impact to the SMEH that is being noticed and commented on by hunters is the progression of beetle kill through the Sierra Madre range. Currently trees have begun to fall at alarming rates which may lead to disruption in traditional movement patterns of elk or the ability

of hunters to access the forest. One hunter commented “Hunting was overly challenging due to beetle kill and associated blow down areas.” A greater effort to work with the U.S. Forest Service to address these areas must be made in the coming years to ensure the SMEH remains open to hunting.

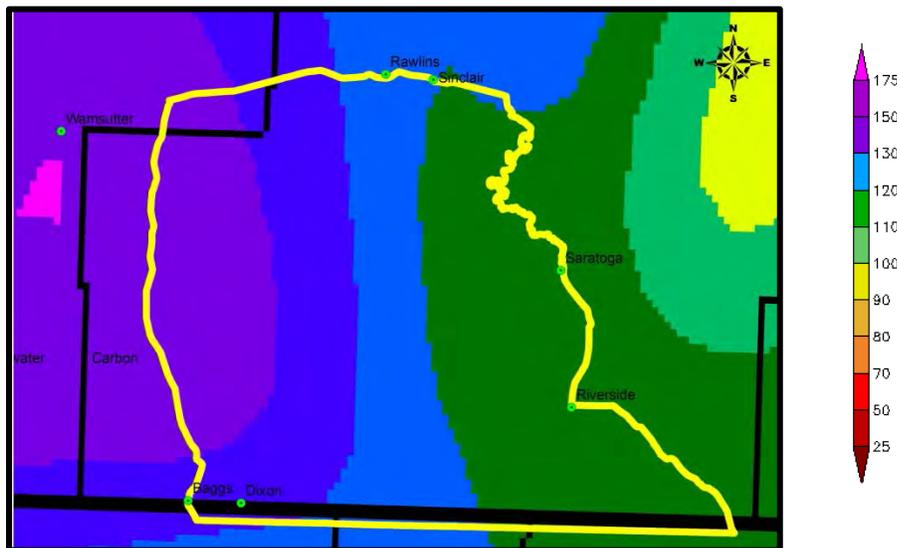
Elk and hunter distribution throughout the herd unit has been and continues to be an issue for managers in the three different regions that hold management responsibilities for the herd. The 3 main general hunt areas (13, 15, 21) see not only major differences in hunter numbers but also in harvest success, days to harvest and classification data. A challenge moving into the future will be to understand elk distribution in each of these hunt areas during the hunting season and how to manage hunters to allow for the best opportunity and hunting experience in the general hunt units.

Weather

Moisture levels during 2015 were some of the highest seen in many years. The moisture came in the form of rain in April and May setting up the herd unit for incredible vegetative response. The moisture was especially good in the lower elevation areas of the herd unit which should equate to good feed on winter ranges for the SMEH.

Snow levels in 2015 have been higher than previous years, however temperatures in February have been high enough to melt off south facing slopes and allow some relief for wintering SMEH elk.

Figure 1. Percent of normal precipitation for the herd unit from February 2015 to February 2016.



Field Data

The SMEH herd has traditionally been a very productive herd and until 2010 had shown steady growth. The institution of an any elk season in 2010 clearly marks the start of decreasing overall

numbers bringing this population closer to objective. In 2015 we flew an intensive classification flight that yielded 5,939 total elk classified. Calf ratios have increased over the last 3 years compared to the previous 3 years (41:100 compared to 35:100) and the population model predicts population levels have decreased significantly during that same time frame. This higher calf ratio may indicate a return to a population level that is closer to carrying capacity or may be a facet of the high cow harvest we have had over the same time period skewing our data.

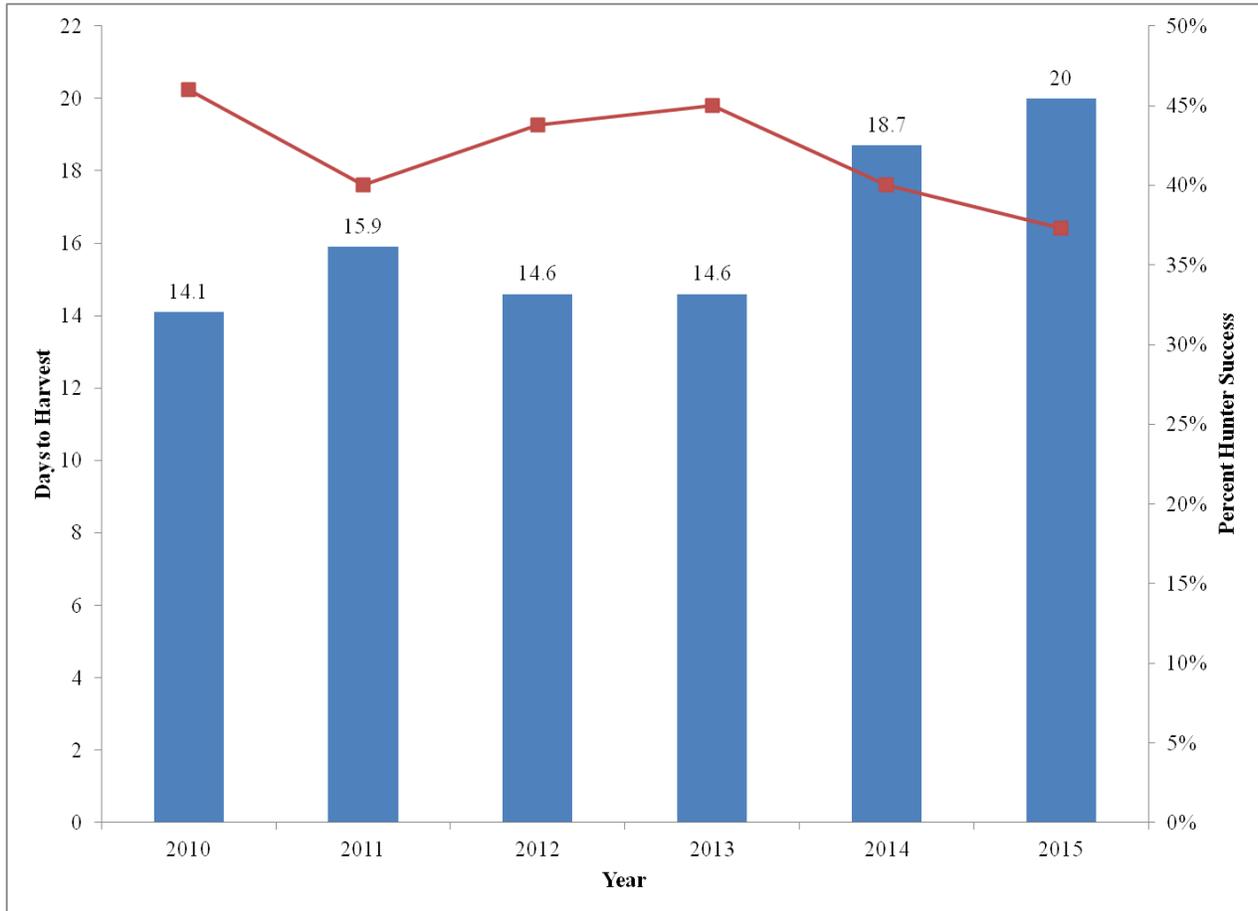
Historically this herd has had low bull ratios and low bull quality due to heavy hunting pressure on bulls. However, with the recent focus on cow harvest and the any elk seasons we are seeing an increase in branch antlered bull ratios herd unit wide (10 year average prior to any elk seasons, 9; average after any elk seasons, 13). This is most likely a combination of artificial inflation due to higher cow harvest compared to bull harvest and actual increases in the number of bulls that live through the season because many hunters are not waiting to harvest a bull but harvesting a cow instead.

There is a divergence in data between hunt area 21 and 13 and 15 with both harvest data and classification data. Traditionally hunt area 21 has contributed ~60% of the total harvest for the herd unit which drives the harvest data for the herd unit. Hunt areas 13 and 15 normally run close to 10%-15% lower in their harvest success rates compared to hunt area 21 and classification data for elk in hunt areas 13 and 15 during the winter have always shown much lower bull ratios over the last 3 years (hunt areas 13 and 15 3-year average, 14; hunt area 21 3-year average, 29).

Harvest Data

The SMEH continues to be the most heavily hunted/highest harvested herd units in the state, over the last 6 years over 34,000 hunters have harvested over 14,000 elk out of the SMEH. The 2015 hunting season was one of the warmest on record with an opening day high temperature (at the Battle Mtn NRCS SNOTEL weather station) of 69 degrees F and an average high temperature for the entire season of 58 degrees F. Higher temperatures during the hunting season coupled with a decreasing elk herd over the last several years has led to a decrease in the harvest success and an increase in the days to harvest (Figure 2). We can expect hunter satisfaction to decrease as we decrease elk numbers to reach objective.

Figure 2. Sierra Madre elk herd hunter success (red line, secondary axis) and days to harvest (blue bars, primary axis) from 2010 to 2015.



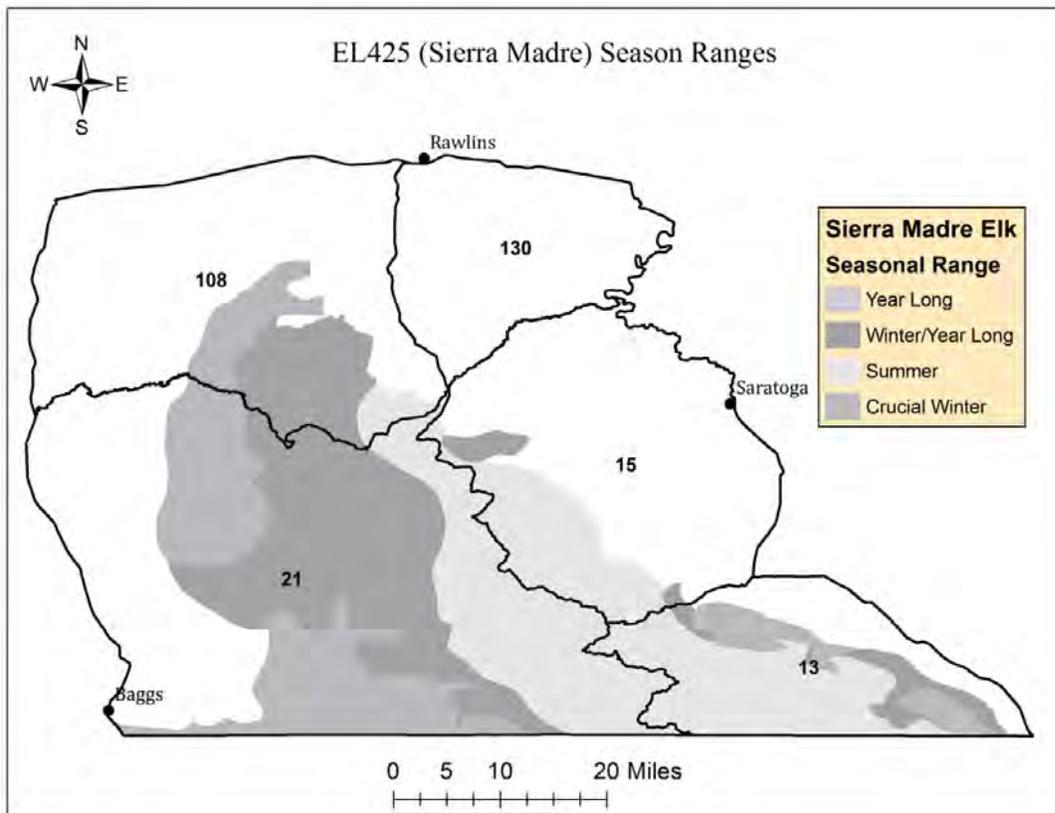
Population

The current post-hunt population objective model estimate for the SMEH indicates that we are still above the current objective at 8,300 animals. The TSF, CA, MSC model has the lowest AICc value indicating the best model fit and tracks bull ratios better than other models because of these reasons we chose this model to represent the population. In addition to the standard parameters included in the model, an independent estimate of the population was created from a sightability flight conducted in March 2013 (WGFD JCR 2012). The model indicates that the sightability estimate was most likely estimating low however, adding that parameter does seem to restrain the model to more likely spreadsheet model estimates.

Recent collar studies have indicated interchange with Colorado however the extent of that interchange on a herd unit basis is still being analyzed. This could potentially cause some issues with our estimated herd size.

Management Summary

Harvest success, days to harvest, model estimates and local manager opinion all indicate the SMEH has decreased over the last 6 years. However, there are some discrepancies between model estimates, total number of elk classified and local manager's sense of population size. Because of these discrepancies, we are going to continue to try and decrease overall numbers of the herd but because the 2016 opener falls on a Saturday we feel the hunter crowding issue would be exacerbated. In order to try and decrease the potential issues associated with a weekend opener coupled with an "any elk" option we are proposing to try and spread pressure out over two weekends by using a "bull only" opener followed by "any elk" season 5 days later. In addition to decreasing hunter pressure on the opening weekend we hope to decrease cow harvest slightly to ensure we do not "overshoot" the population objective. This slight decrease in cow harvest approach will allow us to continue to decrease the herd population but in a manner that will help to keep the herd from "tipping" or getting to an unrecoverable level so quickly that we would have to take drastic measures to reverse the effects of too high of harvest in one year.



2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL426 - STEAMBOAT

HUNT AREAS: 100

PREPARED BY: PATRICK BURKE

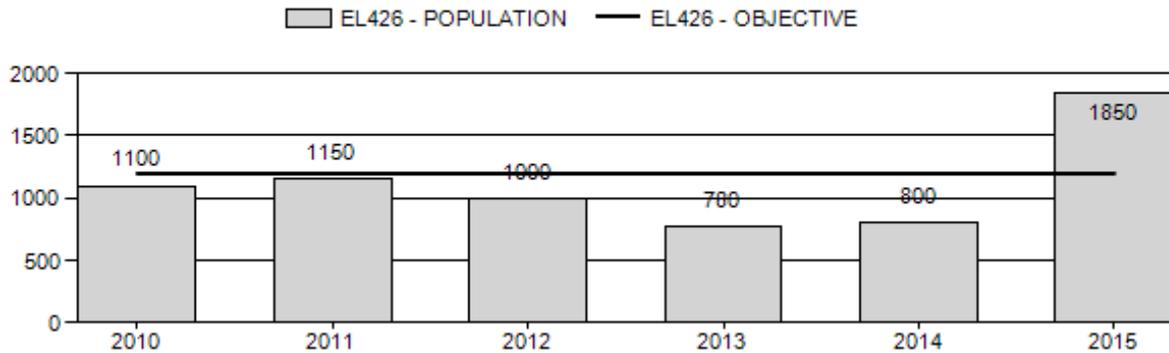
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	966	1,850	1,400
Harvest:	325	125	420
Hunters:	396	146	500
Hunter Success:	82%	86%	84 %
Active Licenses:	402	146	500
Active License Success:	81%	86%	84 %
Recreation Days:	1,692	613	2,500
Days Per Animal:	5.2	4.9	6.0
Males per 100 Females	61	34	
Juveniles per 100 Females	36	44	

Population Objective ($\pm 20\%$) :	1200 (960 - 1440)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	54%
Number of years population has been + or - objective in recent trend:	0
Model Date:	2/21/2016

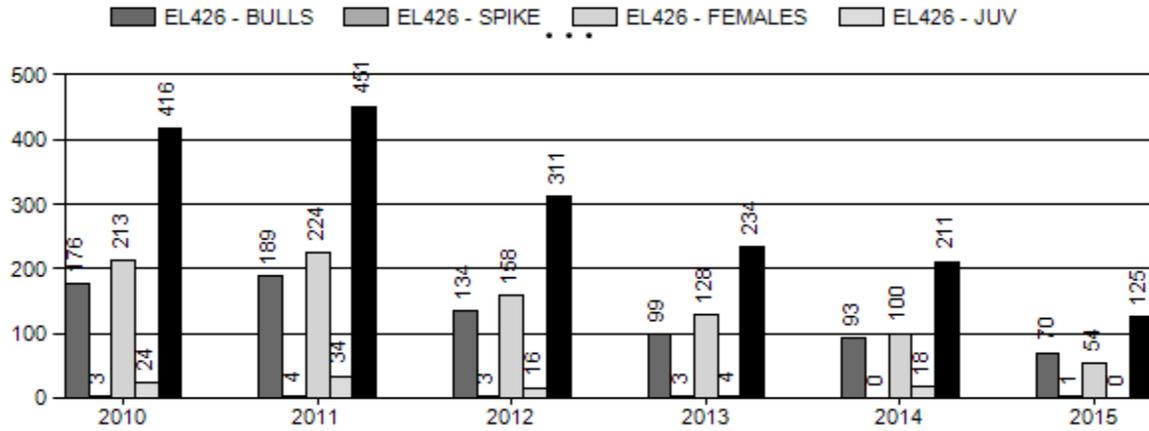
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	6%	20%
Males ≥ 1 year old:	15%	34%
Juveniles (< 1 year old):	0%	9%
Total:	17%	22%
Proposed change in post-season population:	0%	-35%

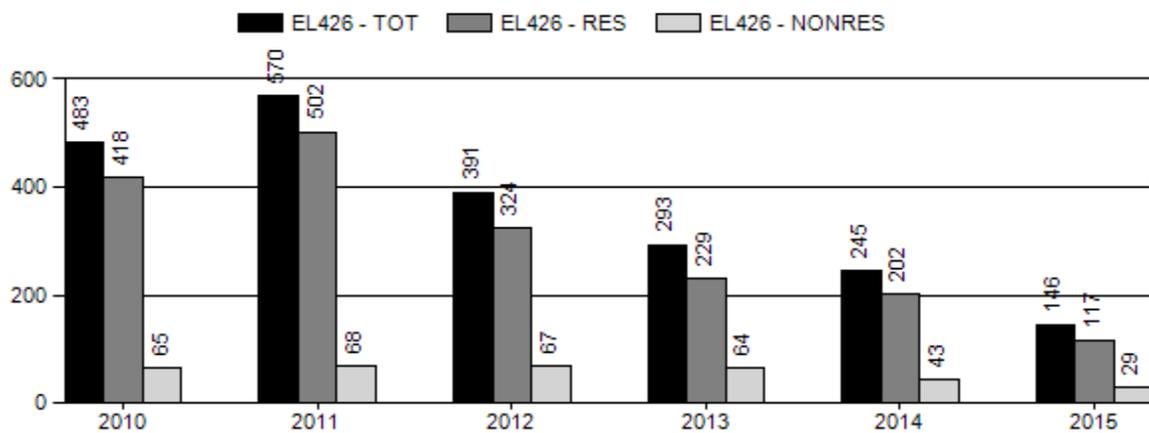
Population Size - Postseason



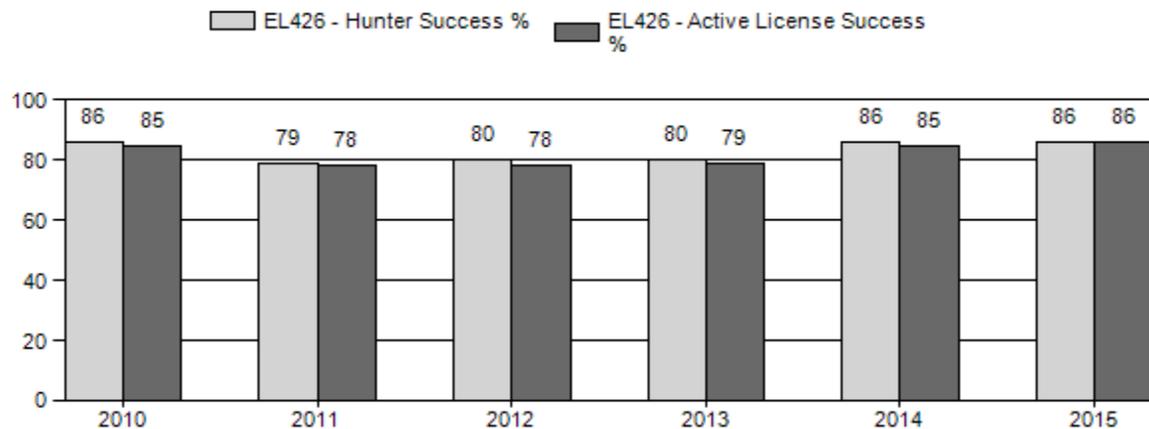
Harvest



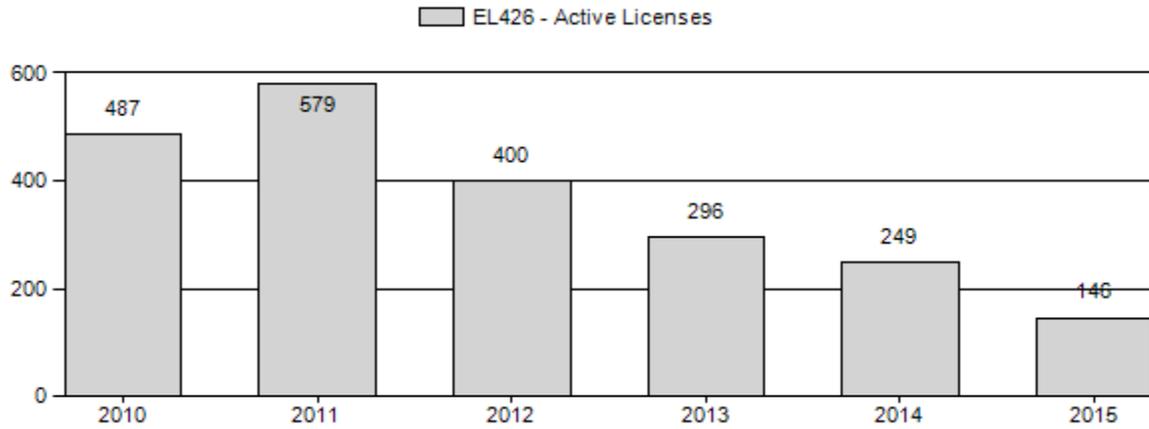
Number of Hunters



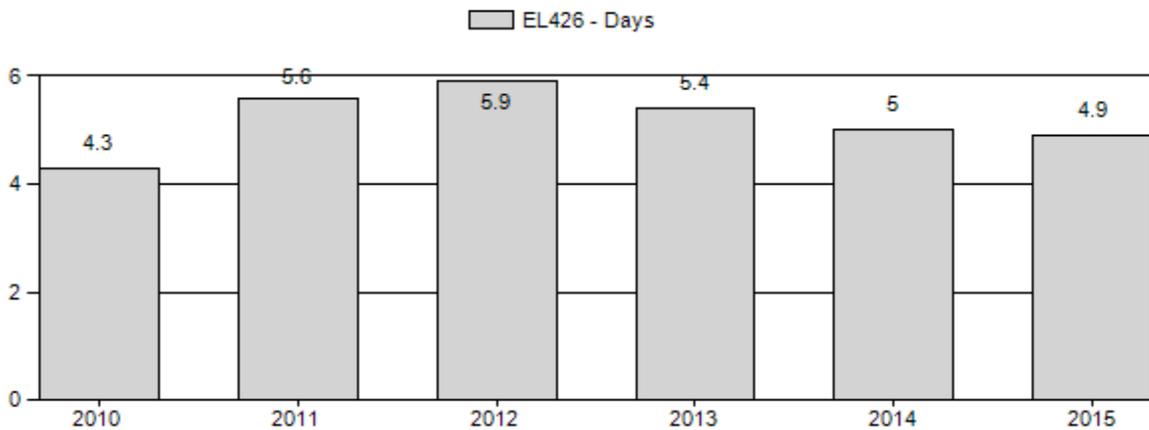
Harvest Success



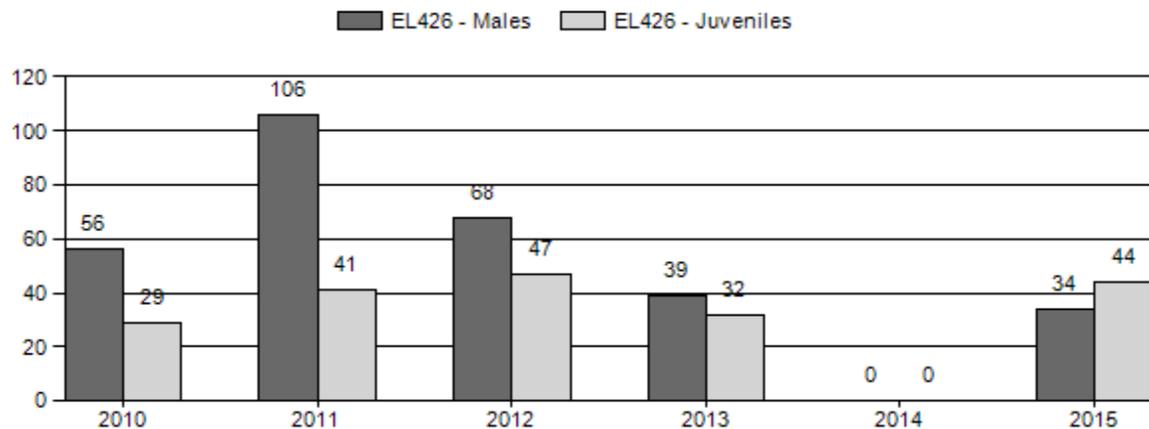
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 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	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	1,850	167	172	339	19%	998	56%	442	25%	1,779	540	17	17	34	± 1	44	± 1	33

**2016 HUNTING SEASONS
STEAMBOAT ELK HERD (EL426)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
100	1	Oct. 15	Oct. 31	100	Limited quota	Antlered elk
	4	Oct. 15	Oct. 31	200	Limited quota	Antlerless elk
	6	Oct. 22	Nov. 30	100	Limited quota	Cow or calf valid east of Sweetwater County Road 19, south of Sweetwater County Road 82, east of Sweetwater County Road 21, and south of Sweetwater County Road 20
	7	Oct. 1	Oct. 31	100	Limited quota	Cow or calf valid east of US Highway 191, south of Sweetwater County Road 17, and Sweetwater County Road 15 and west of Sweetwater County Road 19

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
100	All	Sept. 1	Sept. 30	Valid in the entire area

Hunt Area	Type	Quota change from 2015
100	1	+25
	4	+175
	6	+100
	7	+50
Herd Unit Total	1	+25
	4	+175
	6	+100
	7	+50

Management Evaluation

Current Management Objective: 1,200

Management Strategy: Special

2015 Postseason Population Estimate: ~1,900

2016 Proposed Postseason Population Estimate: ~1,300

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. The Steamboat elk herd is managed under a special management prescription.

Herd Unit Issues

The 2015 post-season modeled population estimate for the Steamboat elk herd is approximately 1,900 elk. This population estimate is a significant departure from recent population estimates when the herd was estimated to be significantly smaller. This variation in population estimates depending on varying data quality years is one of the biggest issues for this elk herd. The large geographic area occupied by this and its relative low density can make locating groups of elk difficult, especially in years when funds for an aerial classification flight are not available. Another issue for this herd is that a very large proportion of the post-season bull population consists of yearling bulls. In 2015, 49% of the post-season bull population was spike bulls. 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 and only 1 was harvested in 2015. 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 to 2014 were extremely dry with little summer precipitation, especially the summer of 2012 when only 3.15 inches of precipitation were recorded in Rock Springs and 2014 when 4.24 inches were measured in Rock Springs. 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. Fortunately, near normal precipitation levels were observed in 2015, and even though much of this precipitation didn't come until July, grasses in this herd unit responded favorably to the increased moisture levels.

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 drought conditions experienced from 2012 to 2014 did result in limited plant growth during those years. The grass growth the resulted from the moisture received in 2015 was noticeably better than it had been in the preceding years.

Field Data

Post-season classifications on the Steamboat herd were conducted from a helicopter during January 2016. The resulting observed ratios from the ground classification efforts were 44 calves per 100 cows and 17 bulls per 100 cows and 17 yearling bulls per 100 cows. The proportion of yearling to adult bulls observed in 2015 was that just over 49% of all bulls classified this year were yearlings. This proportion of yearling bulls observed in the post-season bull population is the highest that has been in this herd unit, and causes some concern about the long term implications of continued over selection of older age class bulls in this herd.

Harvest Data

Harvest statistics for the Steamboat herd from the 2015 hunting season are generally in line with normal values for this herd. The overall harvest success rate for the herd was 86% 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 2015 hunting season, Type 1 license holders in HA100 enjoyed a 93% success rate harvesting a total of 70 adult bulls and one spike bull. The Type 4 license holders had a 61% success rate, harvesting 19 cows and no calves, while the Type 7 license holders had an 89% success rate. The total number of elk harvested in the herd unit in 2015 was 125 elk - 70 adult bulls, 1 spike, 54 cows, and no 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 31 bull elk tooth samples submitted from the 2015 hunting season, the average age of harvested bulls was 5.3 years old. The 31 teeth submitted for laboratory aging represent a little under 44% of the bulls reported harvested in the harvest survey. The 2015 average age of 5.3 compares to 5.9 years old in 2014, 5.7 years old in 2013, and 4.9 years old in 2012. Based on the teeth that were submitted for aging, the oldest bull harvested in 2015 was

one 9.5 year old bull. The oldest bull aged in 2014 was also 9.5 years old, 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 the increased bull harvest rates of the last several years.

Population

The 2015 post-season population estimate for the Steamboat herd is a little over 1,850 elk. This estimate is a roughly 1,000 elk larger than the 2014 post-season population estimate. This radical increase in the estimated population size is due to classifying over 1,700 elk during the 2015 post-season classification flight. Part of the reason for the radically different population estimates from year to year is due to the fact that this herd is not consistently flown since resources are usually directed to the general license herds in the region. Because of this inconsistency in data collection flights and the difficulty in locating representative samples from the ground when monies for aerial classifications are not available, average herd unit statistics had to be used for seven of the 23 years in the model.

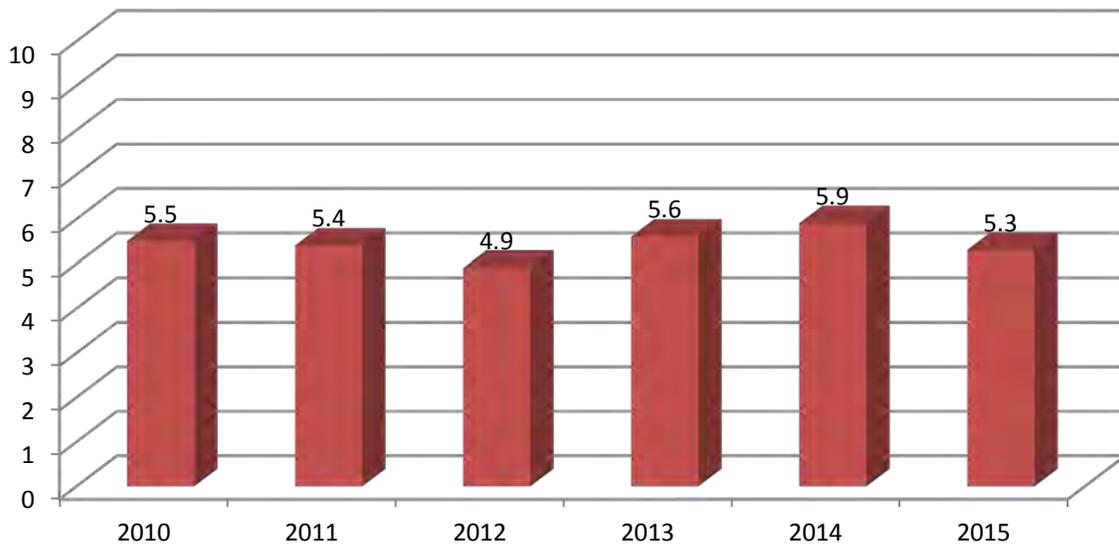
The population model for this herd tracks poorly well with observed data due to varying data quality from year to year. In order to get the population model to accommodate the large number of elk classified after the 2015 season, population parameter range constraints had to be moved outside of the accepted limits or the model simply could not reconcile the number of elk classified this year. The high bull ratios that are sometimes observed in years when representative samples are hard to come by on the ground also cause the model difficulty.

Management Summary

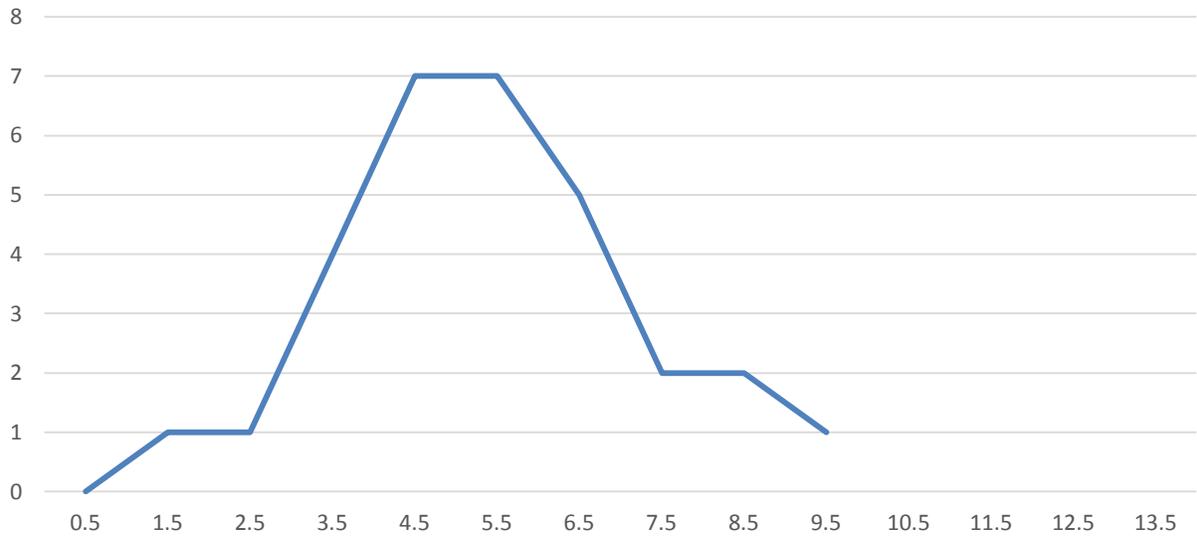
The 2016 hunting season includes increases in the Type 1, 4 and 7 licenses and the addition of a Type 6 license type. The increase in the Type 1, Type 4 and Type 7 licenses were proposed to help move this herd towards objective. The Type 1 license numbers are set at 100 licenses since only 172 adult bulls were classified during the 2015 classification flight. The Type 6 license type targeting elk living in the eastern portion of the herd unit is being created in order to address concerns of some grazing lessees and sub-lessees over elk numbers in that portion of the herd unit.

It is anticipated that the proposed season for 2016 will result in the harvest of approximately 95 bulls, 300 cows and 25 sub-adult elk. The 2016 seasons will also result in a projected 2016 post-hunt population of just over 1,400 elk, which will be slightly above, but within 20% of its population objective of 1,200 elk post-season.

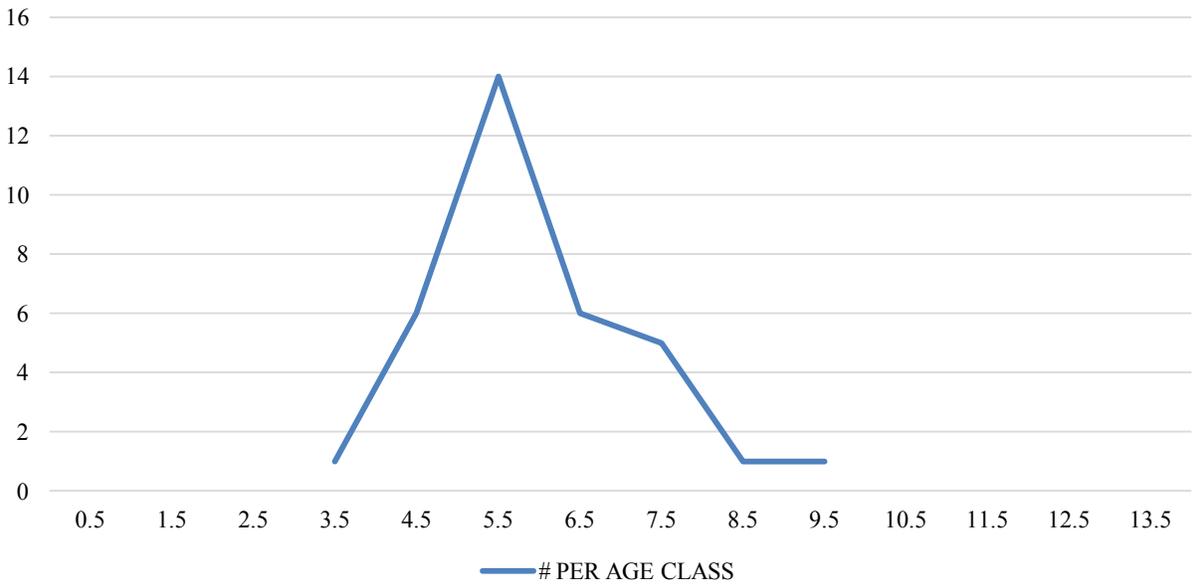
Steamboat Elk Average Age of Harvested Bulls



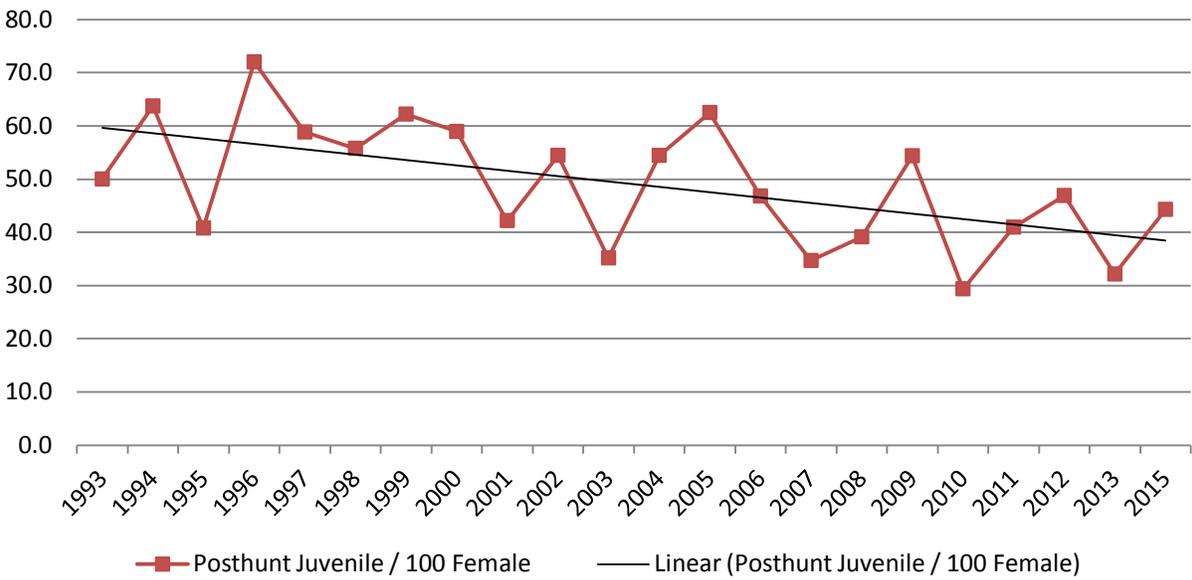
2015 STEAMBOAT BULL ELK HAVESTED # PER AGE CLASS



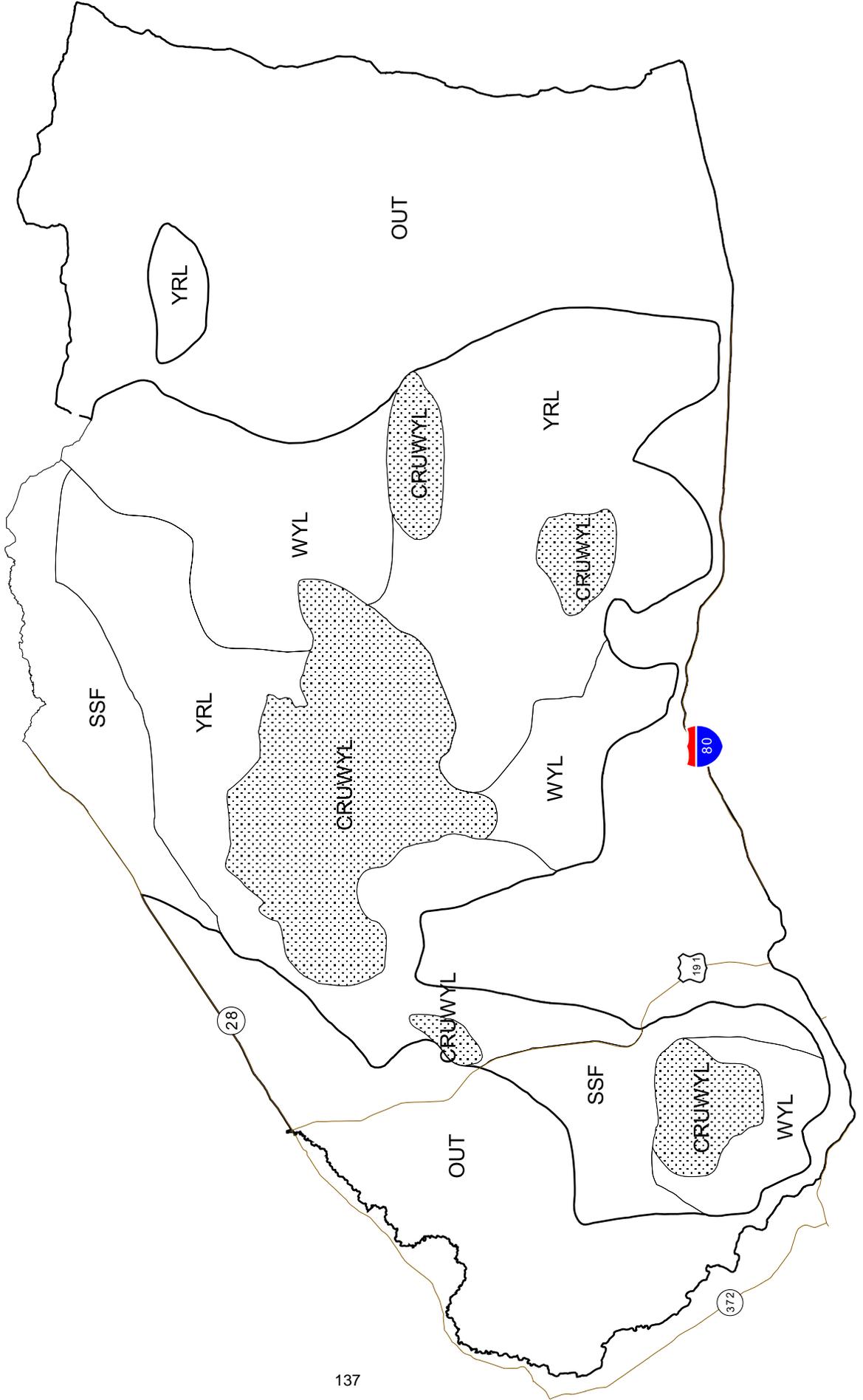
2014 STEAMBOAT ELK # BULLS HAVESTED PER AGE CLASS



Posthunt Juvenile / 100 Female



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



2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL428 - WEST GREEN RIVER

HUNT AREAS: 102-105

PREPARED BY: JEFF SHORT

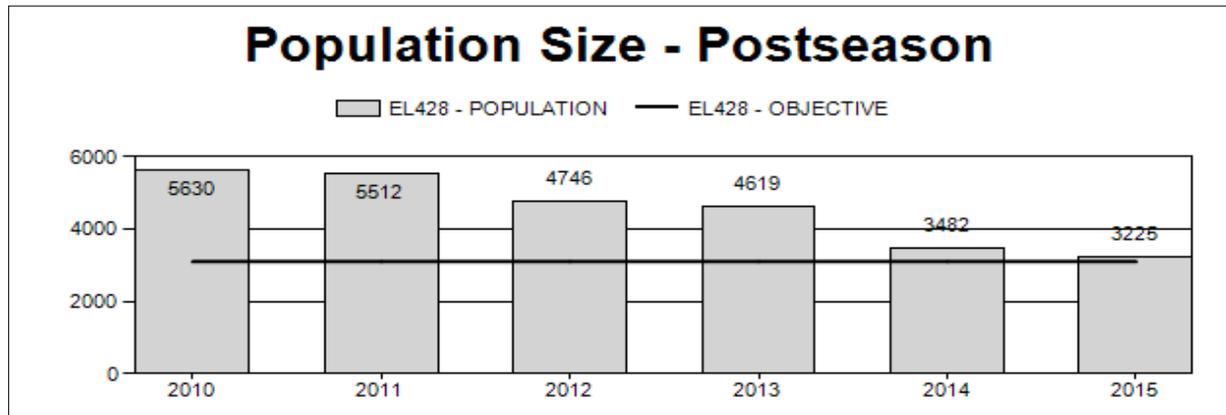
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	4,798	3,225	3,009
Harvest:	1,336	1,054	730
Hunters:	4,206	3,887	3,000
Hunter Success:	32%	27%	24%
Active Licenses:	4,387	4,096	3,200
Active License Success:	30%	26%	23%
Recreation Days:	30,647	28,501	20,000
Days Per Animal:	22.9	27.0	27.4
Males per 100 Females	36	37	
Juveniles per 100 Females	30	34	

Population Objective (\pm 20%) 3100 (2480 - 3720)

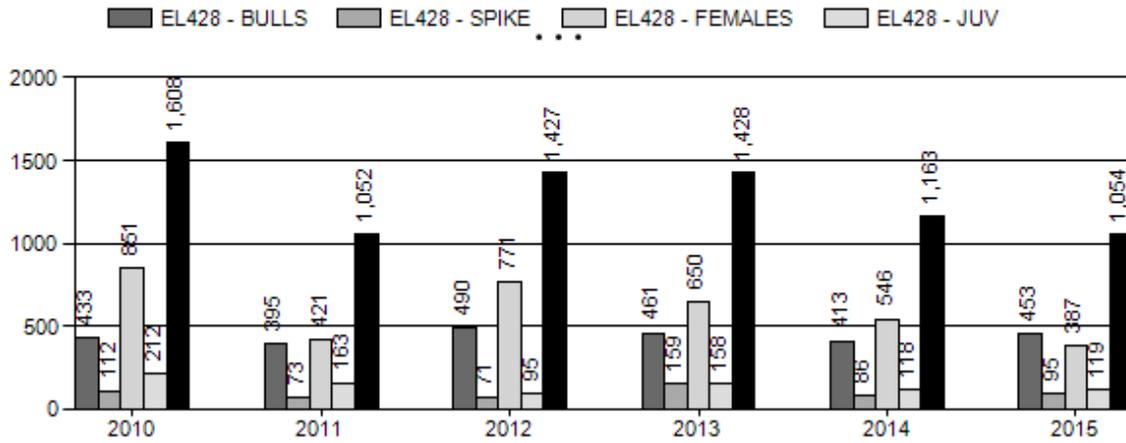
Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: 4%
 Number of years population has been + or at or- objective in recent trend: 2
 Model Date: 02/16/2016

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

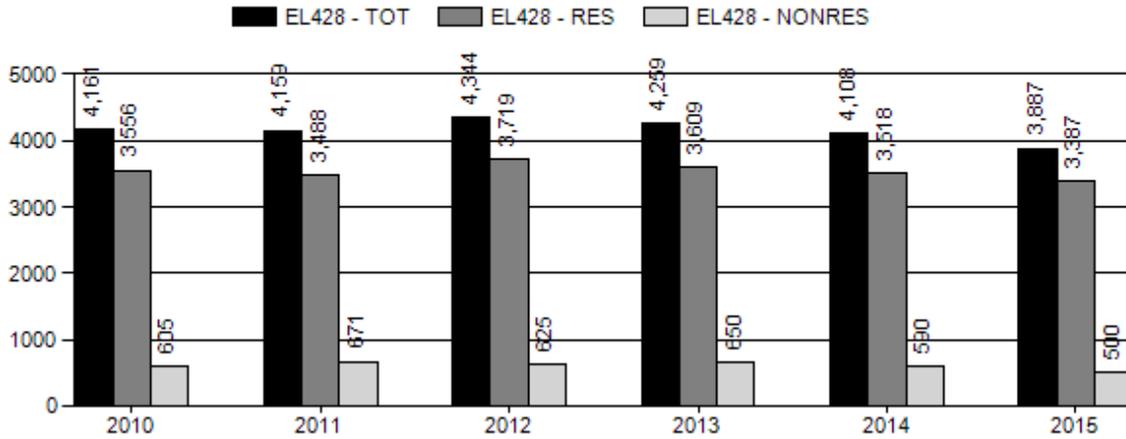
	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	14.8%	9.3%
Males \geq 1 year old:	57.4%	75.9%
Juveniles (< 1 year old):	13.5%	8.8%
Total:	24.6%	19.7%
Proposed change in post-season population:	-12.3%	-6.9%



Harvest



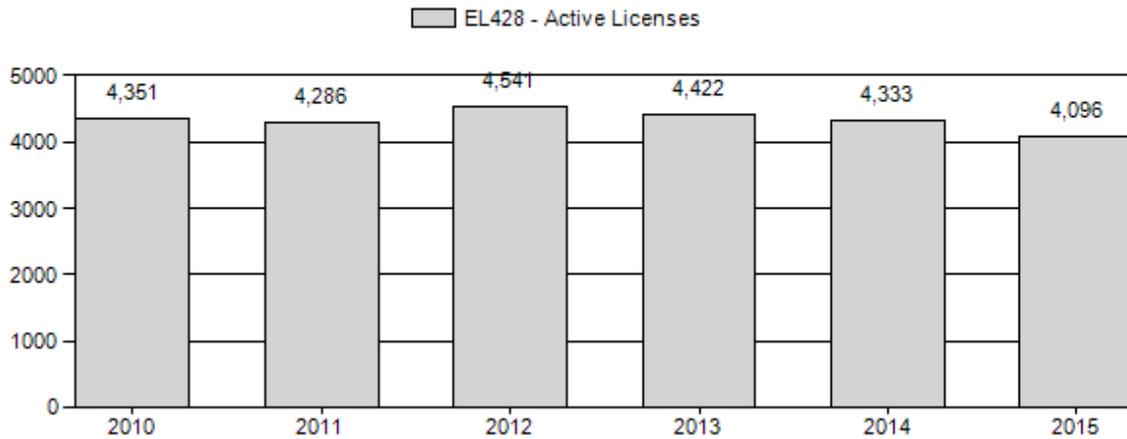
Number of Hunters



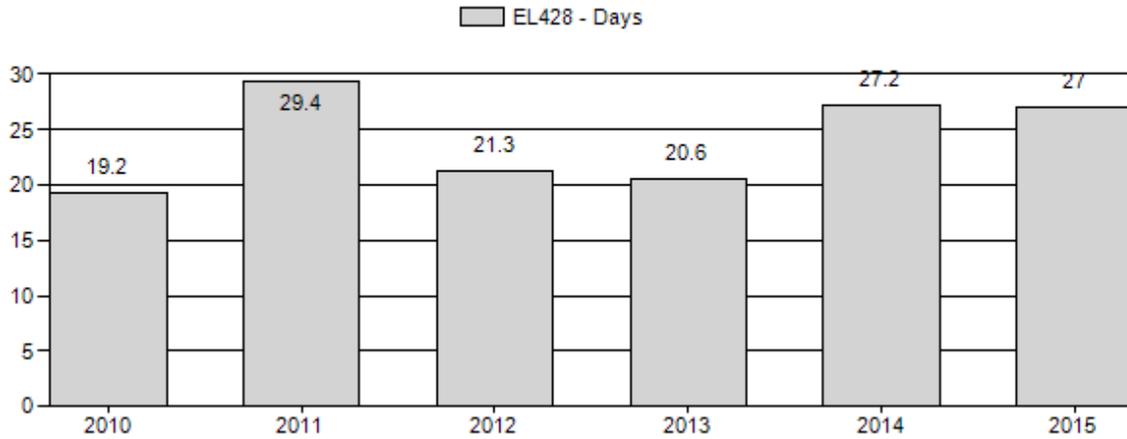
Harvest Success



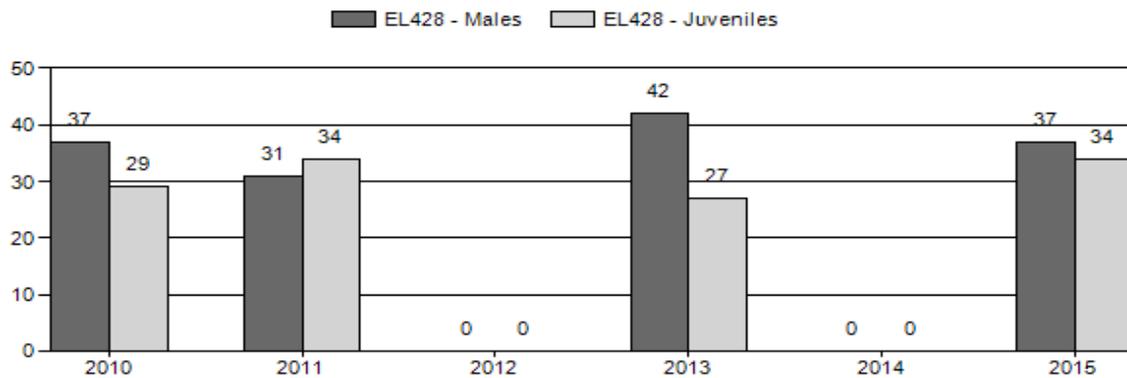
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Elk Herd EL428 - WEST GREEN RIVER

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
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	3,482	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2015	3,225	283	354	637	21%	1,740	59%	593	20%	2,970	0	16	20	37	± 1	34	± 1	25

2016 HUNTING SEASONS

SPECIES : Elk

HERD UNIT : West Green River (428)

HUNT AREAS: 102, 103, 104, 105

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
102		Oct. 15	Oct. 24		General	Any elk
102	6	Oct. 15	Nov. 6	25	Limited quota	Cow or calf
102	7	Dec. 15	Jan. 31	25	Limited quota	Cow or calf
103		Oct. 15	Oct. 24		General	Any elk
103		Oct. 25	Oct. 31		General	Antlerless elk
103	6	Oct. 15	Nov. 6	50	Limited quota	Cow or calf
103	6	Dec. 15	Jan. 31			Cow or calf
104		Oct. 15	Oct. 24		General	Any elk
104		Oct. 25	Oct. 31		General	Antlerless elk
104	6	Oct. 15	Nov. 6	50	Limited quota	Cow or calf
104	7	Dec. 15	Dec. 31	25	Limited quota	Cow or calf
104	7	Jan. 1	Jan. 31			Cow or calf 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

Hunt Area	License Type	Quota change from 2014
102	6	-75
103	6	-100
104	6	-350
104	7	-75
Herd Unit Total	6	-525
	7	-75

Management Evaluation

Current Postseason Population Management Objective: 3,100

Management Strategy: Recreation

2015 Postseason Population Estimate: ~3,225

2016 Proposed Postseason Population Estimate: ~3,009

Herd Unit Issues

Energy development on crucial elk habitat is a potential issue for this herd. As an unfed elk herd in Western Wyoming, habitat integrity is of critical importance. Additionally, conflict with agriculture producers can be an issue for this elk herd. Damage complaints can occur during bad winters but are rare. Elk comingling with livestock during winter is very rare in limited areas but needs to be considered a potential issue. Limited past 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 potential problems. Perceived reduction in livestock forage due to elk grazing is an issue that can be brought up.

In the last five hunting seasons hunters commonly complain that elk numbers are down significantly and they were too low for their standards. However, we have been over the set objective until last year. This herd recently went through an objective review in 2012 and it was determined that the objective should remain at 3,100 animals. This was mainly due to input from agriculture producers. Under our recent harvest strategies and attempts to get down to objective we have been successful and the population is now at the objective. Hunters are largely unhappy with the current elk population and the set 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 2015 and into 2016 has been highly variable. In the early part of 2015 the winter was very mild and dry. A moist spring and summer followed. In late August conditions dried considerably and a relatively dry fall continued into late December. Winter did not set in until mid December but it came in abruptly. The winter of 2015-2016 has been very cold with high snow loads to this point and elk have migrated to winter ranges. A much needed warming trend has occurred in February and it remains to be seen how the winter will ultimately shape out. The winters from 2011 to 2015 were very mild with low snowpack and relatively warm temperatures resulting in very 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

Intensive helicopter based elk flights were performed in early 2012, 2014 and 2016. Idaho's sightability model correction was used for these three surveys. In the 2016 survey 2,970 elk were observed. Flight conditions were favorable and the sightability correction estimate was 3,053 elk. On these surveys a low sightability correction factor is produced 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 available elk winter range during the survey. There is an additional area in the herd unit that is not flown in Hunt Area 105. This is not flown due to budget constraints and low elk densities in that area. This area is thought by field personnel to contain approximately 100 elk. This information is added to the sightability estimates to create a total herd unit estimate.

Recent post-season bull ratios have been excellent. Calf ratios have fluctuated 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 greatly 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 2017 barring 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 model 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 to objective. The public has voiced many concerns about the population reduction but it was required to get the herd to objective. For 2016 we are recommending a significant reduction of antlerless harvest since the estimates indicate we are at the population objective. The current elk population level is very unpopular with the hunting public who feel elk numbers are too low.

Population

The post season 2015 population model estimate is 3,225 elk with the population still 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 3,225 elk in the herd. This is a significant reduction in the herd over the last five years and is essentially at the objective of 3,100 elk. The

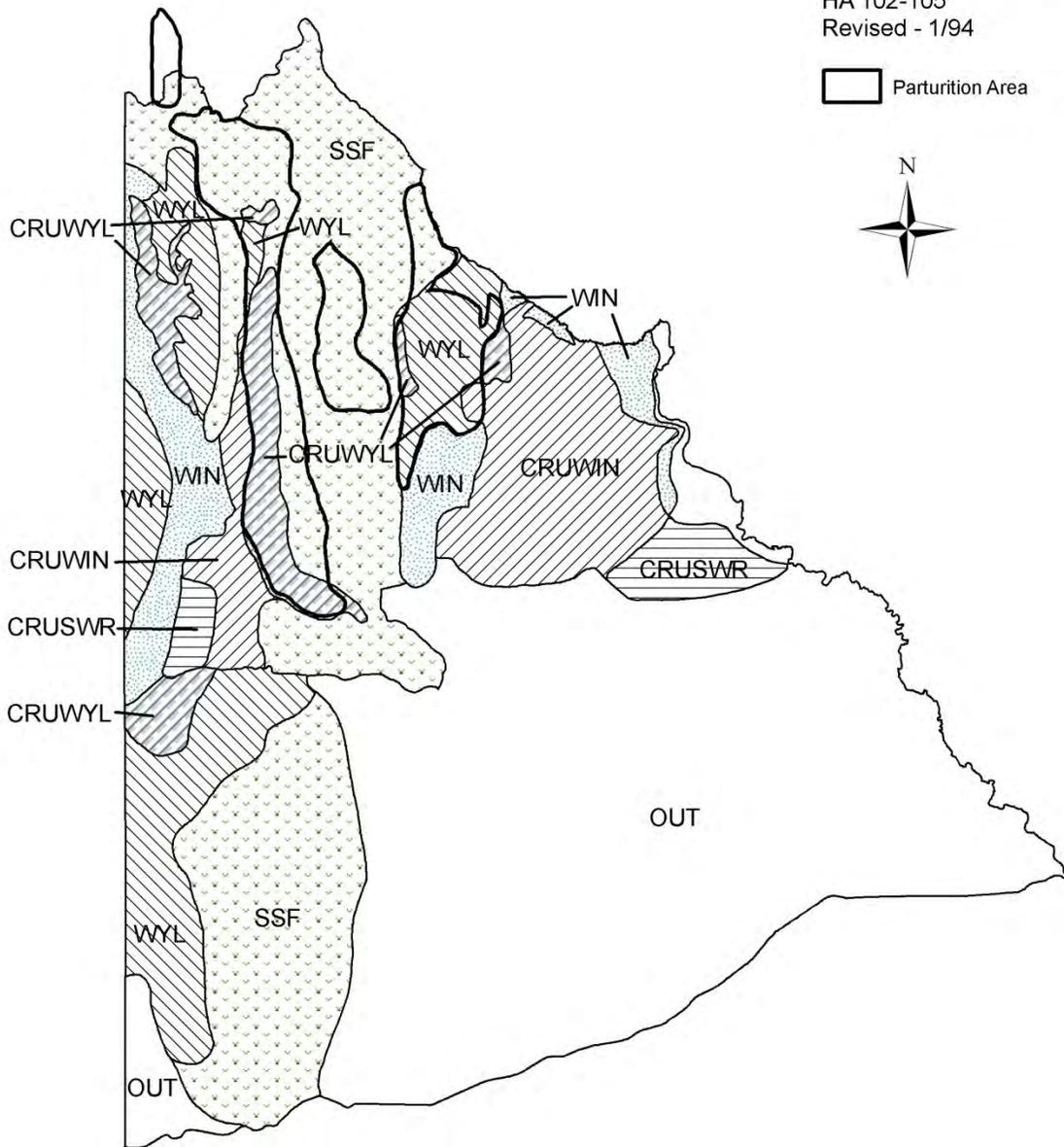
sharp decline in population was driven by antlerless harvest. This is substantiated by hunter comments and field observations. Harvest survey data indicate that we have had more than adequate harvest in the past four years to reduce this herd and move to objective. This supporting information gives us confidence in model results.

Management Summary

For 2016 season setting we will greatly reduce antlerless harvest to reduce population decline since the population is at the objective. We are planning hunt timing and license management to minimize antlerless harvest. The harvest system in place should keep this herd near objective in the near future. This will need to be evaluated carefully each year to avoid taking this population below objective.

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

 Parturition Area



2015 - JCR Evaluation Form

SPECIES: EIk

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

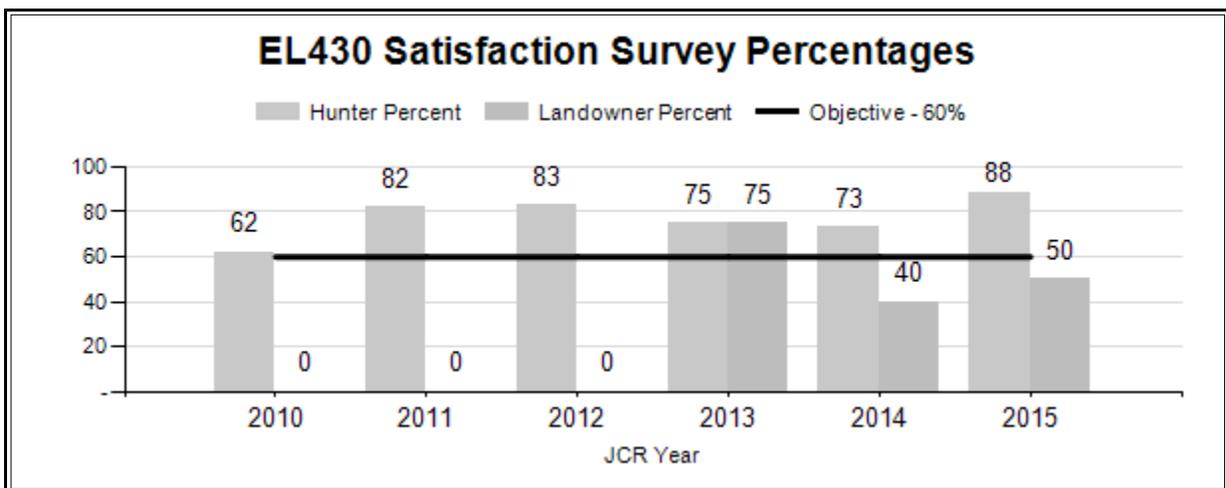
HERD: EL430 - PETITION

HUNT AREAS: 124

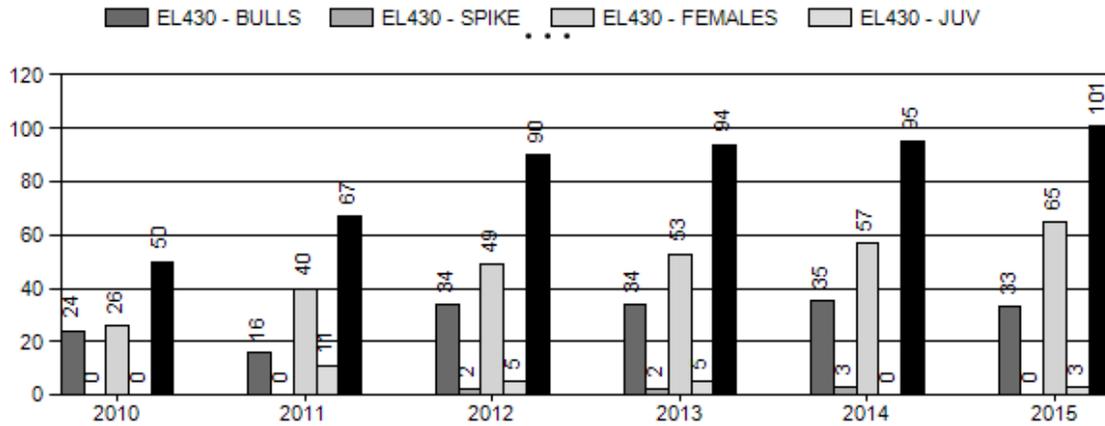
PREPARED BY: TONY MONG

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	75%	88%	75%
Landowner Satisfaction Percent	62%	50%	70%
Harvest:	79	101	191
Hunters:	117	141	245
Hunter Success:	68%	72%	78%
Active Licenses:	117	141	245
Active License Success:	68%	72%	78%
Recreation Days:	876	1,000	1,700
Days Per Animal:	11.1	9.9	8.9
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	

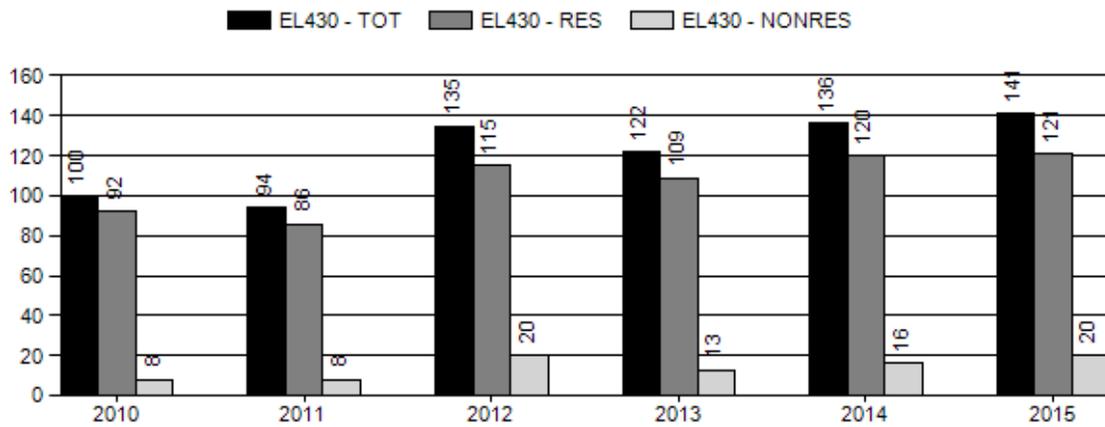
Satisfaction Based Objective	60%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	9%
Number of years population has been + or - objective in recent trend:	1



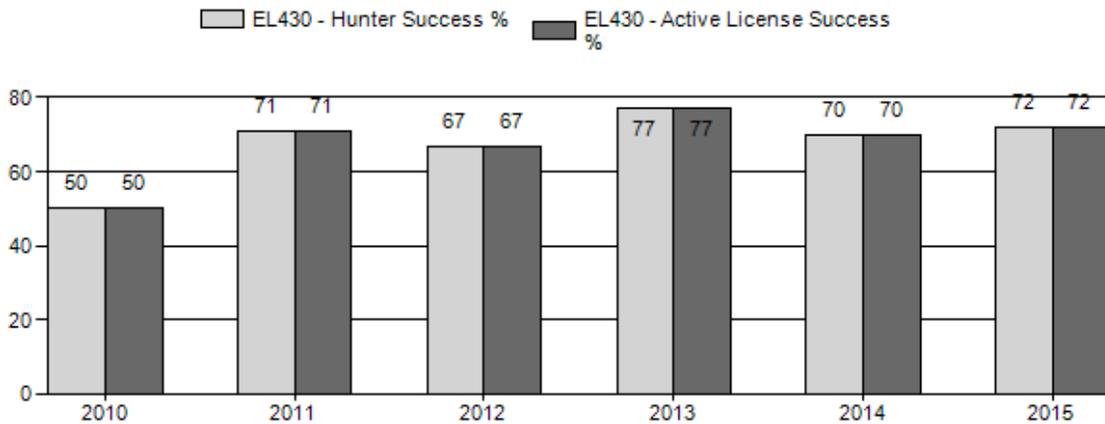
Harvest



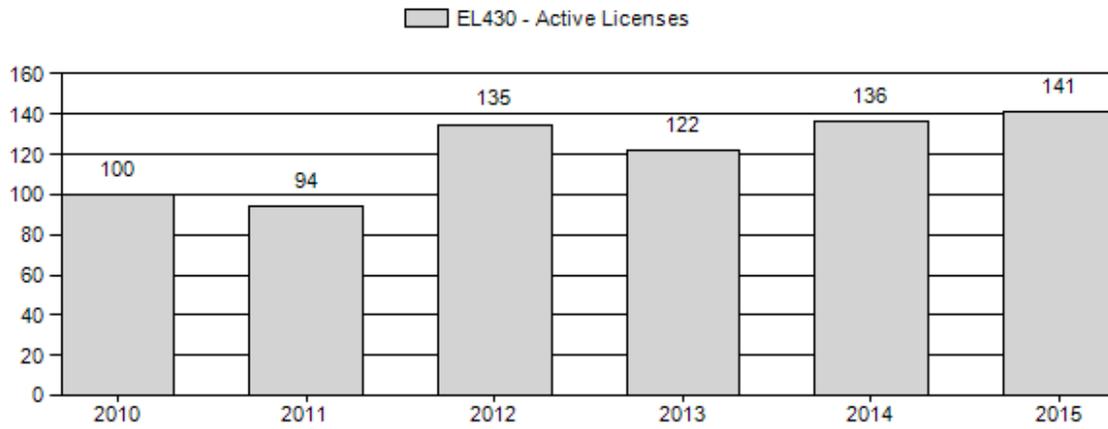
Number of Hunters



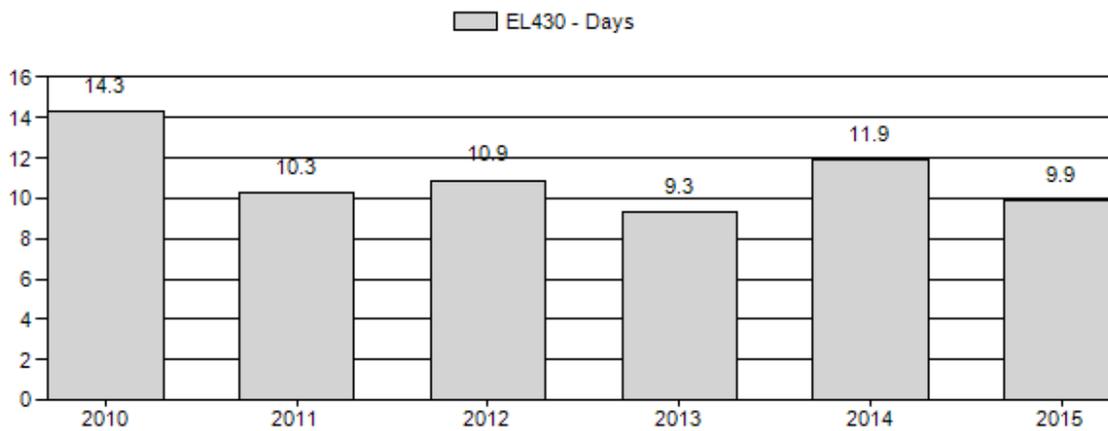
Harvest Success



Active Licenses



Days per Animal Harvested



2016 HUNTING SEASONS

SPECIES : **Elk**

HERD UNIT : **Petition (430)**

HUNT AREAS: **124**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
124	1	Oct. 15	Nov. 30	50	Limited quota	Any elk
	4	Oct. 15	Nov. 30	200	Limited quota	Antlerless elk
	4	Dec. 1	Dec. 31			Antlerless elk valid east of Sweetwater County Road 19, and north and east of B.L.M. Roads 4409 and 4411, and west of B.L.M. Road 3310 and Sweetwater County Road 23S

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
124	All	Sep. 1	Sep. 30	Valid in the entire area(s)

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2015</i>
<i>124</i>	<i>1</i>	<i>+10</i>
	<i>4</i>	<i>+100</i>
	<i>7</i>	<i>0</i>
<i>Herd Unit Total</i>	<i>1</i>	<i>+10</i>
	<i>4</i>	<i>+100</i>
	<i>7</i>	<i>0</i>

Management Evaluation

Current Hunter/Landowner Satisfaction Objective: 60% landowner/hunter satisfaction; bull quality (average age of harvested elk 7.0)

Management Strategy: Recreational

2015 Hunter Satisfaction Estimate: 88%

2015 Landowner Satisfaction Estimate: 50%* (7 out of 14 respondents to the survey)

Most Recent 3-year Running Average Hunter Satisfaction Estimate: 79%

Most Recent 3-year Running Average Landowner Satisfaction Estimate: 55%

Most Recent 3-year Running Average Tooth Age: 7.20

The current management objective was set in 2013 and was set as an alternative objective of Landowner and sportsmen satisfaction along with a bull quality measure using tooth age of harvested bulls. We will increase cow harvest across the area and specifically within the northern-central portion of the area to address damage issues and we will slightly increase bull harvest across the area to provide more opportunity.

Herd Unit Issues

The Petition elk herd is a small highly mobile herd of elk spread over a large area showing large interchange with Colorado and hunt area 100 making meaningful data collection and population estimation difficult. There are three potential issues for the herd, possible competition with mule deer in the South Rock Springs Deer herd, some blossoming damage issues on the northern portion of the herd unit and the popularity of this herd for trophy quality bulls is increasing which is causing additional licenses from Commissioner and Governor to also increase.

Competition for space could occur between mule deer and elk. The South Rock Springs Deer herd is a high profile deer herd and any perception of competition between the two species could result in a call for drastic reduction of elk numbers in those areas where competition could be taking place. We need to ensure we are keeping this in mind as we move forward in the management of this herd.

In 2013 there were no commission licenses issued for hunt area 124, however in 2014 7 licenses were issued and in 2015 8 licenses were issued. Because we are issuing a small number of licenses, any addition could have major impacts. We need to monitor the number of these licenses being issued.

A rather large group of elk have become established in the north-central portion of the herd unit and spend a good portion of the winter in that area. The late season portion of the type 4 license should begin to address these issues.

Weather

There has been an increase in moisture over the last two years, especially in 2015, which has led to the filling of reservoirs and a positive response from vegetation (Figure 1). 2015 saw a 150% increase in normal precipitation across the entire herd unit.

The 2014 winter was extremely mild with no noticeable winter kill events. 2015 has seen an unusually high amount of snow in the herd unit, especially in areas that have traditionally seen very little snow along the Colorado/Wyoming border. This could lead to higher winter mortality for the elk in the southern portion of the herd unit.

Figure 1. Percent of normal precipitation for the herd unit from February 2015 to February 2016.



Field Data

No population data is currently collected for this herd making management difficult. However, public input and harvest statistics lead us to believe this herd has grown over the last 5 years.

Field checks and pre-season setting meetings have indicated that many hunters that have hunted in HA 124 are seeing more elk than they had historically.

Tooth age data from teeth sent in to the WGFD tooth aging lab for 2015 (N = 15) yield an average age of 7.5 (range 5.5 to 12.5). Combined with 2013 and 2014 (both averages 7.0) we have a 3-year average of a little over 7.0. There are two potential issues with the tooth data. The first is the low participation by landowner license holders within the unit. This may artificially decrease the average age of bulls harvested within the herd unit as personal discussions and knowledge of the bulls harvested on this license tend to be older age class bulls. The other potential issue is the potential lack of participation by those harvesting young bulls due to their lack of interest in the age of the animal, which could have the opposite effect of the landowner licenses. A greater effort must be made in the future to get a sample of all bulls harvested in the area.

Sportsmen satisfaction in this herd is high with 88% of the 60 respondents “satisfied or very satisfied” with their overall hunting experience. Landowner satisfaction was collected through personal contacts either via phone or face to face meetings. Fourteen landowners were contacted by 3 WGFD managers. Seven respondents felt elk numbers were “at or about at desired levels”, four felt numbers were “above desired levels” and two felt elk numbers were “below desired levels”.

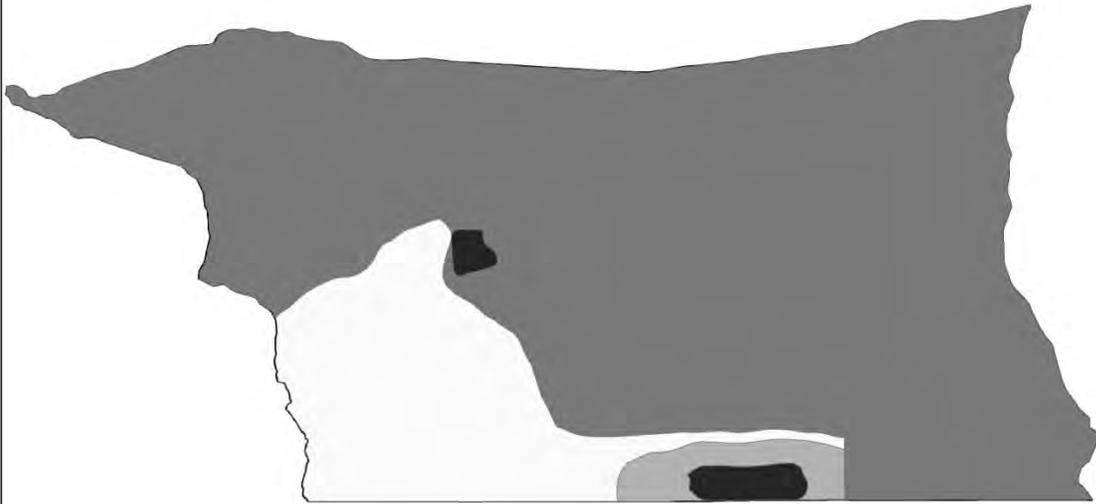
Harvest Data and Population Indications

Hunter success continues to be high (72%) and is significantly higher than the previous 10 year average (61%). Days to harvest has been variable over the last 5 years with an average of 10.5 days and a range of 9.3 to 12.3 days. Cow harvest was the highest recorded in 2015 with 68 cows harvested. The higher success rates and high cow harvest are an indication that population levels are higher than they were 5 years ago.

Management Summary

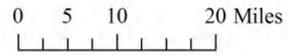
It is important that we balance the management of an import resource to hunters (i.e. good opportunity for large bulls) and the extremely sensitive ecosystem found in the Petition elk herd as we move forward with the management of this herd. Currently we see only few issues between land owners and the Petition elk herd and strong support from sportsmen hunting elk within the herd. We are addressing landowner concerns for elk numbers in the north-central portion of the herd unit by allowing type 4 hunters to hunt late in that portion of the herd unit. In addition to our harvest data, field contacts and meeting contacts with other big game hunters (mule deer and pronghorn) indicate numbers have increased and concern is arising over competition for resources in the area. Our current management strategy is to increase cow harvest to maintain or decrease overall numbers of elk and to increase bull licenses for more hunter opportunity at trophy quality bulls.

Petition Elk Herd Seasonal Ranges



Petition Elk Herd Seasonal Range

Dark Gray	Undetermined/Undocumented	Black	Crucial Winter/Year long
White	Year long	Light Gray	Winter/ Year long



2015 - JCR Evaluation Form

SPECIES: Moose

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

HERD: MO415 - UINTA

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

PREPARED BY: JEFF SHORT

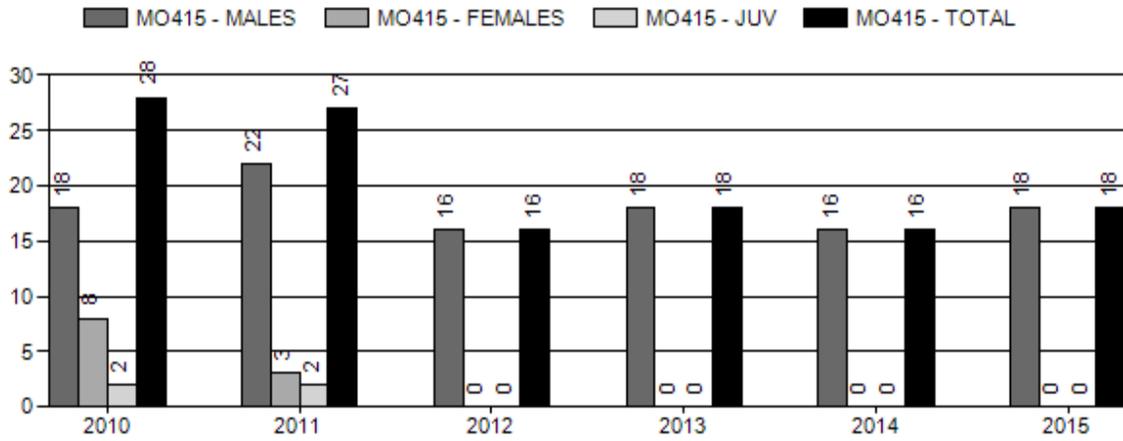
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	NA	NA	NA
Harvest:	21	18	18
Hunters:	25	19	20
Hunter Success:	84%	95%	90 %
Active Licenses:	25	19	20
Active License Success:	84%	95%	90 %
Recreation Days:	212	137	150
Days Per Animal:	10.1	7.6	8.3
Males per 100 Females	45	57	
Juveniles per 100 Females	51	29	

Population Objective (\pm 20%):	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

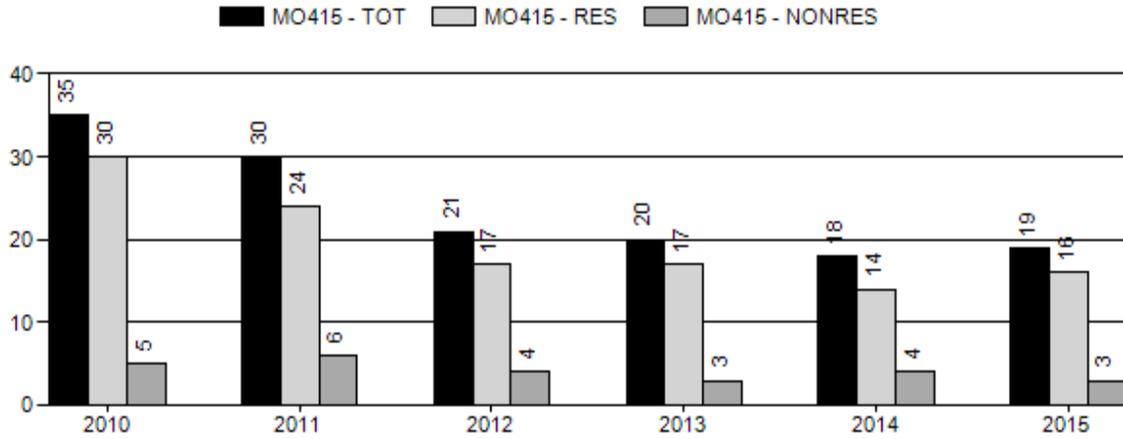
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \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

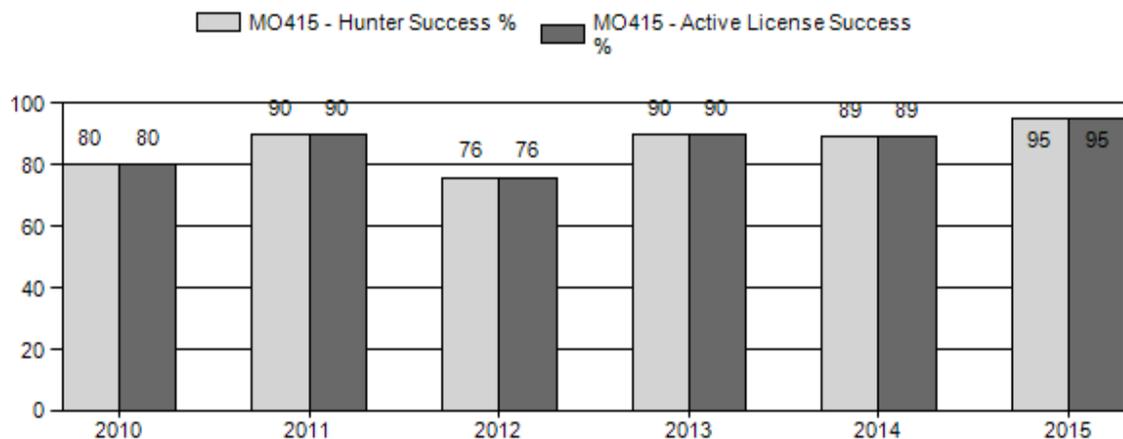
Harvest



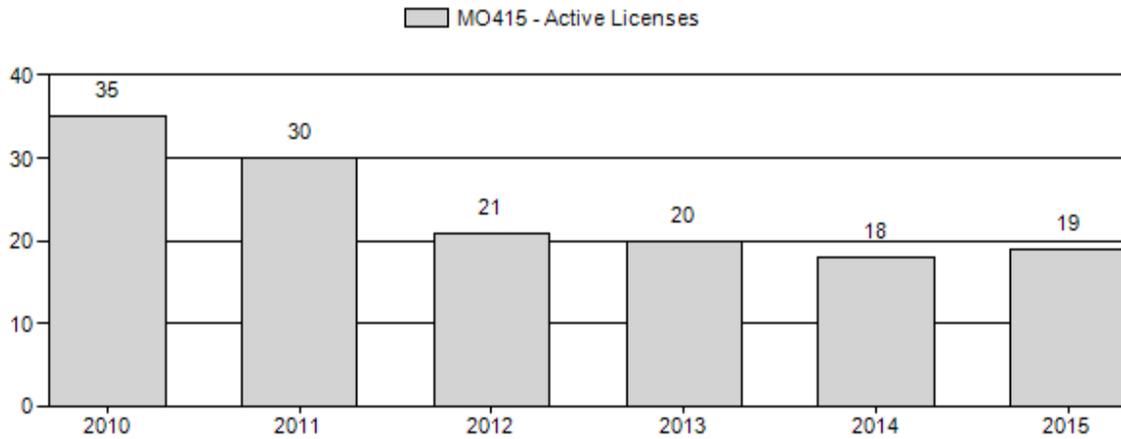
Number of Hunters



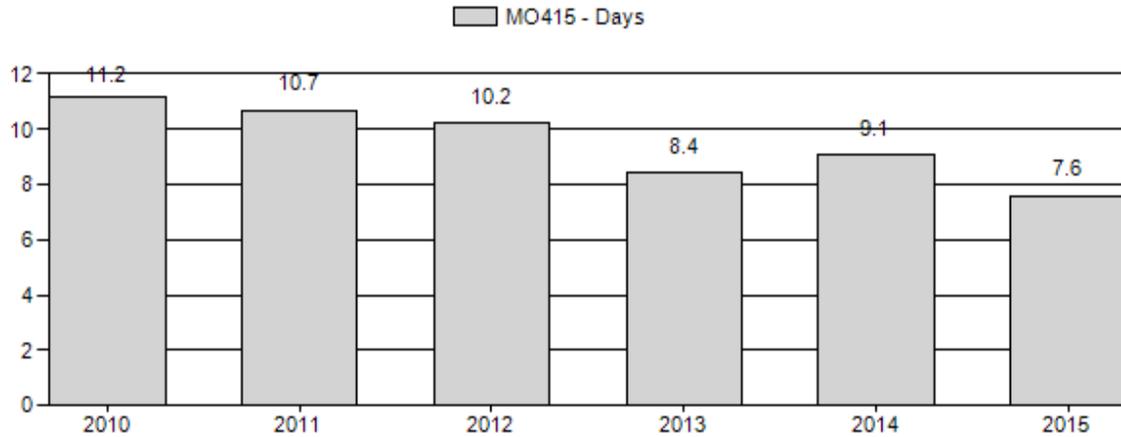
Harvest Success



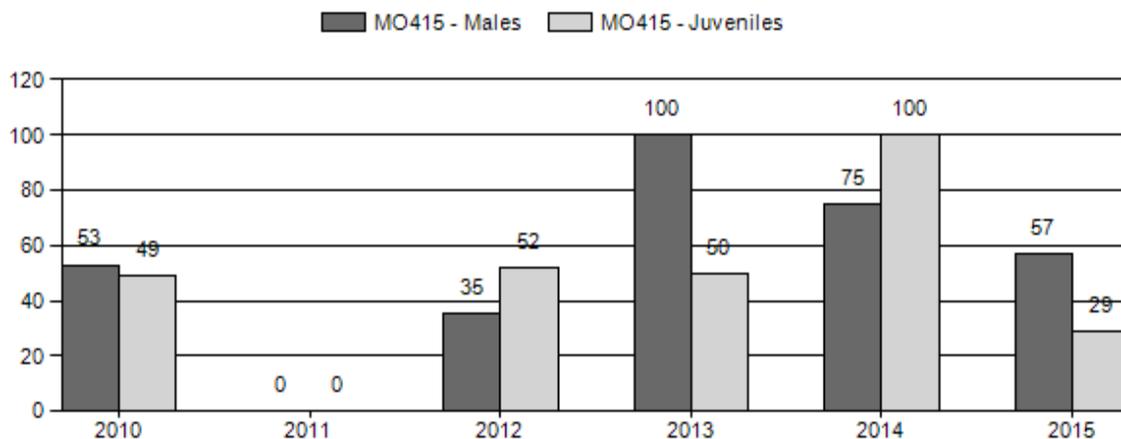
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 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	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	0	1	3	4	31%	7	54%	2	15%	13	0	14	43	±0	29	±0	18	

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, 44	1	Oct. 1	Nov. 20	5	Limited quota	Antlered moose
27, 35	Archery	Sept. 1	Sept. 30		Limited quota	Refer to Section 2 of this chapter

Hunt Area	License Type	Quota change from 2015
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: Harvest Based

Management Strategy: Special

2015 Postseason Population Estimate: ~300

2016 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 was closed to moose hunting due to concern over offering an opportunity with extremely low moose numbers. For 2016 Area 44 is again added to the Area 35 hunt.

Weather

Weather during 2015 and into 2016 has been highly variable. In the early part of 2015 the winter was very mild and dry. A moist spring and summer followed. In late August conditions dried considerably and into late December low precipitation was received. Winter did not set in until mid December. The winter of 2015-2016 has been very cold and snowy to this point and moose have migrated to crucial winter ranges.. The winters from 2011 to 2015 were very mild with low snowpack and relatively warm temperatures 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 those years and we propose to stay conservative with harvest for 2016.

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 3rd 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

	1996	1998	2001	2004	2007	2011	2013
UTAH DAGGETT (8B)	103	84	109	107	95	NA	74
UTAH SUMMIT (8A)	182	229	243	150	181	92	104
WYOMING	393	289	334	270	314	232	174
TOTAL WYOMING AND UTAH SUMMIT	575	518	577	420	495	324	278
TOTAL	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 six years. Type 1 hunts have had very good success rates in the last five 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.

2010 - 2015 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
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
2015	16	3	16%	19	19	0	18	18	100%	0	0%	0	0%	18	95%	95%	137	7.6

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 reopened for 2016 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)

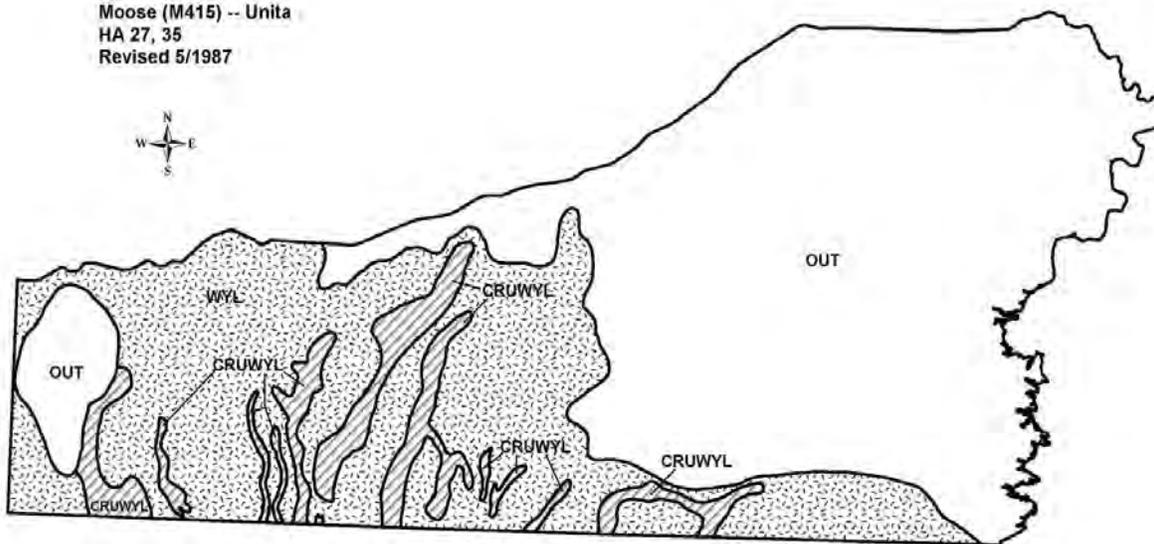
Uinta Moose Herd Harvest Data 2010 -2015

	2011	2012	2013	2014	2015	5 year average
Mean age of harvest	5.63	5.0	4.333	4.125	4.37	4.69
Median age of harvest	4	4	4	3	4	3.8
Days per harvest	10.7	10.2	8.4	9.1	7.6	9.2
% male harvest \geq 5 years	45%	45%	33%	12%	25%	32%
Average Antler spread (in)	42.88	40.35	38.8	36.0	35.75	38.756

The Uinta Herd Unit has small sample sizes for harvest so outliers or missed samples have a large affect on the data. Currently the herd is slightly below objective for Minimum age of Harvest, above objective on days per harvest and below objective on percent of male harvest \geq 5 years of age.

2014 was the first year of this type of objective option. Since there are very low harvest sample sizes averages over time will be most useful. There is also an unknown amount of variation around tooth cementum analysis estimates of age. Currently, the JCR system is not set up to report this type of objective data.

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



2015 - JCR Evaluation Form

SPECIES: Moose

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

HERD: MO417 - LINCOLN

HUNT AREAS: 26, 33, 36, 40

PREPARED BY: JEFF SHORT

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	890	767	726
Harvest:	46	48	56
Hunters:	48	50	55
Hunter Success:	96%	96%	102 %
Active Licenses:	48	50	55
Active License Success:	96%	96%	102 %
Recreation Days:	382	366	400
Days Per Animal:	8.3	7.6	7.1
Males per 100 Females	68	38	
Juveniles per 100 Females	38	42	

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

Management Strategy: Special

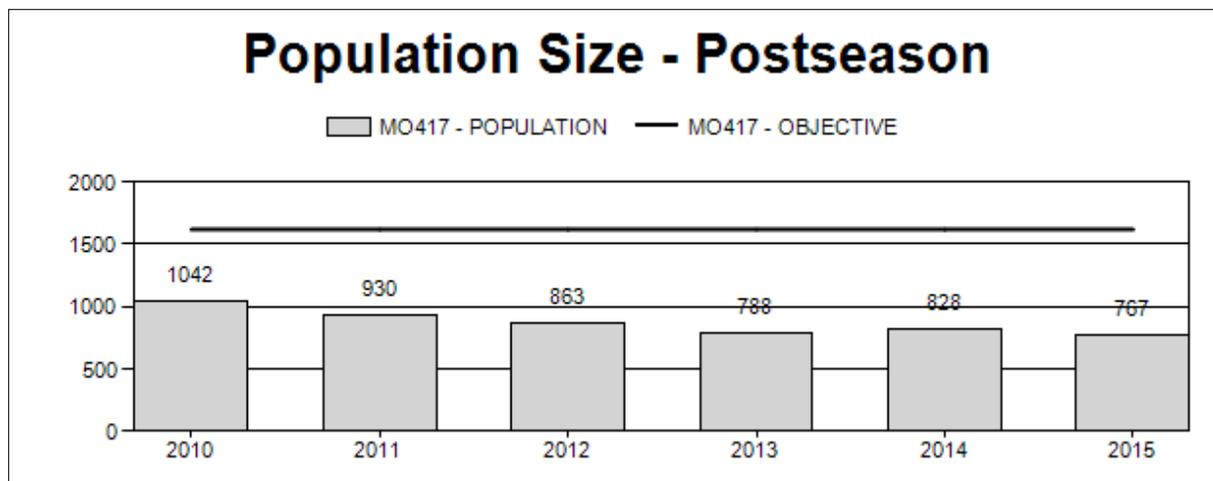
Percent population is above (+) or below (-) objective: -52.7%

Number of years population has been + or - objective in recent trend: 6

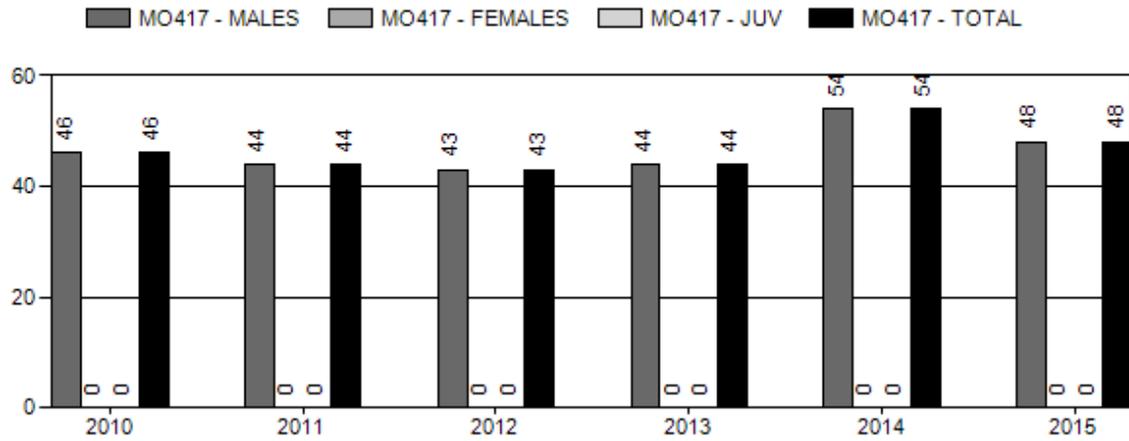
Model Date: 02/22/2016

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

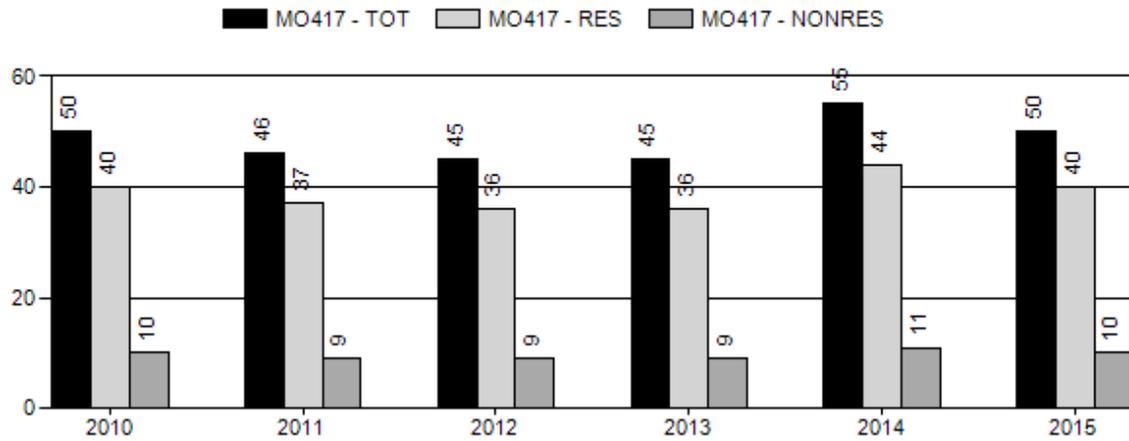
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	24.6%	28.5%
Juveniles (< 1 year old):	0%	0%
Total:	6.3%	6.9%
Proposed change in post-season population:	-8.6%	-6.3%



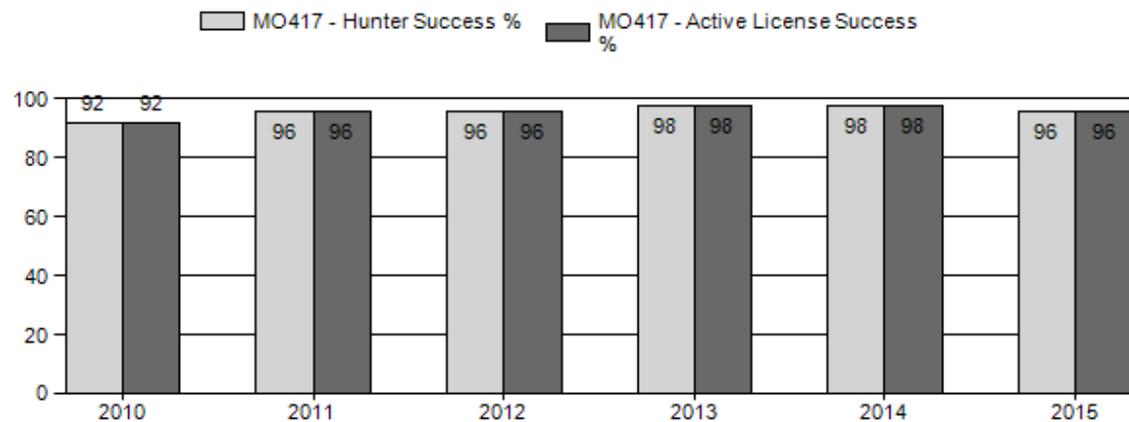
Harvest



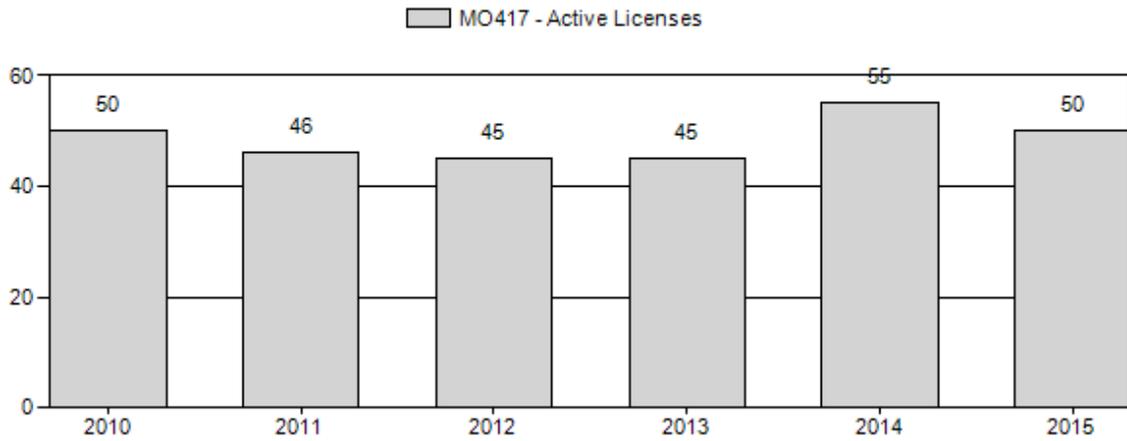
Number of Hunters



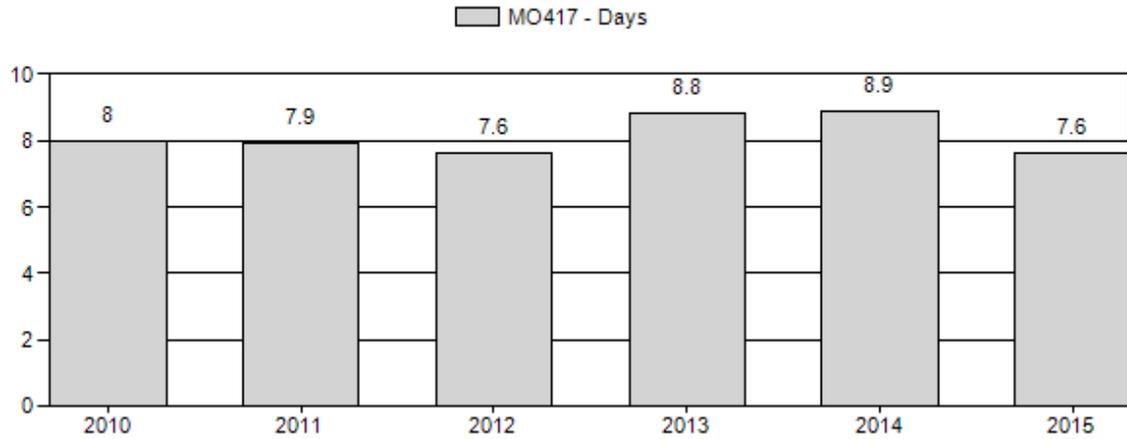
Harvest Success



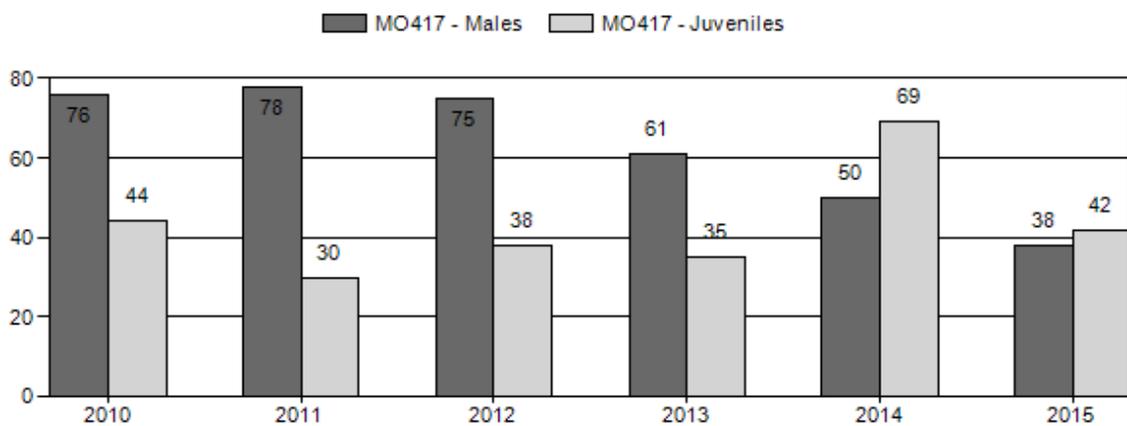
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 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	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	1,042	0	0	103	35%	135	45%	59	20%	297	0	0	0	76	± 11	44	± 7	25
2011	930	0	0	47	38%	60	48%	18	14%	125	0	0	0	78	± 18	30	± 10	17
2012	863	0	6	6	35%	8	47%	3	18%	17	0	0	75	± 51	38	± 32	21	
2013	788	0	124	124	31%	202	51%	71	18%	397	0	0	61	± 6	35	± 4	22	
2014	828	1	7	8	23%	16	46%	11	31%	35	0	6	44	± 27	69	± 34	46	
2015	767	11	59	70	21%	183	55%	77	23%	330	0	6	32	± 5	42	± 6	30	

2016 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	40	Limited quota	Antlered moose
33, 36, 40	1	Oct. 1	Oct. 31	10	Limited quota	Any moose, except cow moose with calf at side in Areas 36 and 40; valid for antlerless moose, except cow moose with calf at side in Area 33
26, 33, 36, 40	Archery	Sep. 1	Sep. 30		Limited quota	Refer to Section 2 of this chapter

Hunt Area	License Type	Quota change from 2015
33, 36, 40	1	+5
26	1	-10
Herd Unit Total	1	-5

Management Evaluation

Current Postseason Population Management Objective: 1,620

Management Strategy: Special

2014 Postseason Population Estimate: ~767

2015 Proposed Postseason Population Estimate: ~726

Herd Unit Issues

A portion of the lower elevation riparian 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 many documented cases of Elaeophorosis caused deaths in this herd and feel that this has had a significant population effect. However, Elaeophorosis caused mortalities have reduced 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. 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 2015 and into 2016 has been highly variable. In the early part of 2015 the winter was very mild and dry. A moist spring and summer followed. In late August conditions dried considerably and a relatively dry fall continued into late December. Winter did not set in until mid December but it came in abruptly. The winter of 2015-2016 has been very cold with high snow loads to this point and moose have mostly migrated to winter ranges. A much needed warming trend has occurred in February and it remains to be seen how the winter will ultimately shape out. The winters from 2011 to 2015 were very mild with low snowpack and relatively warm temperatures resulting in very 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 conducted in hunt area 26 from a helicopter concurrent with West Green River elk surveys. Areas 33, 36 and 40 are not flown due to the large geographic area and very low moose densities. Classification data is collected during these flights. Those surveys are conducted every other year. The joint elk and moose survey was flown this year in the winter of 2015/16. Total numbers of moose seen were 331. The Idaho sightability model was used to estimate a total population for the area flown. That estimate is 383 moose with a standard error

of 12.409. Very good coverage of occupied moose winter habitat was achieved in the survey. However, there are some peripheral habitats that were not flown due to budget constraints. For population modeling we have added 50 animals to the estimate and enlarged the SE to account for those areas. The previous survey was flown in the winter of 2013/14 and resulted in a raw count of 406 moose with a sightability estimate of 476. In the off years between elk/moose flights, 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 inadequate and those ratios are not as reliable. The extensive surveys conducted in 2014 and 2016 resulted in estimates that are lower than survey sample sizes were in the late 1990s and early 2000s with lower effort during that time. This substantiates field observations that moose populations were greatly reduced around 2006/2007. Reduced habitat condition and Elaeophorosis were likely contributors to the population reduction.

Harvest Data

Antlerless harvest opportunity has been very limited in this herd unit. We have drastically reduced the number of licenses in the last 10 years due to the population crash. 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 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 3.6 years old for 2014. Average antler spread in Hunt Area 26 was 37.40 for 2014.

Lincoln Moose Herd Harvest Data 2010 -2015

	2011	2012	2013	2014	2015	5 year average
Mean age of harvest	3.90	4.4	4.4	4.1	3.6	4.08
Median age of harvest	4	5	4	4	4	4.2
Days per harvest	7.9	7.6	8.8	8.9	7.6	8.16
% male harvest ≥ 5 years	25%	52%	43%	34%	20%	34.8%
Average Antler spread (in)	35.43	37.63	36.12	37.84	37.40	36.88

2010 - 2015 Harvest Summary

for Moose Herd MO417 - LINCOLN

Year	HUNTERS					HARVEST										SUCCESS			
	Res Htrs	NRes Htrs	% NRes	Total Htrs	Act Lic	Yig Male	Adult Male	Total Male	% Male	Fem	% Fem	Juv	% Juv	Tot Harv	Hntrs	Act Lic	Hntr Days	Days to Harv	
2010	40	10	20%	50	50	0	46	46	100%	0	0%	0	0%	46	92%	92%	367	8.0	
2011	37	9	20%	46	46	0	44	44	100%	0	0%	0	0%	44	96%	96%	348	7.9	
2012	36	9	20%	45	45	0	43	43	100%	0	0%	0	0%	43	96%	96%	326	7.6	
2013	36	9	20%	45	45	0	44	44	100%	0	0%	0	0%	44	98%	98%	386	8.8	
2014	44	11	20%	55	55	0	54	54	100%	0	0%	0	0%	54	98%	98%	482	8.9	
2015	40	10	20%	50	50	0	48	48	100%	0	0%	0	0%	48	96%	96%	366	7.6	

Population

Previous to this year there was no model for this moose herd. It was not possible to build a reasonable model with the available data. With the new sightability estimate we now have 2 population estimate data points to anchor the model. The new model is to be used with caution. This modeling technique is not designed to be used for moose populations. It is based on an elk population model and some parameters may be different. With a new model population trends will often be unrealistic in the early timeframe as the model works to try to figure out the data. Only the last few years of model estimates should be considered. 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 reported model is for hunt area 26 only. It is not feasible to collect adequate data for modeling in the rest of the herd unit. Total herd unit estimates in the JCR are reported as model estimates plus 120 animals to account for the overall objective.

The CJ,CA model was selected due to the low Relative AICc score, and its relatively good fit with the data. The CJ,CA model fits reasonably within the population characteristics of moose. In the future it will be important that we get a population estimate periodically to check the status of the herd and anchor the model. Without this, it is unlikely we can provide a working population model and track the trend of this population.

For several 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 several of those 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 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 beginning in the 2014 season.

Management Summary

Harvest opportunity was substantially limited in this herd from 2008 to 2014. We will remain conservative for 2016. In Hunt Area 26 for the 2016 hunting season we will reduce licenses from 50 to 40. That area has fallen below objective in bull:cow ratio and mean age of harvested bulls. In Hunt Areas 33, 36 and 40 we will raise licenses from 5 to 10 licenses. 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 high harvest every year. Any moose harvest (except cow moose with calf at side) will be allowed in Hunt Areas 36 and 40 due to private landowner concerns and licenses will be raised from 5 to 10. The objective and management strategy were last revised in 2004. It is due to be revised in 2016.

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

