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## 2015 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD104 - SUBLETTE

HUNT AREAS: 130-131, 138-142, 146, 150-156, 162

PREPARED BY: DEAN CLAUSE

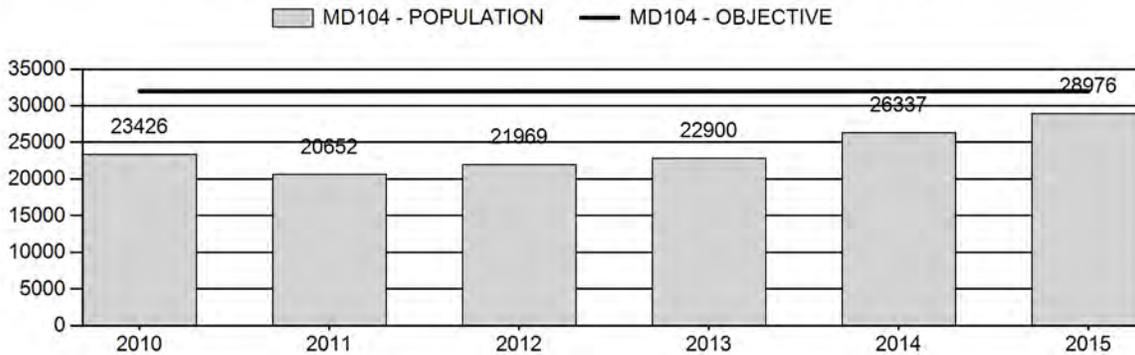
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	23,057	28,976	32,251
Harvest:	1,488	1,983	2,000
Hunters:	4,187	4,531	4,600
Hunter Success:	36%	44%	43 %
Active Licenses:	4,203	4,553	4,600
Active License Success:	35%	44%	43 %
Recreation Days:	24,584	23,767	23,800
Days Per Animal:	16.5	12.0	11.9
Males per 100 Females	36	43	
Juveniles per 100 Females	67	65	

Population Objective (± 20%) :	32000 (25600 - 38400)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-9.4%
Number of years population has been + or - objective in recent trend:	8
Model Date:	2/19/2016

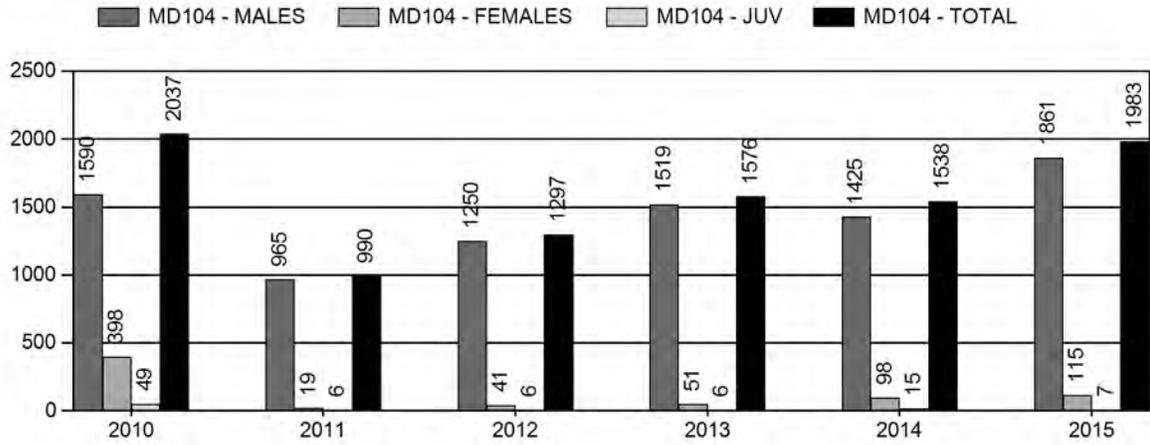
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.8%	0.9%
Males ≥ 1 year old:	26%	24%
Juveniles (< 1 year old):	<1%	<1%
Total:	6.0%	6.0%
Proposed change in post-season population:	2%	11%

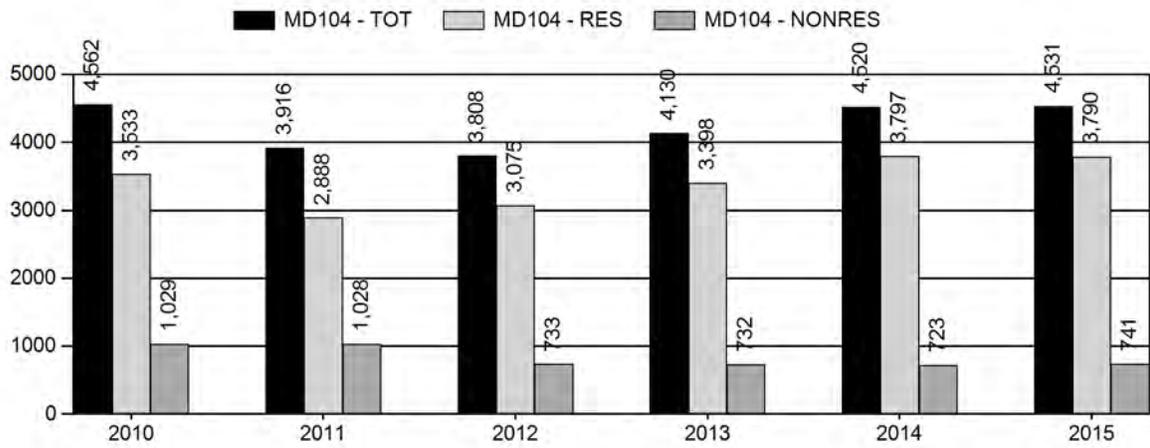
## Population Size - Postseason



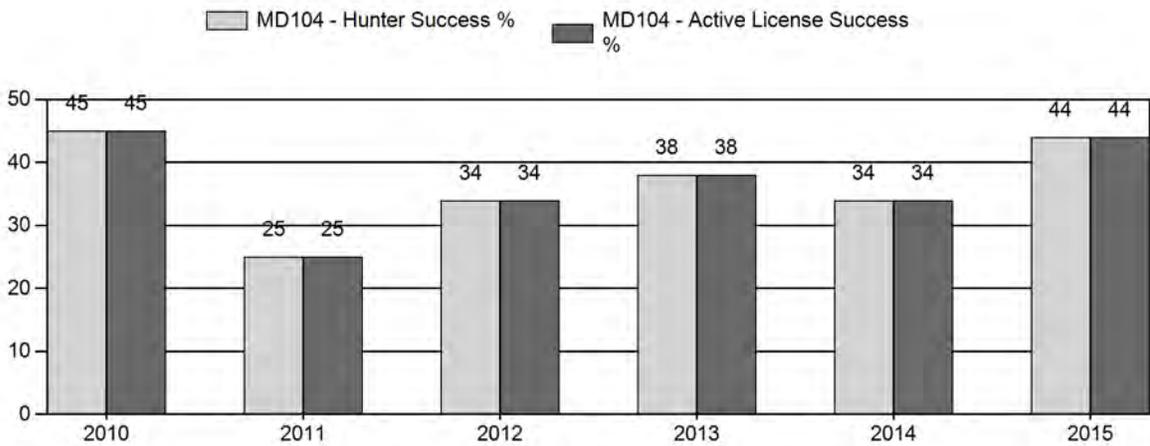
# Harvest



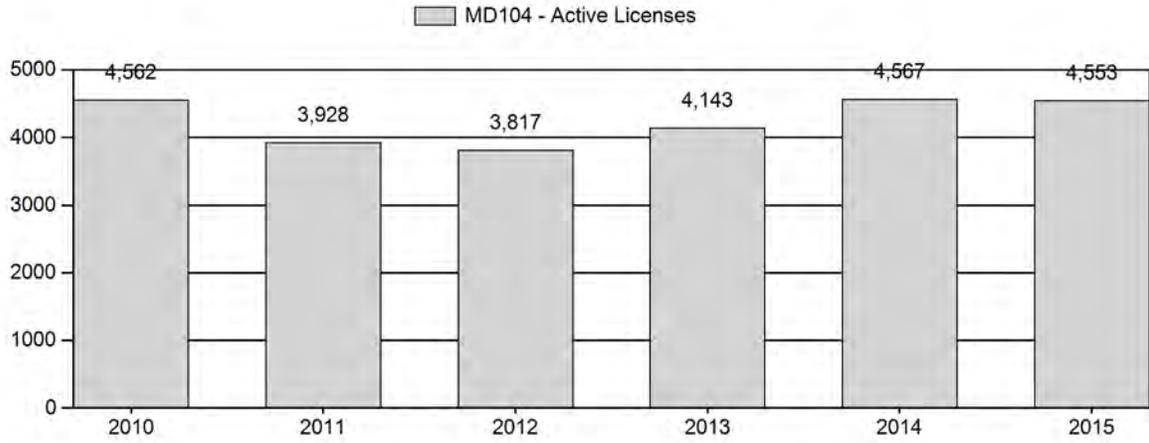
# Number of Hunters



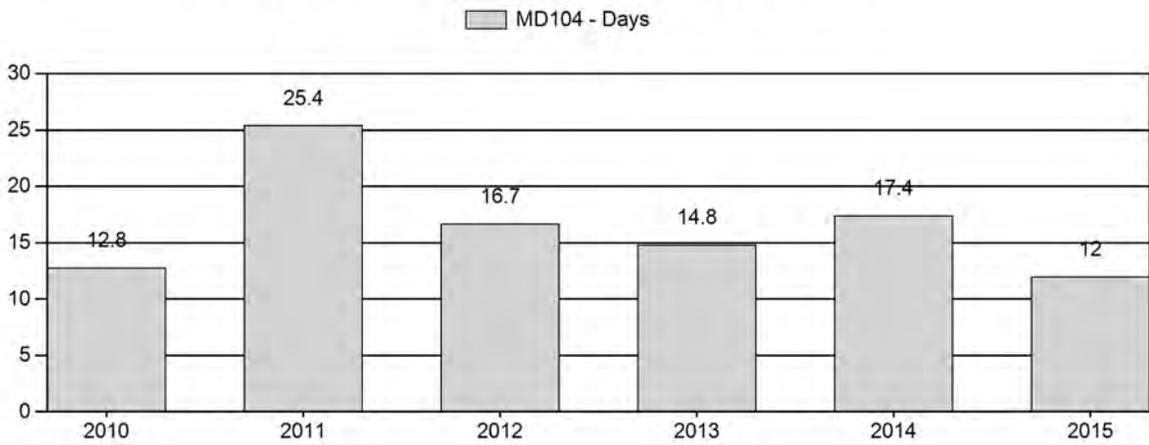
# Harvest Success



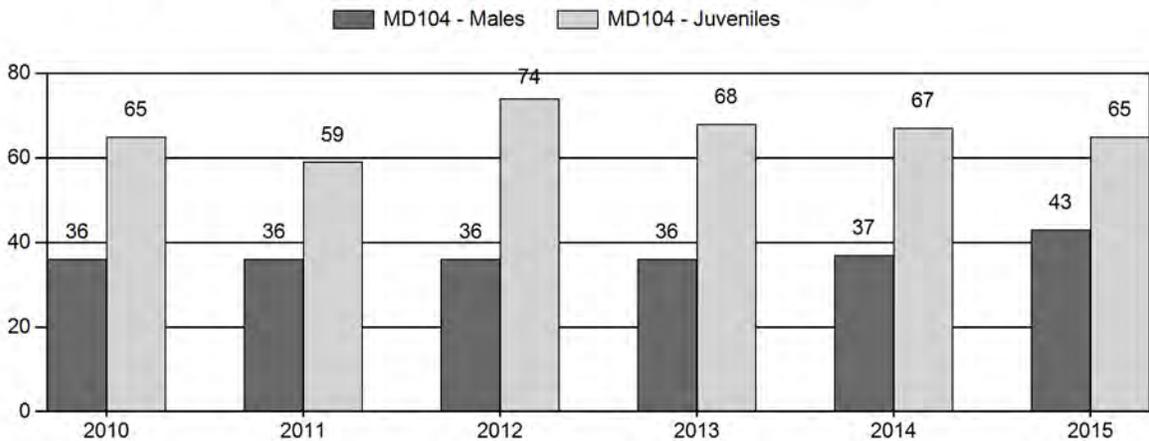
# Active Licenses



# Days per Animal Harvested



# Postseason Animals per 100 Females



**2010 - 2015 Postseason Classification Summary**

for Mule Deer Herd MD104 - SUBLETTE

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	2+ CIs 1	2+ CIs 2	2+ CIs 3	2+ UnCIs	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	23,426	549	0	0	0	1,156	1,705	18%	4,677	50%	3,043	32%	9,425	1,345	12	25	36	± 1	65	± 2	48
2011	20,652	173	0	0	0	894	1,067	18%	2,985	51%	1,747	30%	5,799	1,141	6	30	36	± 1	59	± 2	43
2012	21,969	357	0	0	0	890	1,247	17%	3,498	48%	2,598	35%	7,343	1,626	10	25	36	± 1	74	± 2	55
2013	22,900	575	0	0	0	895	1,470	18%	4,044	49%	2,745	33%	8,259	1,436	14	22	36	± 1	68	± 2	50
2014	26,337	620	514	483	144	0	1,761	18%	4,699	49%	3,167	33%	9,627	1,420	13	24	37	± 1	67	± 2	49
2015	28,976	766	585	490	217	0	2,058	21%	4,768	48%	3,106	31%	9,932	1,463	16	27	43	± 1	65	± 2	46

**2016 Seasons - Sublette Mule Deer (MD104)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
130		Oct. 1	Oct. 7		General	Antlered deer or any white-tailed deer
130	1	Oct. 15	Oct. 31	25	Limited quota	Antlered deer
130	6	Oct. 15	Dec. 31	25	Limited quota	Doe or fawn valid on private land within Sweetwater County
131		Oct. 1	Oct. 4		General	Antlered mule deer four (4) points or more on either antler or any white-tailed deer
138, 139, 140, 142	3	Oct. 1	Nov. 30	50	Limited quota	Any white-tailed deer
141, 162	1	Oct. 1	Oct. 21	100	Limited quota	Antlered deer
141, 162	1	Oct. 22	Oct. 31			Antlered deer on national forest
138, 139, 140, 142, 146, 151, 152, 153, 154, 155, 156		Sept. 15	Oct. 7		General	Antlered mule deer or any white-tailed deer
150		Sept. 15	Oct. 7		General	Antlered mule deer or any white-tailed deer
151, 152		Oct. 8	Oct. 31		General	Anterless white-tailed deer

**REGION H NON-RESIDENT QUOTA - 800 LICENSES**

**Summary of Changes in License Numbers**

Hunt Area	License Type	Quota Changes from 2015
130	6	-25
131	7	-50 (deleted license type)
<b>MD104 Totals</b>	<b>6,7</b>	<b>-75</b>

## **Management Evaluation**

**Current Postseason Population Management Objective:** 32,000

**Management Strategy:** Special

**2013 Postseason Population Estimate:** ~29,000

**2014 Proposed Postseason Population Estimate:** ~32,000

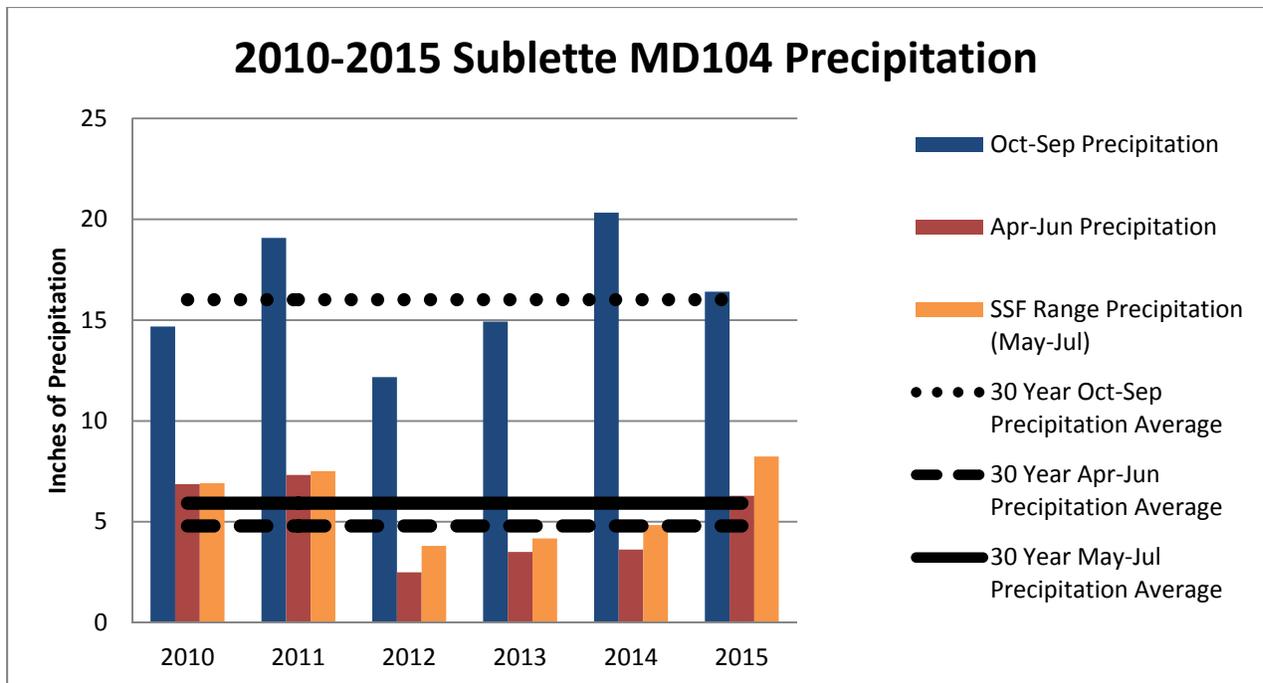
The Sublette Mule Deer Herd Unit is very large and contains habitat throughout Teton, Sublette, Lincoln and Sweetwater Counties. This deer herd contains 16 hunt areas (130, 131, 138-142, 146, 150-156, 162) and is managed under special status which mandates postseason buck:100 doe ratios that range between 30 to 45:100. With the recent findings of seasonal deer movements outside the Steamboat Herd Unit, managers consolidated the Sublette and Steamboat herd units into one, referred to as the Sublette Herd Unit (MD104). This recommendation to consolidate herd units (eliminating the Steamboat Herd Unit) was approved by the WYGF Commission in 2014. A population objective of 32,000 deer with a “special” management buck ratio objective of 30 to 45 bucks: 100 does, same as past objectives identified for the Sublette Herd, was also approved to provide future management direction for the Sublette Herd.

## **Herd Unit Issues**

Winter survival, habitat condition and quality on winter ranges, and habitat loss (direct and indirect) from gas and residential development are the primary issues the influencing population dynamics in this herd unit. During the past 10 years, this deer herd experienced two winters that resulted in above normal fawn mortality (> 50% loss). Most recently, the 2010-11 winter fawn mortality estimates exceed 70%. Winter fawn mortality averages around 30% on most years when winter severity is moderate to average. Current annual growth on key winter browse species has been poor in most years. Overall habitat conditions remain poor, but conditions have improved on certain years. Gas field development has and will continue to impact deer numbers within this herd unit. The Pinedale Anticline gas field development overlaps with crucial winter range located on the Mesa, where annual population estimates indicate deer numbers have declined by roughly 40% from 2001 – 2014. Studies have demonstrated that deer avoid areas with intensive winter gas development, resulting in less forage available for wintering deer within and adjacent to gas development.

## **Weather**

With the overall large size of this herd unit, weather conditions can be somewhat different by geographic area (i.e. Wyoming Range Mountains vs. Wind River Mountains vs. Gros Ventre Mountains). Of particular importance to this deer herd is shrub production on native winter ranges at lower elevations in the Upper Green River Basin. Late winter and spring precipitation (April to early June) is essential for good annual shrub production.



#### *Precipitation*

Overall precipitation from October 2014 through September 2015 was near average when averaged across the entire herd unit. The general characteristics included a relatively dry winter followed by above average summer precipitation. Fortunately, growing season (April through June) precipitation was above average which resulted in good vegetation production across all ranges.

#### *Winter Severity*

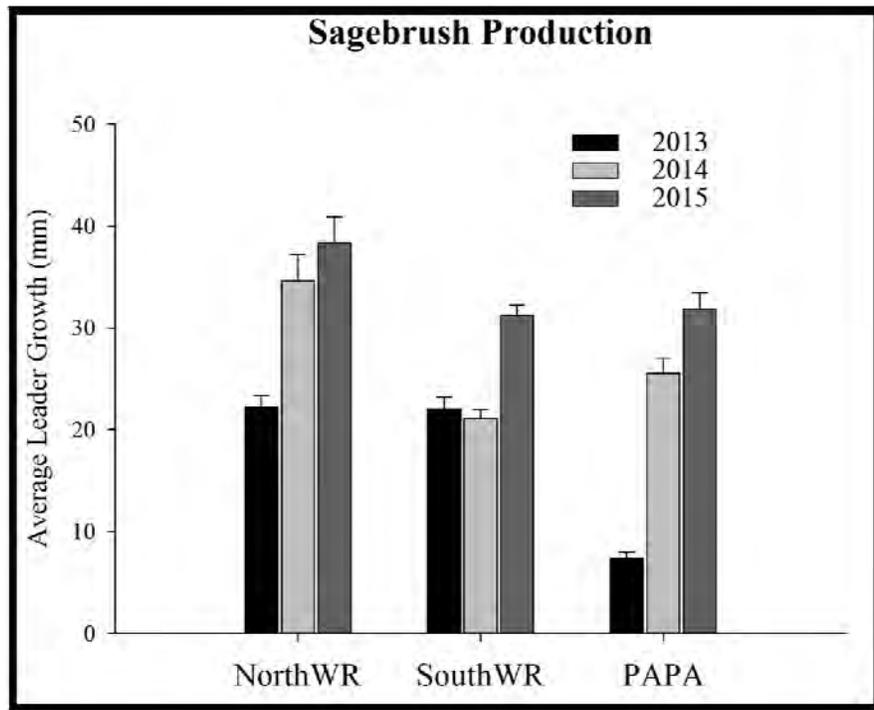
The 2015-2016 winter has been very mild with above average temperatures and below average snow on winter ranges. This will be the third winter in a row of good over-winter survival for fawns and adults which have helped build population numbers. High elevation mountain ranges have received snow levels closer to average. The Upper Green River Basin has 13 Snowtel locations that average 93% of normal as of March 9, 2016. However, it is worth noting that the two locations on the west slope of the Wind River Mountains are at 73 and 74% of normal and most of the winter range does not have data collection locations.

#### *Habitat, Monitoring, and Inventory*

Sagebrush and other shrubs produced excellent leader growth in 2015 which provided a good quantify of forage on winter ranges. High temperatures and little snowpack have allowed migrating wildlife to move off of crucial winter ranges earlier than normal in spring of 2016 and will likely result in grass and forb green-up earlier than most years.

Habitat treatments were conducted on several ranches in 2015 including Richie (Boulder area), James (Merna), Mountain King (Merna), and Rolling Thunder/Rim Ranch (near the Rim). These projects included aspen treatments, legume and mountain shrub planting, weed control and sagebrush thinning that occurred on transitional range for mule deer. Additionally, cheatgrass treatment was conducted in the Boulder area, along roadways in Sublette County, and near Hoback Junction. More information can be obtained by reading the Pinedale Region report in the 2015 Strategic Habitat Plan Annual Report. There were no significant wildfires in 2015 in this herd unit.

Winter range shrub transects were not monitored in 2015 by Department personnel, but 50 shrub transects were monitored on the Mesa winter range by University of Wyoming graduate student Samantha Dwinnell as part of her project with Dr. Kevin Monteith. Her data is represented below as North WR (LaBarge/Calpet), South WR (Cokeville-Kemmerer) and PAPA (Mesa).



In 2015, Department personnel initiated the Rapid Habitat Assessment methodology to survey important mule deer habitats. This method strives to capture large-scale habitat quality metrics to better understand how the habitat is providing for the current population of mule deer. The overall end result of this effort will be to provide a standardized habitat component to discussions about how mule deer objectives should or should not be adjusted based on the general concept of carrying capacity. This data will be summarized prior to the objective review in 2019 for this herd, incorporating 2015-2019 data at that time. In 2015, 120 Aspen and 8 Rangeland Assessments were completed throughout the herd unit by personnel in the Jackson and Pinedale Regions.

The Pinedale Region has several shrub monitoring sites where production and utilization data are collected. The primary shrubs available on winter ranges within this herd unit are mountain and Wyoming sagebrush and bitterbrush. Shrub utilization has varied by year as winter snow conditions (depth and crusting) appear to influence winter shrub use by location. The 2014-15 winter had below normal snow loads across all winter range complexes. Spring conditions in 2015 were above average, primarily due to a very wet month in May, resulting in very good plant production on winter and transitional ranges.

Please see the [2015 Annual Report Strategic Habitat Plan Accomplishments, Jackson and Pinedale Region sections](#) located on the WGF D website or at either the Jackson or Pinedale Game & Fish Regional Office for detailed summaries of habitat work within the Sublette Herd Unit. This Report also summarizes current research efforts to document deer body condition upon arrival and departure to and from winter habitats.

### **Field Data**

Postseason herd composition (classification) counts in early December 2015 totaled 9,932 deer. The number of deer counted incrementally increased over the number of deer counted during previous year's surveys ( 9,627 deer in 2014 and 8,259 in 2013 and 7,343 in 2012). Snow cover was spotty throughout all areas surveyed during 2015, with normal deer distribution occupying traditional winter habitats. Survey effort to conduct herd composition counts has remained similar during all years.

The postseason 2015 total buck:100 doe ratio of 43:100 increased compared to previous years and is meeting management goals for this herd unit. Yearling buck:100 doe ratios in 2015 increased to 16:100 indicating good fawn survival during the past year. Adult buck ratios vary annually based on yearling buck recruitment and buck harvest levels. With improved yearling buck ratios during the previous two years (2013 & 2014), the 2015 adult buck:doe ratio increased to 27:100.

The 2015 fawn: 100 doe ratio of 65:100 was slightly lower to that observed in 2014, and is just below the past 5-year average of 67:100. Good fawn production, along with winter survival are important for population growth and sustainability in this herd unit. Fawn production and recruitment through the winter has been sporadic in this herd and appears to influence population trend the most.

### **Harvest Data**

The 2015 harvest was approximately 2,000 deer (1,900 bucks and 100 does/fawns), higher than the reported 2014 harvest of approximately 1,500 total deer (1,400 bucks and 100 does/fawns), and 2013 harvest of 1,500 bucks and 50 does/fawn deer. In 2015 hunter numbers remained similar to 2014 at about 4,550, hunter success improved to 44% from 34%, and hunter effort declined to 12 days/harvest from 17 days/harvest reported during the 2014 hunting season. The hunting seasons in 2011-2015 were more conservative compared to previous years, as all doe/fawn harvest opportunities were eliminated (except for youth), season lengths were slightly shortened, and limited quota licenses (including non-resident quotas) were reduced. Harvest and hunter effort trends correlate well with estimated population trends. When this deer population declines, as in 2011, harvest trends decrease and hunter effort increases while the opposite trend

(increase harvest and reduced hunter effort) are apparent with a population increase. Harvest rates vary among hunt areas, as hunting pressure and harvest is highest in Hunt Areas 142, 152, and 154, partially attributed to higher deer densities and little to no wilderness area limitations for non-resident hunters.

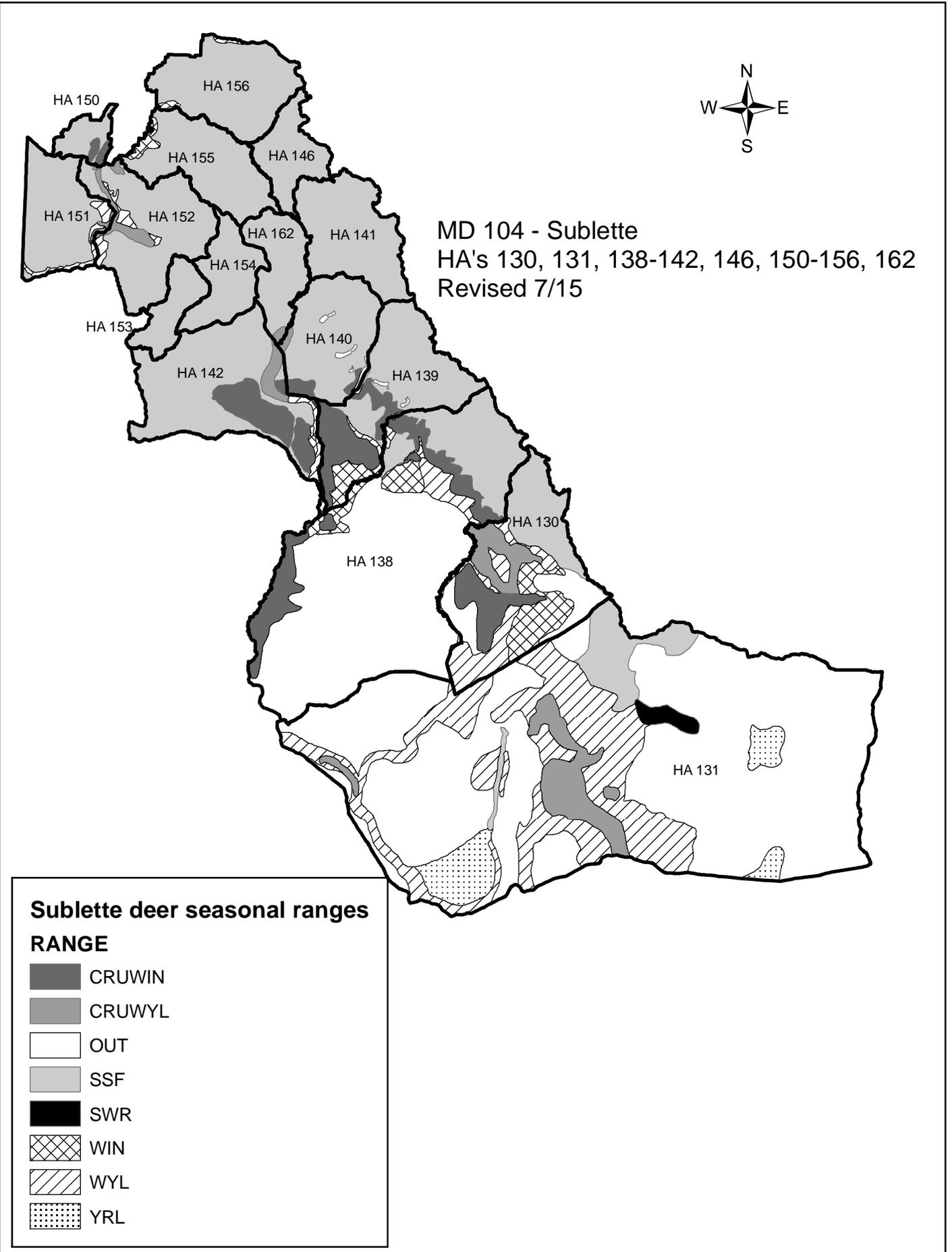
### **Population**

The WGFD changed modeling techniques for all of big game herd units in July, 2012. The new spreadsheet model designed by the Colorado Division of Wildlife uses harvest sex/age ratios, and survival data. With the consolidation of data from the Steamboat Herd (Hunt Area 131) with the Sublette Herd Unit data a new model was incorporated, resulting in a slightly higher 2013 postseason population estimate of roughly 1,700 more deer compared to the previous model. The Time-Specific Juvenile and Constant Adult Survival (TSJ,CA) Model exhibits the best overall fit compared to the other models (Fit = 93 and Relative AICc = 190) resulting in a 2015 postseason population estimate of approximately 29,000 deer . The TSJ,CA model appears to track male:female ratios very well and represent population trends quite well, although local managers feel that actual population estimates derived from this model are inflated above actual deer numbers in this herd. This 2015 population estimate is 9% below the desired objective of 32,000 for this herd unit.

### **Management Summary**

The combination of variable reproductive rates, fawn survival, natural gas development on the Mesa winter complex, and habitat conditions are the primary factors regulating population trends in the Sublette herd unit. The winter/spring losses (fawns and adults) during 2010-11 dropped this population to one of lowest levels ever documented. In addition to years with large winter die-off, other population setbacks have been common in this herd and are primarily attributed to poor fawn survival and poor forage conditions on winter ranges. Overall habitat conditions remain poor, but conditions have improved in recent years. Although the current management direction is for maximum population growth (no female harvest), female harvest will be necessary at some point in the future to offset degradation of crucial winter habitats and poor survival rates as this population increases. Population estimates indicate the population is roughly 9% below the objective of 32,000 and has shown continuous growth during the past four years, primarily attributed to good overwinter survival due to mild winters. Buck ratios are meeting herd goals (special status; 30-45 bucks:100 does) with trophy buck quality being maintained. Overall hunter satisfaction has been good within this herd in recent years.

A general license deer season for most hunt areas (except Areas 141/162) will open on September 15, antlered only, and close October 7. Doe/fawn harvest opportunities will be the same as in 2012-2015, as only youth hunters will be allowed to harvest doe/fawn deer in general seasons. There will be the same white-tailed deer season of 50 limited quota (Type 3) licenses valid for any white-tailed deer, October 1 – November 30 in Areas 138-140, and 142. Limited quota (Type 1) licenses in hunt areas 141 and 162 will remain the same at 100 licenses. Limited quota (Type 1) licenses in hunt area 130 will remain the same at 25 licenses with an October 15 to October 31 season. A total of 25 limited quota doe/fawn licenses (Type 6) in Area 130 are available to address damage concerns on private lands near Farson. The nonresident Region H quota remains the same at 800 licenses. The 2016 season is projected to harvest approximately 2,000 deer (1900 bucks, 100 doe/fawns) while allowing for population growth in this herd unit.



## 2015 - JCR Evaluation Form

SPECIES: Elk  
 HERD: EL104 - HOBACK  
 HUNT AREAS: 86-87

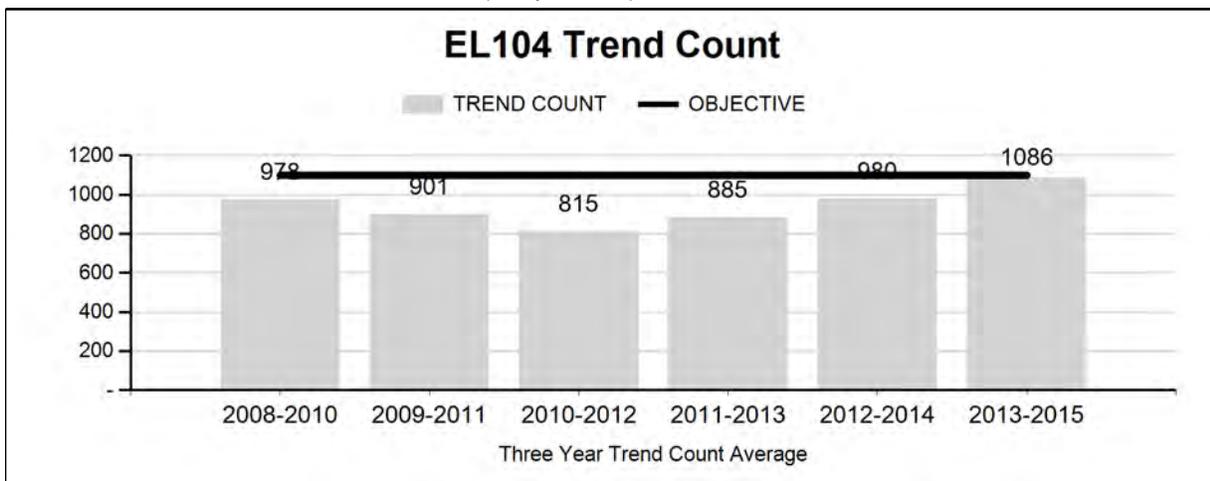
PERIOD: 6/1/2015 - 5/31/2016  
 PREPARED BY: DEAN CLAUSE

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Trend Count:	920	1,104	1,100
Harvest:	214	226	220
Hunters:	762	801	800
Hunter Success:	28%	28%	28%
Active Licenses:	767	807	800
Active License Success	28%	28%	28 %
Recreation Days:	5,250	5,710	5,650
Days Per Animal:	24.5	25.3	25.7
Males per 100 Females:	19	16	
Juveniles per 100 Females	32	27	

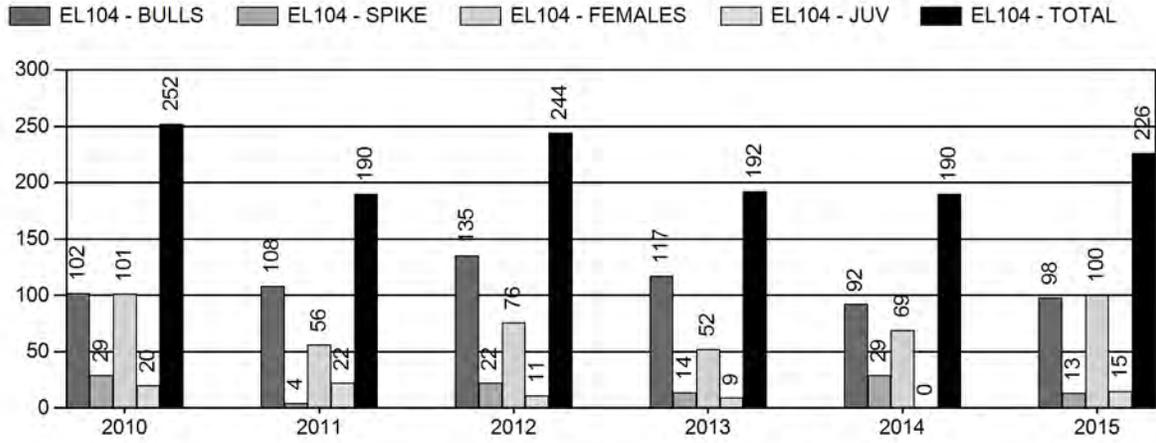
Trend Based Objective (± 20%) 1,100 (880 - 1320)  
 Management Strategy: Recreational  
 Percent population is above (+) or (-) objective: 0%  
 Number of years population has been + or - objective in recent trend: 0

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

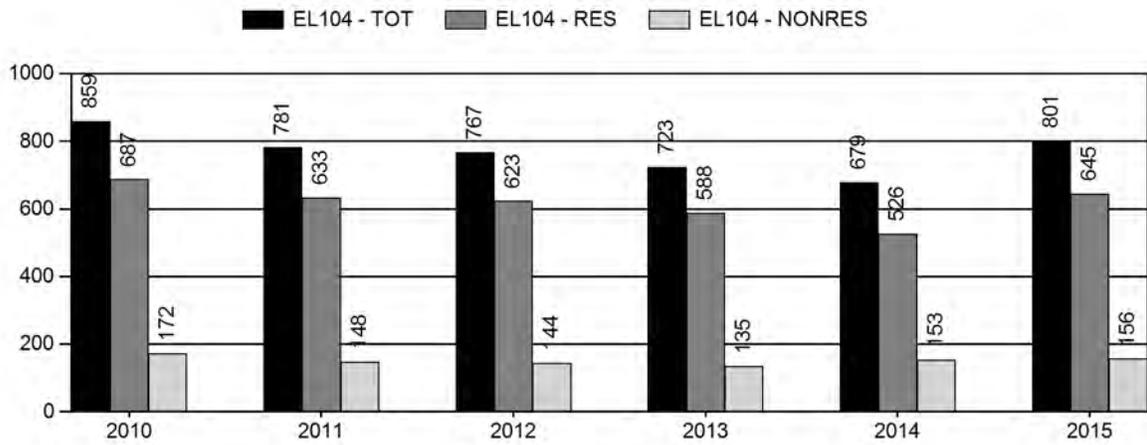
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



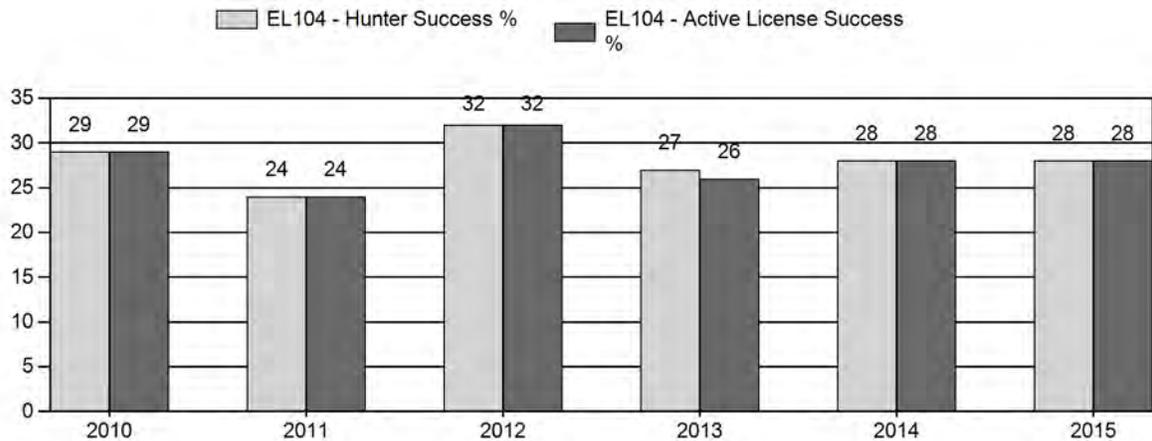
# Harvest



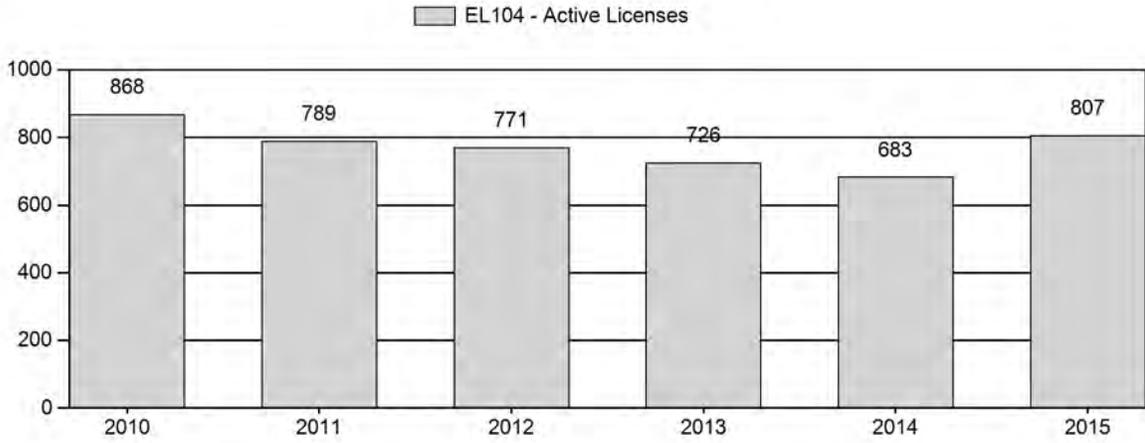
# Number of Hunters



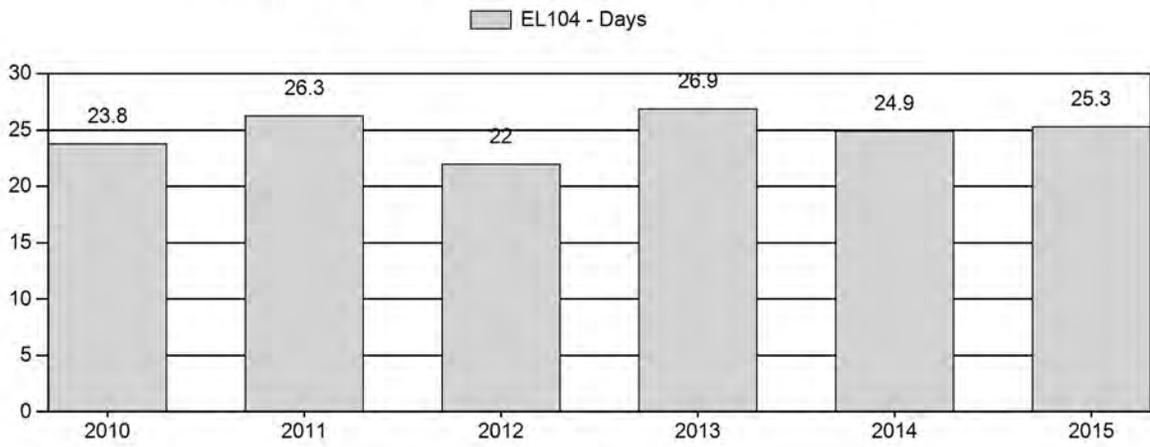
# Harvest Success



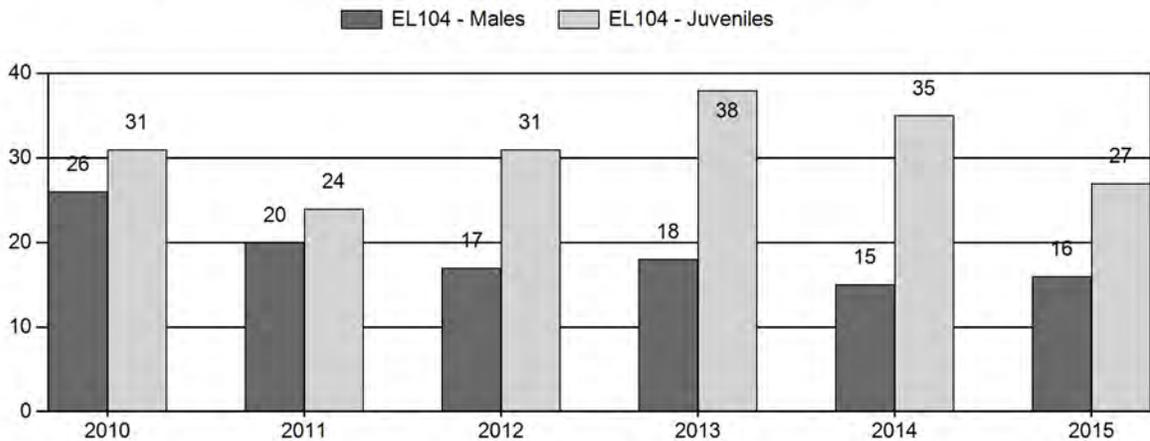
# Active Licenses



# Days per Animal Harvested



# Postseason Animals per 100 Females



**2010 - 2015 Postseason Classification Summary**

for Elk Herd EL104 - HOBACK

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	850	60	80	140	17%	533	64%	164	20%	837	281	11	15	26	± 0	31	± 0	24
2011	823	45	69	114	14%	573	70%	135	16%	822	204	8	12	20	± 0	24	± 0	20
2012	0	20	70	90	11%	533	68%	164	21%	787	264	4	13	17	± 0	31	± 0	26
2013	0	55	54	109	11%	617	64%	235	24%	961	349	9	9	18	± 0	38	± 0	32
2014	0	42	62	104	10%	689	66%	244	24%	1,037	325	6	9	15	± 0	35	± 0	31
2015	0	39	64	103	11%	640	70%	173	19%	916	291	6	10	16	± 0	27	± 0	23

**2016 Seasons – Hoback Elk Herd Unit (EL104)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
86		Sep. 26	Oct. 31		General	Any elk
86		Nov. 1	Nov. 15		General	Antlerless elk
87		Oct. 15	Oct. 31		General	Any elk valid south of U.S. Highway 191
87		Oct. 15	Oct. 21		General	Any elk valid north of U.S. Highway 191 -
87		Oct. 22	Oct. 31		General	Antlered elk valid north of U.S. Highway 191
87		Nov. 1	Nov. 6		General	Antlerless elk valid south of U.S. Highway 191
87	6	Dec. 1	Jan. 31	75	Limited quota	Cow or calf valid south and east of Dell Creek, north and east of U.S. Highway 191, and west of the North Fork of Fisherman Creek
<b>Archery Seasons</b>						
86		Sept. 1	Sept. 25			Refer to Section 3
87		Sept. 1	Sept. 30			Refer to Section 3

**Summary of Changes in License Numbers**

Area	Type	Changes from 2015
		No Changes
<b>EL104 Totals</b>		<b>No Changes</b>

## **Management Evaluation**

**Current Mid-Winter Trend Count Management Objective:** 1,100

**Management Strategy:** Recreational

**2014 Trend Count:** 1,104

**Most Recent 3-year Running Average Trend Count:** 1086

The Hoback Herd Unit encompasses approximately 341 square miles of occupied elk habitat almost entirely within Sublette County. Hunt Areas 86 (Monument Ridge) and 87 (Raspberry Ridge) make up the Hoback Herd Unit. This herd unit is managed under a mid-winter trend objective of 1,100 ( $\pm 20\%$ ) with a herd estimate derived from a 3-year trend count average on feedgrounds and native range combined. This herd is managed under “recreational” management.

## **Herd Unit Issues**

Managers believe a very high proportion ( $>90\%$ ) of elk are typically counted in this herd unit and are located on feedgrounds during the winter. This is an extremely “leaky” herd unit and as a result, a population model has not been successfully developed. Elk are annually documented moving into and out of this herd unit resulting in annual winter trend counts that can vary from year to year. In addition, the Dell Creek feedground has struggled to maintain elk numbers near the winter quota of 400 elk. Low elk numbers at Dell Creek feedground can partially be attributed to the close proximity of this feedground to the Fall Creek herd unit where more liberal elk harvest strategies occur. Elk depredation on private land haystacks and cattle feed lines north of Hwy 191 continue to be a problem in most winters.

## **Weather**

Elk in this herd unit experience the coldest winter temperatures compared to all others herd units in western Wyoming. These climatic conditions likely result in higher feedground dependence by elk, even on low snow years. Heavy snow loads typically make native forage unavailable on most winters.

## **Habitat**

Diverse spring, summer and fall habitats from low elevation willow bottoms and sagebrush/grasslands, to aspen and mixed conifer, to high elevation tall forb, white-bark pine, and alpine habitat make this herd unit rich for a wide array of wildlife. Due to the heavy snow accumulations and cold temperatures during winter, over 90% of the elk rely on supplemental feeding (feedgrounds) within this herd unit. Therefore winter and other seasonal habitats do not limit population growth in this herd.

## **Field Data**

The 2015 postseason trend count of 1,104 elk observed on Department-operated elk feedgrounds and native winter ranges, showed an increase compared to the low trend counts from 2010-2012

(Table 1). Very few elk (n=81) were counted away from established feedgrounds in Areas 86 and 87, which is typical for this herd unit due to climatic conditions. Snow conditions were below normal this past winter (2014-15). Over 90% of the documented elk numbers were from feedground locations.

Table 1. Herd Composition Counts in the Hoback Herd Unit, 2006-2015

<b>Location</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Dell Creek F.G.	297	311	345	298	228	205	171	242	294	330
McNeel F.G.	598	591	687	701	596	613	544	706	728	693
N.W.R.	<u>67</u>	<u>38</u>	<u>23</u>	<u>44</u>	<u>13</u>	<u>4</u>	<u>72</u>	<u>99</u>	<u>85</u>	<u>81</u>
<b>Herd Unit Total</b>	<b>962</b>	<b>940</b>	<b>1055</b>	<b>1043</b>	<b>837</b>	<b>822</b>	<b>787</b>	<b>1047</b>	<b>1107</b>	<b>1104</b>

The 2015 postseason ratios of 16 bulls:100 cows:27 calves, shows a decrease in both the bull ratio calf ratio compared to the 5-year average bull:cow:calf ratios of 19:100:32. The 2015 bull:cow ratio is at the low end for the management goals for this herd unit.

### **Harvest Data**

Additional antlerless harvest opportunities were available from 2008 through 2011 in Area 86 and the southern portions of Area 87, and then re-instated back during the 2015 season. Liberal seasons were designed to help reduce elk numbers from surrounding herd units, as many of these animals move into the Hoback during the spring/summer/fall period. The 2015 harvest survey indicated a total harvest of approximately 230 elk (115 bulls and 115 cows/calves). This is an increase over the 2014 harvest and likely due to higher antlerless harvest in Area 86 and the south portion of Area 87. Hunter success was 28% and days/harvest was 25, same as the 5-year average.

### **Population**

Starting in 2012, a mid-winter trend count was used to manage this herd unit instead of hand-derived population model estimates. This is an extremely “leaky” herd unit and as a result, a functional computer simulation model has never been developed. The post hunt population trend objective for this herd is 1,100 elk ( $\pm 20\%$ ). The 2013-2015 mid-winter 3-year trend count average is 1086 elk, which is right at the management goal for this herd objective.

### **Management Summary**

The Hoback Herd Unit is extremely “leaky” in regards to elk moving in and out of the herd on a seasonal basis. Fluctuations of up to 260 animals between annual winter counts are common. Radio collared (GPS) elk and harvest data from elk tagged at Franz (located in the Piney herd unit), McNeel, and Dell Creek feedgrounds have documented animal movements between herd units. Ear tag data has documented 29% to 43% harvest outside the herd unit where those elk were tagged. Radio collared elk movements outside the herd units from where the animals were initially collared are as follows; McNeel at 0%, Dell Creek at 63%, and Franz at 89%.

Since 2008, hunting seasons were designed to increase harvest on antlerless within the Hoback herd unit as well as surrounding herd units. In 2012 seasons were changed to reduce female harvest in response to low elk numbers during the winter of 2011-2012. Additional harvest opportunities were provided in 2015 as elk numbers approached objective levels. Currently, adequate bull:cow:calf ratios are being maintained. The most recent mid-winter 3-year trend average was 1,086 elk places the population at the objective of 1,100 elk for this herd. Elk numbers have continued to increase at the Dell Creek Feedground since female harvest has not been allowed in that portion of Area 87 for several years. Additional mortalities estimated near 100 elk were documented on or near feedgrounds within this herd unit during the 2015-16 winter due to wolf depredations. Wolf caused elk mortalities during the winter has never been documented problem within this herd unit and will likely result in lower elk numbers in the coming year. If wolf caused mortalities continue in upcoming years, as experienced in 2015, hunter harvest opportunities may need to be reduced to maintain population objectives in this herd unit.

The 2016 hunting seasons for this herd unit will provide a similar season for bull harvest and a shortened season for female and calf harvest in most of the herd unit compared to 2015. The general license season north of U.S. Highway 191 in Area 87 will be one week (Oct. 15 – Oct 21) of “any” elk hunting followed by one week (Oct. 22 – Oct. 31) of “antlered” elk. The general license season for Area 87 south of U.S. Highway 191 is “any” elk from Oct. 15 – Oct. 31 followed by a Nov. 1 – Nov. 6 season for antlerless elk. A total of 75 limited quota Type 6 (cow/calf) licenses will again be available in a portion of Area 87, valid from Dec. 1 – Jan. 31, in an effort to reduce damage to privately stored hay crops. The 2016 season in Area 86 offers general license, “any” elk hunting from September 26 through October 31, with additional harvest opportunities for antlerless elk available from Nov. 1 – Nov. 15. The 2016 hunting seasons are projected to harvest approximately 220 elk (110 bulls, 110 cows/calves).

**Brucellosis Management**

*Brucellosis Surveillance/Research*

One hundred and six elk were captured at Dell Creek feedground on February 6<sup>th</sup>, 2016 (Table 1). Blood samples from 49 yearling and older females were collected to determine brucellosis seroprevalence, and to establish the base-rate of polymorphisms in the prion protein gene associated with susceptibility and progression of chronic wasting disease infection. Preliminary brucellosis seroprevalence was 35% (17/49) in 2016. From 1998-2015, the total seroprevalence at Dell Creek was 38% (259/674). No elk were captured at McNeel in 2016, but total seroprevalence there from 1997-2015 was 27% (12/44).

Table 1. Age, sex, ear tag, and collar information of elk captured and processed at Dell Creek Feedground, 2016.

<u>AGE CLASS</u>	<u>SEX</u>	<u>EAR TAGS</u>	<u>COLLAR</u>
Yearling	Female	DL0801/0802	Y2
Yearling	Female	DL0845/0846	H9

Yearling	Female	DL0849/0850	Z3
Yearling	Female	DL0880/0881	W9
Yearling	Female	DL0972/0973	H4
Yearling	Female	DL0979/0980	W3
Yearling	Female	DL1042/1043	Z9
Yearling	Female	DL1068/1069	X5
Yearling	Female	DL1233/1234	Y7
Yearling	Female	DL1252/1253	W7
Yearling	Female	DL1265/1266	Y6
2-5	Female	DL0584/0585	H3
2-5	Female	DL0595/1097	W2
2-5	Female	DL0649/0650	H6
2-5	Female	DL0691/0692	W5
2-5	Female	DL0745/0746	H7
2-5	Female	DL0776/1065	X3
2-5	Female	DL0831/0832	Z2
2-5	Female	DL0858/0859	Y5
2-5	Female	DL0943/1210	Y1
2-5	Female	DL1000/1001	H2
2-5	Female	DL1016/1017	X9
2-5	Female	DL1044/1045	W0
2-5	Female	DL1046/1047	W1
2-5	Female	DL1050/1251	X8
2-5	Female	DL1074/1075	W6
2-5	Female	DL1084/1085	Z5
2-5	Female	DL1090/1091	X0
2-5	Female	DL1206/1207	W8
6-9	Female	C0683/DL0528	Z4
6-9	Female	DL0164/0492	Y0
6-9	Female	DL0215/1096	X6
6-9	Female	DL0356/0358	Y4
6-9	Female	DL0441/1018	X7
6-9	Female	DL0455/0456	X1
6-9	Female	DL0461/0462	Z1
6-9	Female	DL0480/0481	Z0
6-9	Female	DL0586/0587	X2
6-9	Female	DL0661/1264	W4
6-9	Female	DL0710/0767	Y3
6-9	Female	DL0822/0823	X4
6-9	Female	DL0974/0975	Z8
6-9	Female	DL1006/1007	Z6
6-9	Female	DL1028/1029	H8
>=10	Female	C0615/0616	H0
>=10	Female	C0780/0781	H1
>=10	Female	C1745/1748	Z7

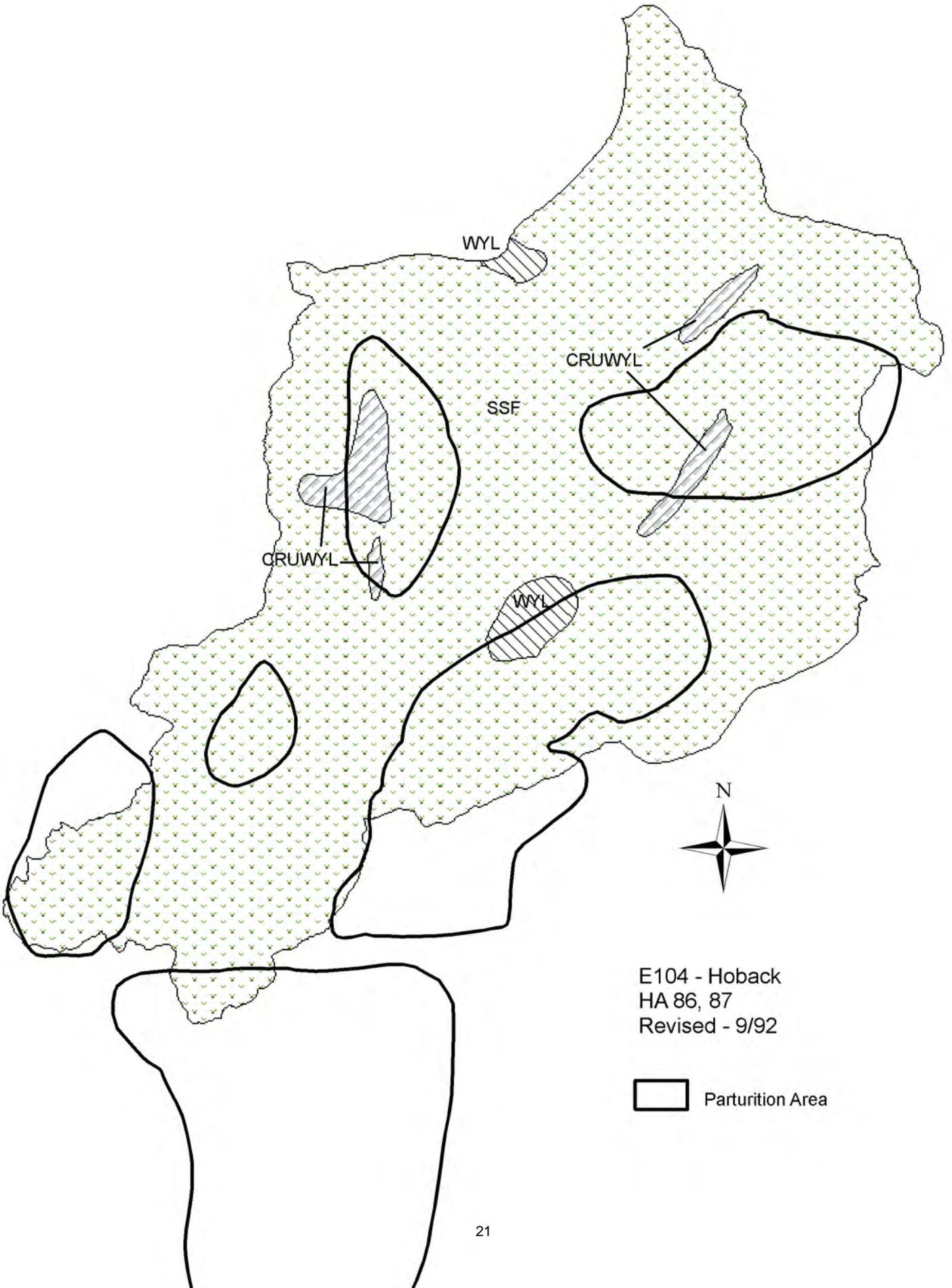
>=10	Female	C1979/1980	H5
>=10	Female	DL0278/0279	U1
Juvenile	Female	DL1002/1003	
Juvenile	Female	DL1004/1005	
Juvenile	Female	DL1010/1011	
Juvenile	Female	DL1021/1022	
Juvenile	Female	DL1023/1024	
Juvenile	Female	DL1026/1027	
Juvenile	Female	DL1034/1035	
Juvenile	Female	DL1036/1037	
Juvenile	Female	DL1051/1052	
Juvenile	Female	DL1057/1058	
Juvenile	Female	DL1061/1062	
Juvenile	Female	DL1078/1079	
Juvenile	Female	DL1080/1081	
Juvenile	Female	DL1088/1089	
Juvenile	Female	DL1092/1093	
Juvenile	Female	DL1204/1205	
Juvenile	Female	DL1211/1212	
Juvenile	Female	DL1215/1216	
Juvenile	Female	DL1235/1236	
Juvenile	Female	DL1260/1261	
Juvenile	Female	DL1267/1268	
Juvenile	Female	DL1276/1277	
Yearling	Male	C0877/0878	
Yearling	Male	DL0931/1232	
Yearling	Male	DL1070/1071	
Yearling	Male	DL1076/1077	
Juvenile	Male	DL1008/1009	
Juvenile	Male	DL1012/1013	
Juvenile	Male	DL1014/1015	
Juvenile	Male	DL1019/1020	
Juvenile	Male	DL1030/1031	
Juvenile	Male	DL1032/1033	
Juvenile	Male	DL1038/1039	
Juvenile	Male	DL1040/1041	
Juvenile	Male	DL1048/1049	
Juvenile	Male	DL1053/1054	
Juvenile	Male	DL1055/1056	
Juvenile	Male	DL1059/1060	
Juvenile	Male	DL1063/1064	
Juvenile	Male	DL1066/1067	
Juvenile	Male	DL1072/1073	
Juvenile	Male	DL1082/1083	
Juvenile	Male	DL1086/1087	

Juvenile	Male	DL1094/1095
Juvenile	Male	DL1098/1099
Juvenile	Male	DL1100/1201
Juvenile	Male	DL1202/1203
Juvenile	Male	DL1208/1209
Juvenile	Male	DL1213/1214
Juvenile	Male	DL1227
Juvenile	Male	DL1229/1230
Juvenile	Male	DL1254/1255
Juvenile	Male	DL1256/1257
Juvenile	Male	DL1258/1259
Juvenile	Male	DL1262/1263
Juvenile	Male	DL1269/1270

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*Target Feedground Management*

*Brucella abortus* strain 19 ballistic elk vaccination was discontinued this year due to a lack of efficacy observed over the course of the 30-year effort, and the inability to procure the necessary vaccination supplies due to the sole provider closing its manufacturing facility. Thus, the primary brucellosis management tools now employed are low-density (LD) feeding and early end-date of feeding on select, target feedgrounds where a high opportunity exists to conduct these measures (i.e., large feeding areas and long distance away from cattle operations). LD feeding is conducted at McNeel feedground only in this elk herd, and both McNeel and Dell Creek feedgrounds are not sites chosen for early end-feeding date management due to close proximity of private lands and wintering cattle. Brucellosis program personnel discussed the rationale and strategies for conducting LD feeding with feedground personnel and the elk feeder at McNeel, and assisted with feeding and breaking feedrows at the feedground, where LD feeding was well executed throughout the feeding season after the beginning of February (beginning of abortion period).



E104 - Hoback  
HA 86, 87  
Revised - 9/92

 Parturition Area



## 2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL106 - PINEY

HUNT AREAS: 92, 94

PREPARED BY: GARY FRALICK

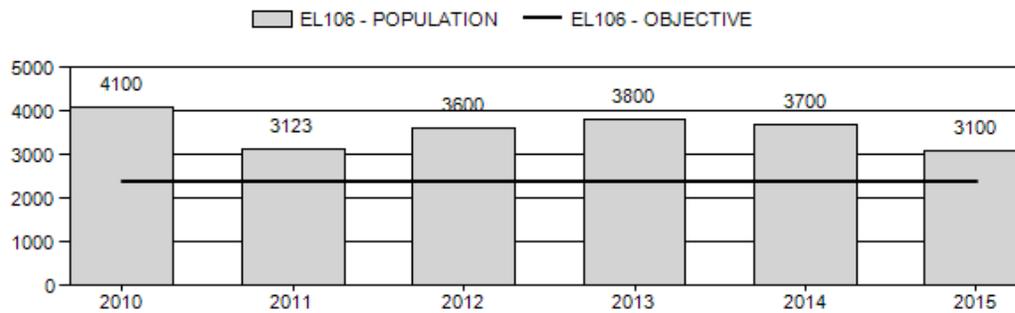
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	3,665	3,100	2,400
Harvest:	1,022	1,000	1,085
Hunters:	3,185	3,384	3,415
Hunter Success:	32%	30%	32%
Active Licenses:	3,339	3,549	3,415
Active License Success:	31%	28%	32%
Recreation Days:	27,626	28,786	29,071
Days Per Animal:	27.0	28.8	26.8
Males per 100 Females	37	35	
Juveniles per 100 Females	34	31	

Population Objective ( $\pm$ 20%) :	2400 (1920 - 2880)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	29%
Number of years population has been + or - objective in recent trend:	11
Model Date:	2/23/2016

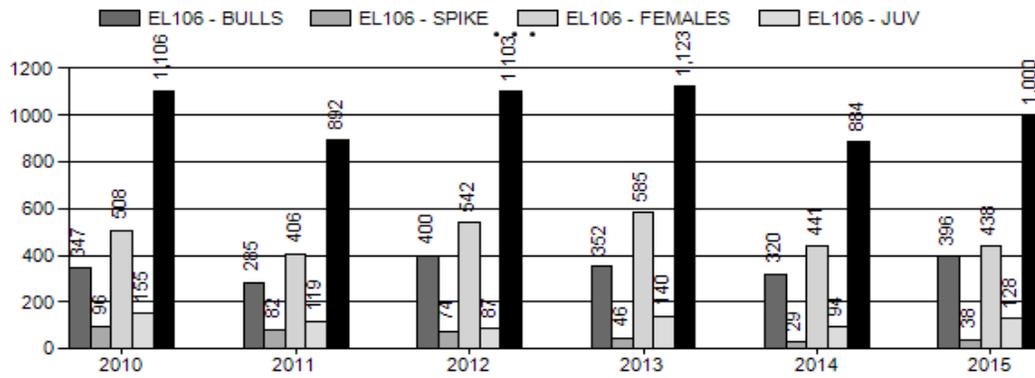
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	21%	28%
Males $\geq$ 1 year old:	35%	43%
Juveniles (< 1 year old):	21%	25%
Total:	26%	32%
Proposed change in post-season population:	-15%	-22%

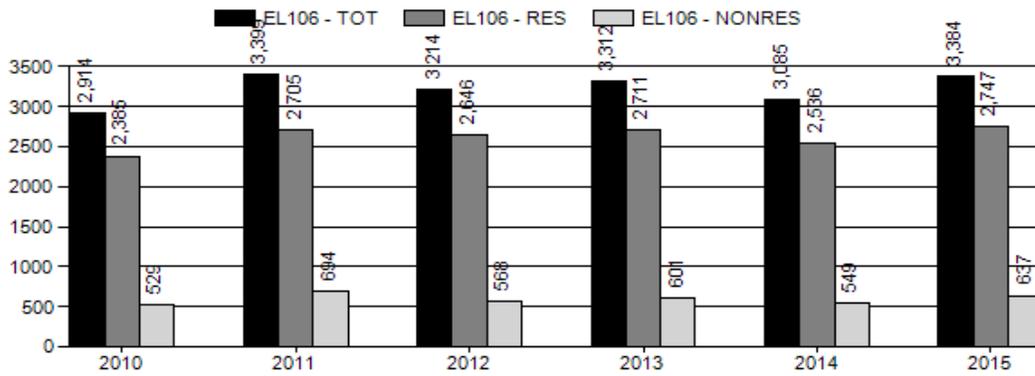
## Population Size - Postseason



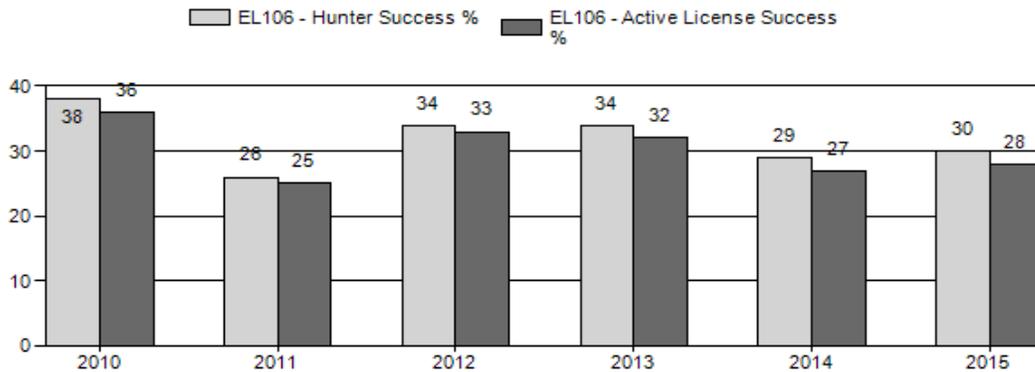
## Harvest



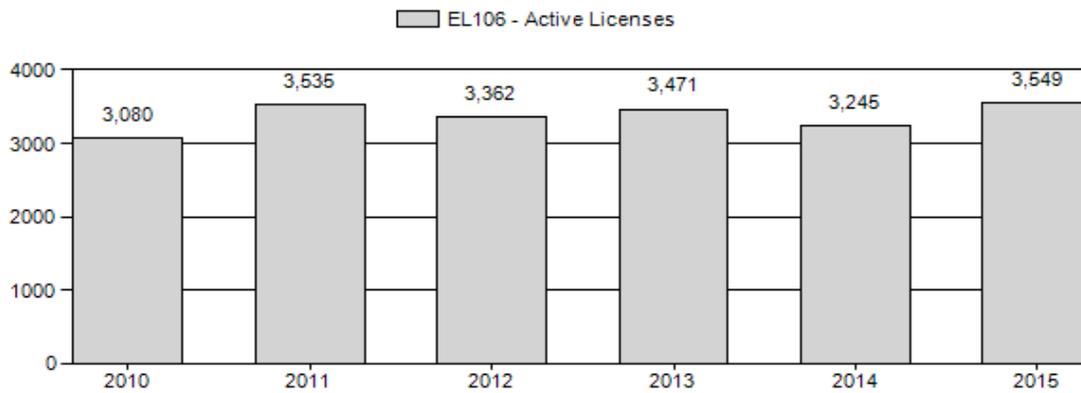
## Number of Hunters



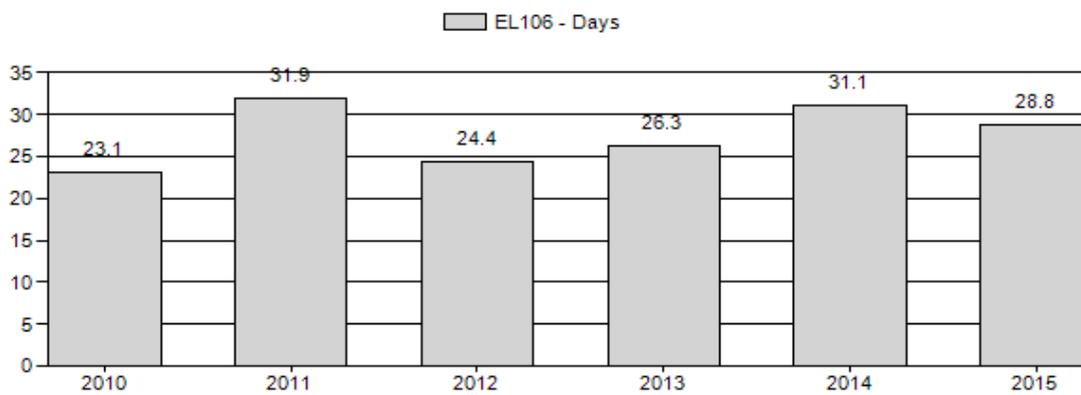
## Harvest Success



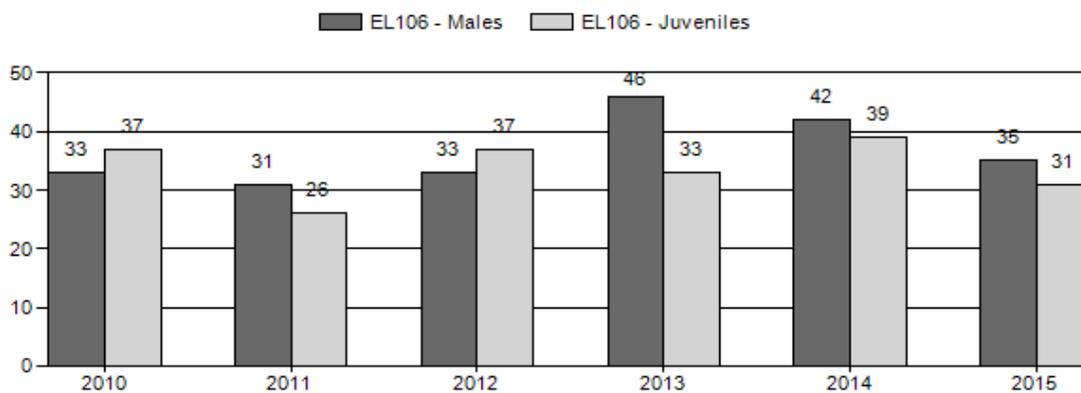
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Elk Herd EL106 - PINEY

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Int	Conf 100 Fem	Int	Conf 100 Adult
2010	4,100	199	357	556	19%	1,683	59%	621	22%	2,860	387	12	21	33	± 1	37	± 1	28
2011	3,123	217	302	519	20%	1,660	64%	425	16%	2,604	369	13	18	31	± 1	26	± 1	20
2012	3,600	261	306	567	19%	1,705	59%	639	22%	2,911	454	15	18	33	± 1	37	± 1	28
2013	3,800	240	380	620	26%	1,337	56%	443	18%	2,400	613	18	28	46	± 2	33	± 1	23
2014	3,700	157	458	615	23%	1,476	55%	579	22%	2,670	595	11	31	42	± 1	39	± 1	28
2015	3,100	152	297	449	21%	1,273	60%	396	19%	2,118	524	12	23	35	± 1	31	± 1	23

2016 HUNTING SEASONS  
PINEY ELK HERD UNIT (EL106)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
92		Oct. 15	Oct. 31		General	Any elk
		Nov. 1	Nov. 10			Antlerless elk
	6	Oct. 1	Nov. 23	300	Limited quota	Cow or calf
	6	Nov. 24	Jan. 31			Cow or Calf valid off national forest east of Sublette County Roads 115, 116, and 117 and south of the North Beaver Road
94		Oct. 15	Oct. 31		General	Any elk
		Nov. 1	Nov. 10			Antlerless elk
	6	Oct. 1	Nov. 23	300	Limited quota	Cow or calf
	6	Dec. 1	Jan. 31			Cow or calf valid on the Big Piney Hunter Management Area (HMA permission slip required)
	7	Nov. 1	Nov. 30	100	Limited quota	Cow or calf valid north of Middle Piney Creek
	7	Dec. 1	Jan. 31			Cow or calf valid on the Big Piney Hunter Management Area (HMA permission slip required)
92		Sep. 1	Sep. 30			Archery only – SEE SECTION 4
94		Sep. 1	Sep. 30			Archery only – SEE SECTION 4

SUMMARY OF PROPOSED CHANGES BY LICENSE NUMBER

Area	License Type	Change from 2015
92	Limited Quota 6	Decrease Type 6 licenses from 500 to 300
92	General	Shorten season 13 days
94	Limited Quota 6	Decrease Type 6 licenses from 450 to 300
94	General	Shorten season 13 days
Herd Unit Total	Net Change	- 350 licenses

**Management Evaluation**

**Current Postseason Population Management Objective: 2,400**

**Management Strategy: Recreational**

**2015 Postseason Population Estimate: ~3,100**

**2016 Proposed Postseason Population Estimate: ~2,400**

The population objective for Piney elk herd is 2400 elk. The management strategy is recreational management. The objective and management strategy was revised in 2011. The current population estimate is 3100 elk.

**Herd Unit Issues**

Since 2005 sustained population reduction has been difficult to achieve. Hunting opportunities are some of the most liberal in western Wyoming. Management strategies have emphasized hunter opportunity by promoting antlerless elk harvest with November hunting seasons and issuance of limited quota cow/calf only licenses. While both hunt areas continue to support winter elk numbers at or above Commission-established feedground quotas, Area 94, and specifically the Bench Corral feedground that has supported the highest increase in elk.

**Weather**

Weather conditions during the 2015 were ideal for forage production beginning in early spring and continuing through fall. By late summer the moisture regime had changed frequent precipitation scenario that persisted into the fall hunting season. Drought conditions in the early portion of the summer abated by late fall as persistent snow storms began to deposit snowpack in the Wyoming and Salt Mountain Ranges. By mid winter snow conditions on winter ranges had changed significantly. Little to no snow had accumulated on core winter ranges. These conditions persisted throughout the remainder of the winter. By late winter 2016 snowpack in western Wyoming watersheds were estimated to be at or slightly below normal. For additional weather and precipitation data please visit the following websites:

<http://www.ncdc.noaa.gov/temp-and-precip/time-series> and  
<http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html>.

## Habitat

Winter range browse plants have been measured each spring and fall to assess production and utilization since the late 1990s. Growing conditions improved in 2015 on winter ranges because of moisture regimes in early spring and throughout the growing seasons. Improved growing conditions were due to spring and summer rains which have a different effect on shrubs than winter snowpack due to rates of infiltration. Leader production on Wyoming big sagebrush and black sagebrush were the species most notably improved compared to the 2013 leader growth. However, average leader growth was still less than a half inch for Wyoming big sagebrush sites and less than two inches for mountain shrubs. For additional site specific information, please refer to the 2015 Annual Report Strategic Habitat Plan Accomplishments, for the Pinedale Region habitat improvement project summaries (<http://wgfd.wyo.gov/web2011/wildlife-1000708.aspx>).

## Field Data

Since 2005, sustained population reduction has been difficult to achieve. Management strategies have emphasized the harvest of antlerless elk with November hunting seasons and issuance of limited quota cow/calf licenses. Area 94, and specifically the Bench Corral feedground, has supported the highest increase in elk. Consequently, hunting opportunities, especially for antlerless elk in Area 94 where trend counts continue to remain high, will continue to be liberal in order to affect the desired population reduction. Limited quota Type 6 cow/calf licenses will focus on the antlerless segment of the population since these license holders typically account for at least 35% of the antlerless harvest in the herd unit. Limited quota Type 7 cow/calf licenses are designed to harvest elk that migrate to the Bench Corral feedground.

## Harvest Data

Hunter success was estimated at 29% and 30% in 2014 and 2015, respectively. A total of 884 elk were taken in 2014, while 1000 elk were harvested in 2015. The increase in harvest accounted for the slight decline in the population. The increase in harvest during the current year was observed primarily in the antlered segment of the herd. In 2015 a total of 434 antlered elk were estimated to have been harvested. The number of bulls taken in 2014 was 349 bulls.

There was no substantial increase in cow elk harvest between the years of 2014 and 2015. In each year approximately 441 and 438 cows were harvested, respectively. However, the 2015 cow harvest was sufficiently high to maintain the declining trend in the population following the current hunt season. Further, a slight increase in calf elk harvest in 2015 also contributed to the decline in the number of elk counted and estimated in the posthunt population. In 2014, a total of 94 calves were taken, while in 2015 an estimated 128 calf elk were harvested by hunters in this herd.

Hunter success was estimated at 30% in 2015. General license hunters accounted for 59% of the total elk harvest, and 64% of the total antlerless harvest. Limited quota Type 6 and 7 license holders accounted for 36% of the total antlerless elk harvest. The majority of this harvest likely

occurred in late October and through November, and affirms the management strategy to promote antlerless harvest when elk are more likely to be present at lower elevation and accessible to hunters. Antlerless harvest over the last 5 years has resulted in the anticipated downturn in the total number of elk counted during the annual trend count. However, antlerless hunting is an essential component of the elk management strategy and will continue to manage the reproductive segment of the population and emphasize cow harvest with limited quota licenses holders during the months of October and November. The management goal of maintaining the postseason bull: cow ratios of at least 20 bulls:100 cows have been achieved.

## Population

The population trend is decreasing, but only slightly. The “Constant Juvenile and Adult Survival – CJ,CA Model” spreadsheet model was chosen for the post season population estimate. This model provides the best model alignment with low AICc value of 380 and fit of 389. This model also tracks reasonably with observed bull:cow ratios, bull harvest percentages, and annual population dynamics.

## Management Summary

The 2016 hunting seasons are designed to reduce the Piney elk toward the objective of 2400 elk, but at a slightly lower rate. The emphasis to harvest adult female elk in both hunt areas will continue for the 9<sup>th</sup> consecutive year by opening the limited quota antlerless elk hunting on October 1. The number of days for the November portion of the antlerless elk hunting season will be shortened to November 10 for general license hunters due to concerns raised by the public. The number of Type 6 and 7 licenses will be reduced in 2016 to account for the population approaching the objective. As a result, the number of limited quota Type 6 licenses available since 2015 will decrease from 950 to remain at 600 additional cow/calf licenses. A total of 300 Type 6 licenses will be issued in Hunt Areas 92 and 94, respectively. The number of Type 7 licenses will remain at 100 licenses.

A substantial change first initiated in 2014, and implemented in 2015, that focuses harvest on antlerless elk north of Middle Piney Creek will be continued in 2016. Limited quota Type 7 cow/calf only licenses will be valid north of Middle Piney Creek from November 1 – 30. This hunt is designed to focus harvest on that segment of the population that spends the winter on the Bench Corral feedground. For the 4<sup>nd</sup> consecutive year, hunters will be permitted to harvest up to three elk in this herd.

The 2016 hunting seasons are projected to harvest approximately 1100 elk. The 2016 posthunt population estimate will be approximately 2400 elk.

## BRUCELLOSIS MANAGEMENT (E106) – 2015

### BRUCELLOSIS SURVEILLANCE/RESEARCH

During February 2016, three adult female elk were captured on two feedgrounds in the Piney herd to remove a GPS collar that did not drop at Bench Corral (ear tags BC0002/0003), and to deploy GPS collars and vaginal implant transmitters on elk at Finnegan feedground (ear tags FN0189/190 and FN0277/278). Brucellosis serologic results are not yet available for these animals. Brucellosis seroprevalence of elk captured from all feedgrounds in the Piney elk herd from 1985-2015 averaged 29% (123/427), with prevalence at Franz, Bench Corral, Finnegan, Jewett, and North Piney feedgrounds totaling 44% (48/108), 19% (11/59), 20% (17/85), 29% (39/133), and 19% (8/42), respectively.

### TARGET FEEDGROUND MANAGEMENT

*Brucella abortus* strain 19 ballistic elk vaccination was discontinued this year due to a lack of efficacy observed over the course of the 30-year effort, and the inability to procure the necessary vaccination supplies due to the sole provider closing its manufacturing facility. Thus, the primary brucellosis management tools now employed are low-density (LD) feeding and early end-date of feeding on select, target feedgrounds where a high opportunity exists to conduct these measures (i.e., large feeding areas and long distance away from cattle operations). Brucellosis program personnel discussed the rationale and strategies for conducting LD feeding with feedground personnel and elk feeders, and assisted with feeding and breaking feedrows at Bench Corral, Franz, and Jewett feedgrounds where LD feeding was well executed throughout the feeding season after 1 February (beginning of abortion period).

Low snow conditions and consistent melt off through mid-February resulted in managers successfully ending feeding on 22 February at Bench Corral feedground (Figure XA). Hay rations were tapered off for about a week to encourage elk to leave the feedground and utilize adjacent native forage, and elk were monitored periodically after feeding ended via visual observations and telemetry to assure elk were distributed desirably. Despite two storms in mid-late March that produced up to 12” of snow (Figure 1) around the feedground, feeding did not resume and elk remained on native ranges adjacent to the feedground and did not cause damage on adjacent private lands or co-mingle with cattle.

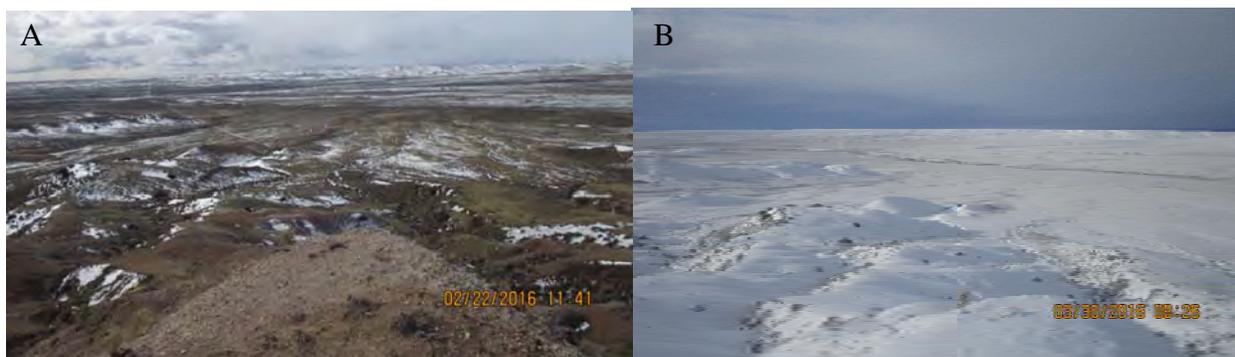
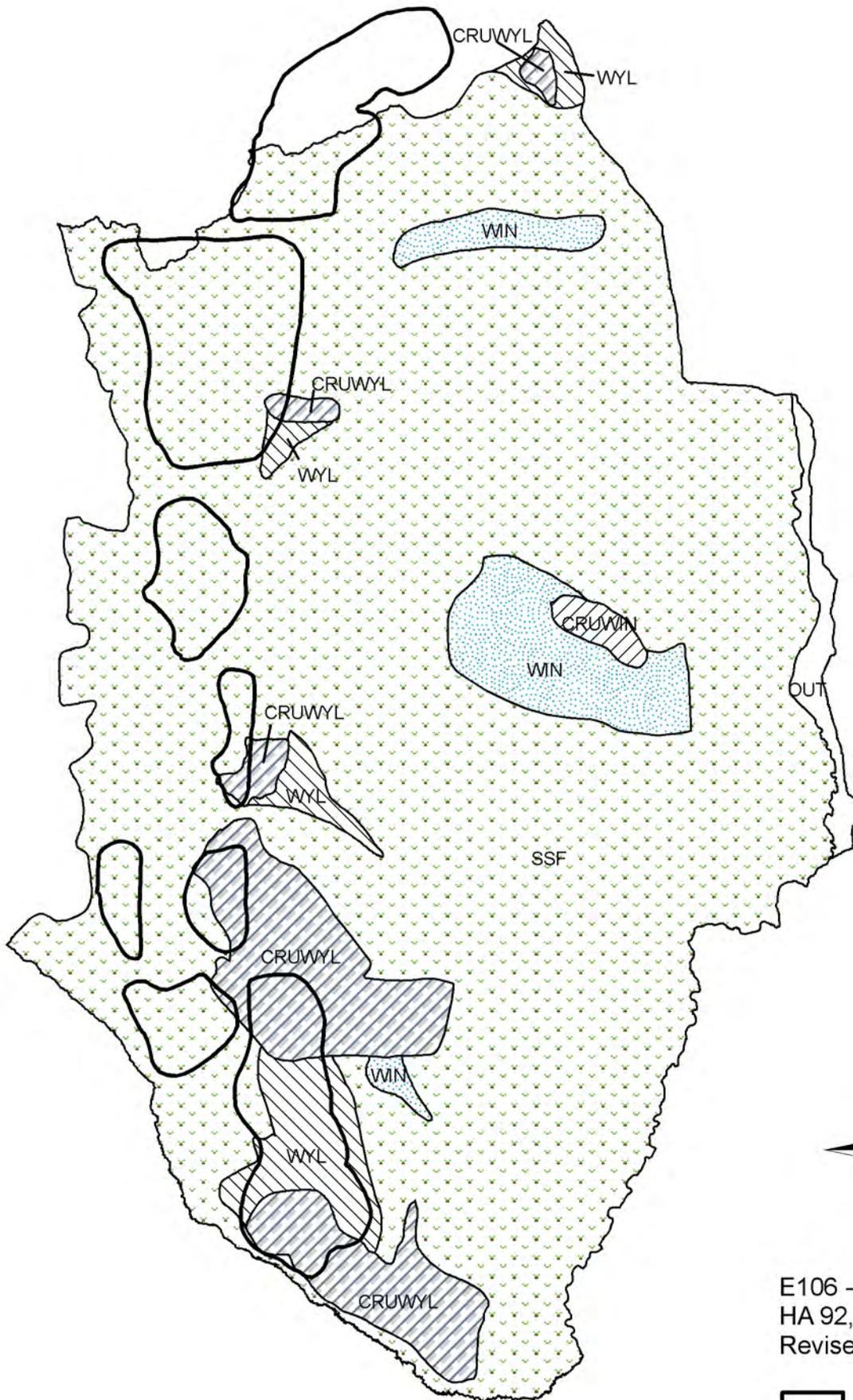


Figure 1. Snow conditions near the Bench Corral feedground on the last day of feeding in 2016 (A), and 5 weeks later following the second of two late winter storms (B).



E106 - Piney  
 HA 92, 94  
 Revised - 12/88

 Parturition Area



## 2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL107 - UPPER GREEN RIVER

HUNT AREAS: 93, 95-96

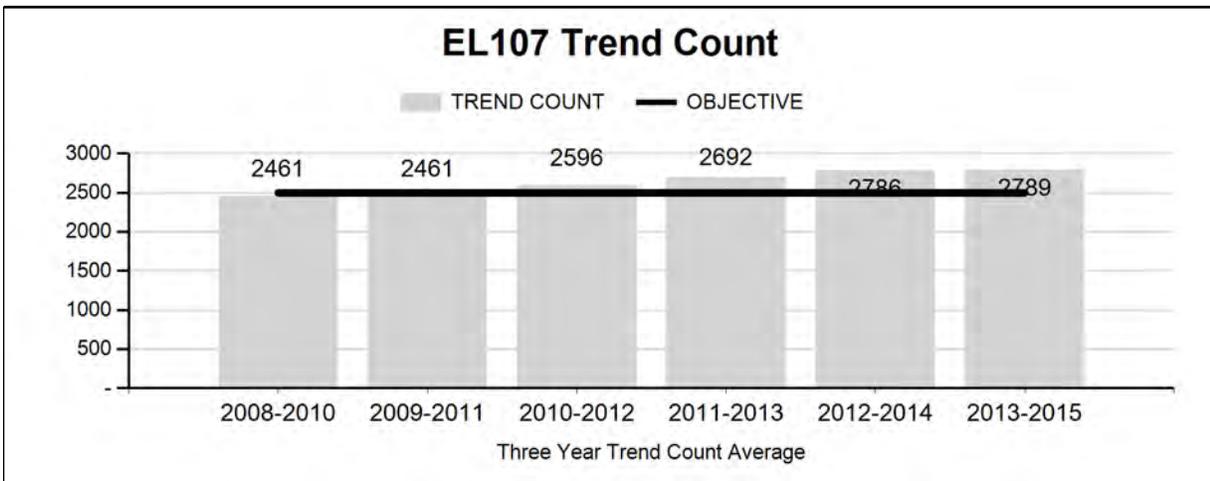
PREPARED BY: DEAN CLAUSE

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Trend Count:	2,688	2,713	2,700
Harvest:	437	403	500
Hunters:	1,183	1,264	1,300
Hunter Success:	37%	32%	38%
Active Licenses:	1,260	1,366	1,300
Active License Success	35%	30%	38%
Recreation Days:	10,014	11,604	11,000
Days Per Animal:	22.9	28.8	22
Males per 100 Females:	28	23	
Juveniles per 100 Females	32	37	

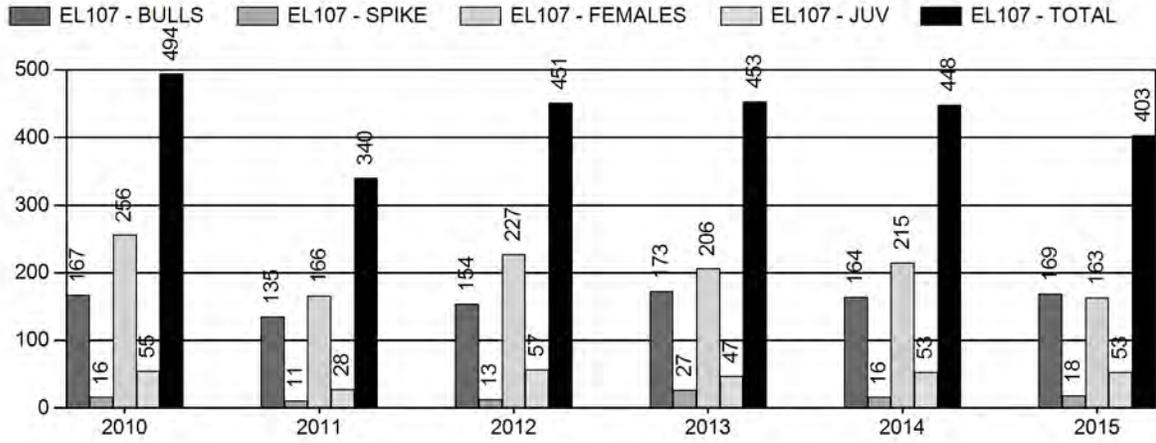
Trend Based Objective ( $\pm 20\%$ ) 2,500 (2000 - 3000)  
 Management Strategy: Recreational  
 Percent population is above (+) or (-) objective: 9%  
 Number of years population has been + or - objective in recent trend: 0

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

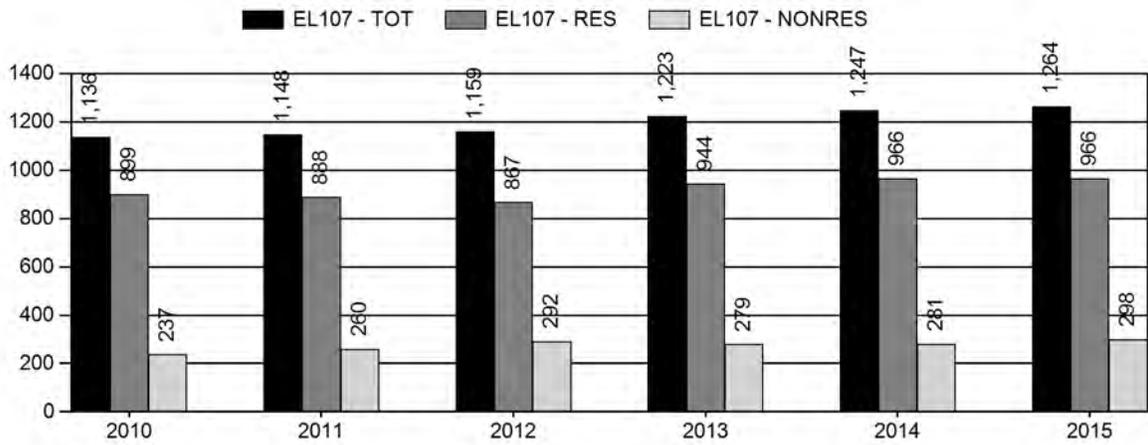
	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	0%	0%
Males $\geq 1$ year old:	0%	0%
Juveniles ( $< 1$ year old):	0%	0%



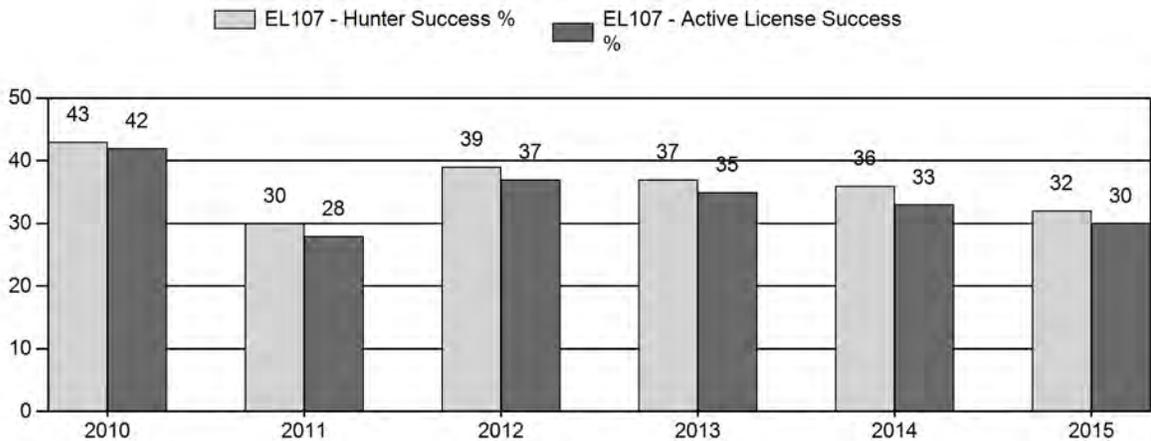
# Harvest



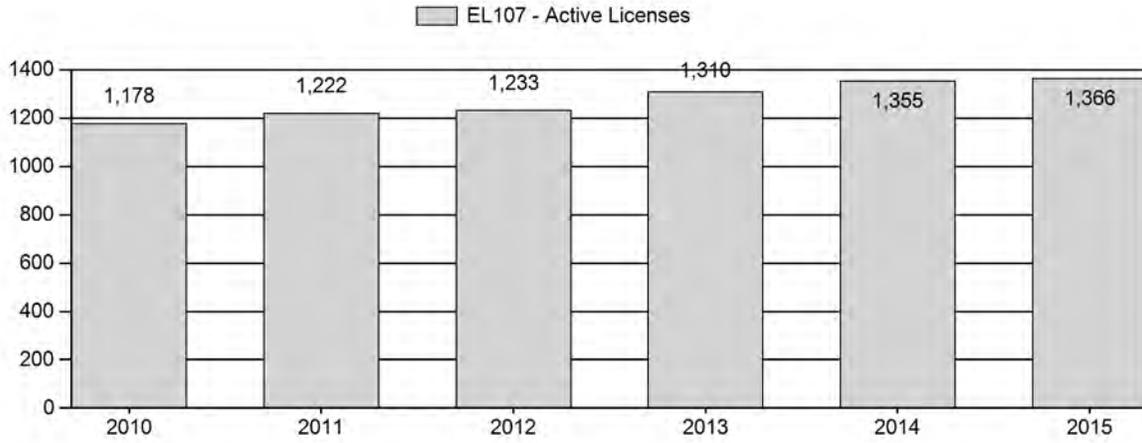
# Number of Hunters



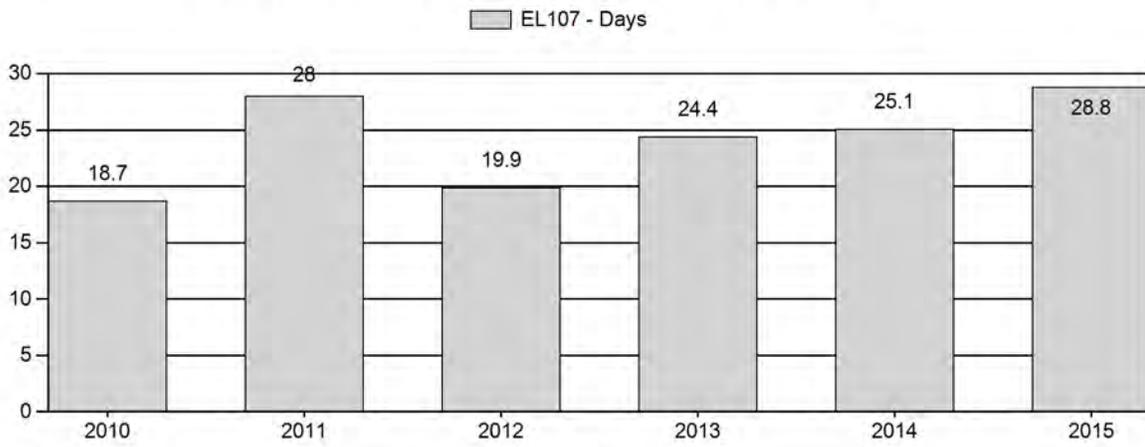
# Harvest Success



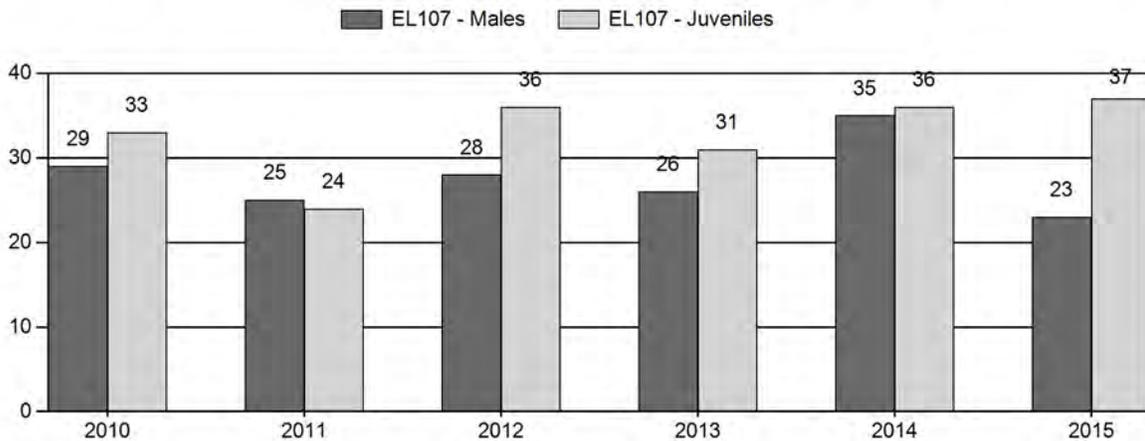
# Active Licenses



# Days per Animal Harvested



# Postseason Animals per 100 Females



**2010 - 2015 Postseason Classification Summary**

for Elk Herd EL107 - UPPER GREEN RIVER

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	2,550	173	273	446	18%	1,547	62%	506	20%	2,499	393	11	18	29	±0	33	±0	25
2011	2,621	159	270	429	17%	1,736	67%	417	16%	2,582	274	9	16	25	±0	24	±0	19
2012	0	180	278	458	17%	1,649	61%	599	22%	2,706	441	11	17	28	±0	36	±0	28
2013	0	208	254	462	17%	1,777	64%	548	20%	2,787	364	12	14	26	±0	31	±0	24
2014	0	155	425	580	20%	1,676	58%	610	21%	2,866	478	9	25	35	±0	36	±0	27
2015	0	86	292	378	14%	1,649	63%	611	23%	2,638	401	5	18	23	±0	37	±0	30

**2016 Seasons – Upper Green River Elk Herd Unit (E107)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
93	1	Oct. 1	Oct. 31	175	Limited quota	Any elk
93	1	Nov. 1	Nov. 20			Antlerless elk
93	6	Oct. 1	Nov. 20	250	Limited quota	Cow or calf
95	1	Oct. 15	Nov. 5	200	Limited quota	Any elk
95	2	Oct. 1	Nov. 5	30	Limited quota	Any elk valid within the Green River drainage upstream from the outlet of Lower Green River Lake, including that portion east and south of Mill Creek
95	4	Oct. 15	Nov. 5	150	Limited quota	Antlerless elk
95	5	Oct. 1	Oct. 14	25	Limited quota	Antlerless elk valid within the Green River drainage upstream from the outlet of Lower Green River Lake, including that portion east and south of Mill Creek
95	5	Oct. 15	Nov. 5			Antlerless elk valid in the entire area
95	6	Oct. 15	Nov. 5	75	Limited quota	Cow or calf
96		Oct. 15	Oct. 31		General	Any elk
96	1	Oct. 1	Oct. 31	200	Limited quota	Any elk
96	1	Nov. 1	Nov. 20			Antlerless elk
96	6	Oct. 1	Nov. 20	200	Limited quota	Cow or calf
96	7	Nov. 1	Jan. 31	30	Limited quota	Cow or calf valid west of the elk fence and south of New Fork Lakes Road
<b>Archery Seasons</b>						
93, 95, 96		Sept. 1	Sept. 30			Refer to Section 3

**Summary of Changes in License Numbers**

<b>Area</b>	<b>Type</b>	<b>Changes from 2015</b>
95	4	-50
96	4	-30(deleted license type)
96	7	+30(added license type)
<b>EL107 Totals</b>	<b>4</b>	<b>-80</b>
	<b>7</b>	<b>+30</b>

**Management Evaluation**

**Current Mid-Winter Trend Count Management Objective:** 2,500

**Management Strategy:** Recreational

**2015 Trend Count:** 2,713

**Most Recent 3-year Running Average Trend Count:** 2,789

The Green River Herd Unit encompasses approximately 837 square miles of occupied elk habitat, almost entirely within Sublette County. Hunt Area 93 (Waterdog Lakes), Area 95 (Green River), and Area 96 (New Fork) make up the Green River Herd Unit. This herd unit is managed under a mid-winter trend objective of 2,500 ( $\pm 20\%$ ) with a herd estimate derived from 3-year trend count average on feedgrounds and native range combined. This herd is managed under “recreational” management, with a management objective for a bull: 100 cow ratio of 15 to 29 bulls:100 cows.

**Herd Unit Issues**

Managers believe a very high proportion (>90 %) of elk are typically counted in this herd unit and are located on feedgrounds during most winters. This is an extremely “leaky” herd unit and as a result, a population model has not been successfully developed. Large carnivores (wolves and grizzly bears) have reduced hunter participation in the northern portion of this herd unit, and are likely impacting elk productivity/survival. Lack of public access on private lands in Area 93 is limiting harvest and compromising female harvest goals within this herd.

**Weather**

Three elk feedgrounds (Green River Lakes, Black Butte, and Soda Lake) are located within this herd unit to winter animals that otherwise would not be able survive the harsh winter conditions. Heavy snow loads typically make most native forage unavailable on most winters.

**Habitat**

Roughly 43 square miles of native winter range have been identified in this herd unit in the upper Green River drainage near Pinyon Ridge and Osborn Mountain where in recent years approximately 100-200 elk have spent the winter. Since over 90% of the elk rely on supplemental feeding (feedgrounds) within this herd unit, winter and other seasonal habitats do not limit population growth in this herd..

**Field Data**

The 2015 trend count was 2,713 elk, showing a decrease compared to 2014. Documented elk trends have been fairly consistent since 2012, with an overall increasing trend in the past 10

years (Table 1). Snow conditions were below normal throughout this herd unit during the 2015-16 winter and likely attributed to the lower 2015 trend count. Winter conditions, habitat conditions, wolf activity, and timing of classification surveys have resulted in fluctuating trend count data on all three feedgrounds and native winter ranges in past years (Table 1).

Table 1. Trend Counts in the Upper Green River Herd Unit, 2006-2015.

<u>Location</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Green River Lakes F.G	545	615	591	0	606	532	572	627	630	675
Black Butte F.G	616	815	1072	959	405	751	847	475	477	750
Soda Lake F.G.	856	714	650	0	1417	1144	1103	1492	1663	1017
N.W.R.	295	220	268	1344	71	155	184	193	96	271
<b>Herd Unit Total</b>	<b>2312</b>	<b>2364</b>	<b>2581</b>	<b>2303</b>	<b>2499</b>	<b>2582</b>	<b>2706</b>	<b>2787</b>	<b>2866</b>	<b>2713</b>

Composition counts during 2015 revealed a bull:cow:calf ratio of 23:100:37. The 2015 bull:cow ratio was lower and the calf:cow ratio was higher compared to the 5-year average of 28:100:32. The lower bull:cow ratio in 2015 is most likely attributed to a higher proportion of bulls wintering away from feedgrounds due to mild snow conditions and calf losses due to necrotic stomatitis on the Soda Lake FG the past two years. The 2015 bull:cow ratio of 23:100 is adequate and within management goals for this herd.

### Harvest Data

The 2015 harvest report indicated total elk harvest of approximately 400 elk (190 bulls and 210 cows/calves), was lower than the 2014 harvest of 450 (180 bulls and 270 cows/calves). During 2015, 32% of the hunters were successful in harvesting an elk, lower than the past 5-year average of 35% success. The 2015 hunter effort of 29 days/harvest was higher than the 5-year average of 23 days/harvest. License quotas and seasons remained similar in 2015 compared to 2014. The lower cow/calf harvest and hunter success, and increased hunter effort was due to warm and mild fall conditions in 2015.

### Population

Since 2012 a mid-winter trend count has been utilized to manage this herd unit instead of hand-derived population model estimates. This is an extremely “leaky” herd unit and as a result, a functional computer simulation model has never been developed. The mid-winter trend objective for this herd is 2,500 elk ( $\pm 20\%$ ). The 2013-2015 3-year trend average is 2,789 elk, which is within this herd objective.

### Disease

During late winter (March –April) in 2014 and 2015 calf loss has occurred on or near the Soda Lake feedground due to disease and wolf predation. Investigations concluded the presence of *Fusobacterium necrophorum* from many of the carcasses, the bacterium responsible for foot rot and necrotic stomatitis in elk. Foot rot is a term used for infection of the bacteria when it enters cuts and other openings around the hooves; necrotic stomatitis is the descriptive term for infection of the same bacteria in the mouth. This infectious disease is not uncommon to feedgrounds in west central Wyoming, with occasional outbreaks documented when certain winter and spring conditions increase the prevalence of the disease. Conditions with above

average snowfall and above average temperatures create wet conditions causing the bacteria to thrive resulting in infections to elk. Freeze and thaw cycles during these winter conditions cause crusted snow and jagged ice, resulting in a higher than normal abrasions and opportunities for bacterial infections. The weakened condition of elk with this disease also makes animals more susceptible to predation as several wolf documented elk mortalities were recorded. Elk (mainly calves) losses on the Soda Lake feedground were estimated around a total of 160 elk during the 2014 -2015 feeding season. No elk losses from foot rot or necrotic stomatitis were documented during the 2015-2016 feeding season.

### **Management Summary**

This is an extremely leaky herd unit, and as a result, a functional computer simulation model has not been developed. Overall, the data collected annually in this herd unit has indicated a slow population increase since 2003, but more stable in recent years. The current trend count of 2,713 is within management objectives for this herd unit. The 2009 - 2013 seasons were designed to further increase antlerless harvest which has been somewhat successful at achieving that goal. Hunter participation has declined in portions of this herd unit, specifically the northern portions of Areas 93, 95, and 96.. This lack of hunter participation has resulted in only a portion of antlerless and cow/calf licenses being sold. It appears predation from wolves and bears as well as recent disease outbreaks (necrotic stomatitis) has helped curb population growth in recent years.

The 2016 seasons for the Upper Green River Herd Unit are designed to maintain past bull and female (antlerless) harvest. The same October 1 – November 20 season with no changes in limited quotas licenses (175 Type 1 and 250 Type 6) will be available in Area 93.

In Area 95, the same season length (October 15 – November 5) and limited quota licenses (200 Type 1, 30 Type 2, 25 Type 5, and 75 Type 6) will remain the same in 2016. A reduction in 50 Type 4 licenses (200 to 150) is proposed to align the quota with recent license demands.

The 2016 General season in Area 96 will remain same as in 2015 with a October 15 – 31 “any” elk season. License quotas and season length (October 1 to November 20) will remain the same for Type 1 (n=200) and Type 6 (n=200) compared to 2015. The Type 4 licenses (n=30) were eliminated and converted to a new Type 7 license that will only be valid in that portion of Area 96 west of the elk fence and south of New Fork Lake Road from November 21 – January 31 to address damage and livestock co-mingling on private lands.

A projected harvest of 500 elk (200 bulls, 250 cows, and 50 calves) for 2016 should result in a post season trend count of approximately 2,600 elk.

### **Brucellosis Management**

#### *Brucellosis Surveillance/Research*

#### Soda Lake Feedground

One adult female elk was captured via chemical immobilization (1.0ml Carfentanil and 0.5ml Xylazine) at this feedground on February 9<sup>th</sup> to remove a malfunctioning GPS collar that was

deployed in 2015 (eartags, SL0038/SL0039). No GPS data were stored on the collar. The elk was tested for exposure to *Brucella abortus* and results are pending. A mortality from a 2014 capture at Soda Lake was discovered near the Black Butte feedground in 2016 (eartags, SL0026/SL0027). The collar was due for release and cause of death is unknown. Collaring efforts are part of a region-wide ongoing project to evaluate elk distribution and movement with respect to brucellosis transmission to identify high risk areas.

#### Black Butte Feedground

Two adult female elk were captured via chemical immobilization (1.0ml Carfentanil and 0.5ml Xylazine) at this feedground on February 13<sup>th</sup>. One collar was not due to drop until 2017, but the collar had malfunctioned (eartags, BB0035/BB0036). The other was due for drop, but the release mechanism failed (eartags, SL0040/BB0026). GPS locations were recorded at 30-minute intervals for two years. These efforts are part of a region-wide ongoing project to evaluate elk distribution and movement with respect to brucellosis transmission to identify high risk areas. Both elk were tested for exposure to *B. abortus* and results are pending.

#### Green River Lakes Feedground

One adult female elk was captured via chemical immobilization (1.0ml Carfentanil and 0.5ml Xylazine) at this feedground on February 20<sup>th</sup> to remove a GPS collar (eartags, GR0026/GR0027). The collar was due to drop, but the release mechanism had failed. GPS locations were recorded at 30-minute intervals for two years. This effort is part of a region-wide ongoing project to evaluate elk distribution and movement with respect to brucellosis transmission to identify high risk areas. The elk was tested for exposure to *B. abortus* and results are pending.

#### *Target Feedground Management*

*Brucella abortus* strain 19 ballistic elk vaccination was discontinued following winter 2014-15 due to a lack of efficacy observed over the course of the 30-year effort, and the inability to procure the necessary vaccination supplies due to the sole provider closing its manufacturing facility. Thus, the primary brucellosis management tools now employed are low-density (LD) feeding and early end-date of feeding on select, target feedgrounds where a high opportunity exists to conduct these measures (i.e., large feeding areas and long distance away from cattle operations). Low-density feeding has been shown to reduce contacts with aborted fetuses (i.e., brucellosis transmission) by up to 75%, and truncating the 10-year average feeding season by 3 weeks is expected to reduce population seroprevalence by about 66%.

#### Soda Lake Feedground

This feedground is targeted for both low-density feeding and early end date management. Low-density feeding was conducted optimally throughout the feeding season from the start, and was evaluated on January 28<sup>th</sup>, February 12<sup>th</sup>, and February 19<sup>th</sup> (Figure 1). Compared to last year, there were approximately 400 fewer elk on the feedground, but still about 350 over the commission quota of 800 for this feedground. Conditions on this feedground were surprisingly clean, given the large number of elk, mild conditions, and sparse snow events. A combination of low-density feeding, fewer elk in attendance than the previous two years, less lbs/elk/day fed, and a large supply of grass hay (as opposed to alfalfa) caused the elk to loaf/graze up on the hill

side for much of the day leading to clean feedground conditions and a healthy elk population for the duration of operation. Due to mild winter conditions and availability of native forage, feeding was terminated on February 23<sup>rd</sup>.



Figure 1. Low-density feeding at Soda Lake feedground on February 12<sup>th</sup>, 2016.

### Black Butte Feedground

Black Butte feedground was categorized as a feedground managed for low-density feeding as part of the Target Feedground Management Plan 2016 update. Favorable size/shape of the feedground and frequent interchange with an adjacent Target feedground (Soda Lake) warranted the re-classification. For over 30 years the elk feeder at Black Butte has done an excellent job of maintaining clean feedground conditions while spreading the elk out daily; low-density feeding was an easy adaptation for this feeder. As evaluated on December 3<sup>rd</sup>, February 13<sup>th</sup>, and March 9<sup>th</sup>, it was determined that low-density feeding was conducted to the best degree possible for this feedground (Figure 2). Large portions of the available feeding area were utilized daily, and the feedground stayed remarkably clean given mild conditions and few snowfall events (Figure 2). This feedground is not targeted for early end date management due to relatively heavier snow conditions, lack of native forage availability, and close proximity to private lands and damage situations. Feeding ended on April 10<sup>th</sup>.



Figure 2. Low-density feeding at Black Butte feedground on February 13<sup>th</sup>, 2016. The feedground remained remarkably clean throughout the feeding season and elk were continually spread out across large portions of the feedground daily.

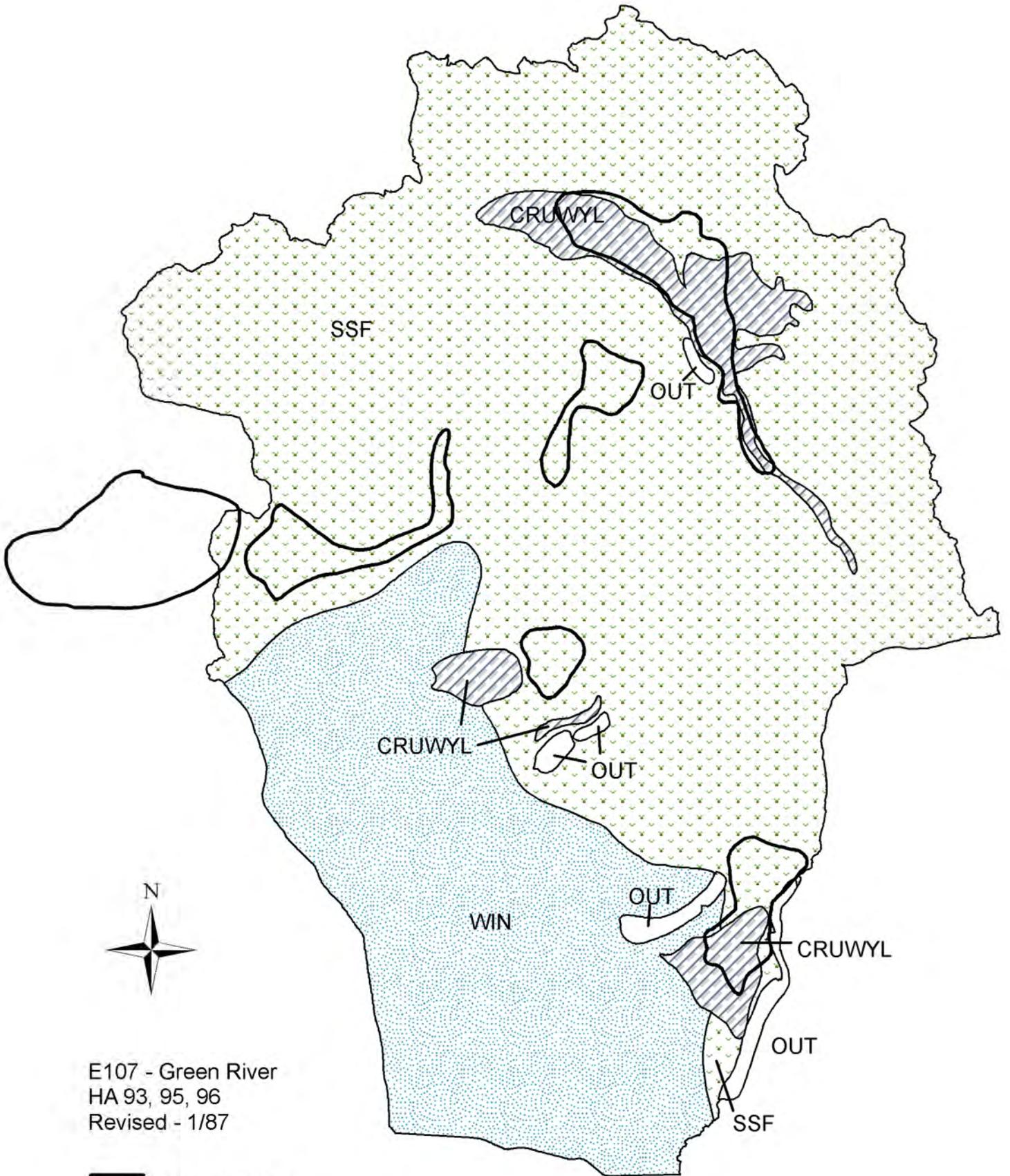
### Green River Lakes Feedground

This feedground is targeted for both low-density feeding and early end date management. The current elk feeder has been employed at this location for over 30 years and has a firmly established routine; he has typically done an adequate job of spreading out the elk during

feeding. Low-density feeding at this feedground was evaluated on February 17<sup>th</sup>, February 20<sup>th</sup>, and February 25<sup>th</sup>. The feedground is a very elongated rectangle shape, which is not ideal for low-density feeding. However, the feeder continually fed on several lines daily over the entire length of the feedground and spaced hay piles at an adequate distance apart. That, and in part the lower snow conditions in the area this year, caused the elk to move freely between rows rather than along a single path, so the benefits were likely being realized (Figure 3). Additionally, the elk spent many days away from the feedground this season due to wolf activity coupled with mild snow conditions, leading to a very clean feedground. Feeding ended at this feedground on March 9<sup>th</sup>, but due to a snow event and cold snap, the elk returned to the feedground and were again fed on March 19<sup>th</sup>.



Figure 3. Low-density feeding at the Green River Lakes feedground on February 25<sup>th</sup>, 2016.



E107 - Green River  
 HA 93, 95, 96  
 Revised - 1/87

 Parturition Area



## 2015 - JCR Evaluation Form

SPECIES: Elk  
 HERD: EL108 - PINEDALE  
 HUNT AREAS: 97-98

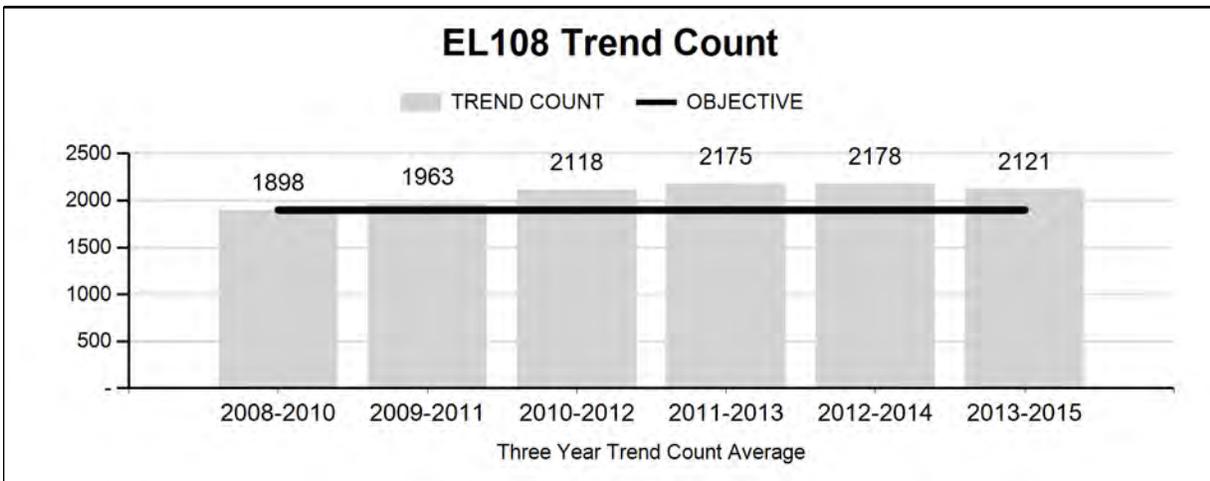
PERIOD: 6/1/2015 - 5/31/2016  
 PREPARED BY: DEAN CLAUSE

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Trend Count:	2,127	2,081	2,100
Harvest:	502	428	525
Hunters:	1,399	1,590	1,550
Hunter Success:	36%	27%	34 %
Active Licenses:	1,455	1,647	1,550
Active License Success	35%	26%	34 %
Recreation Days:	9,805	10,847	10,000
Days Per Animal:	19.5	25.3	19.0
Males per 100 Females:	23	17	
Juveniles per 100 Females	29	33	

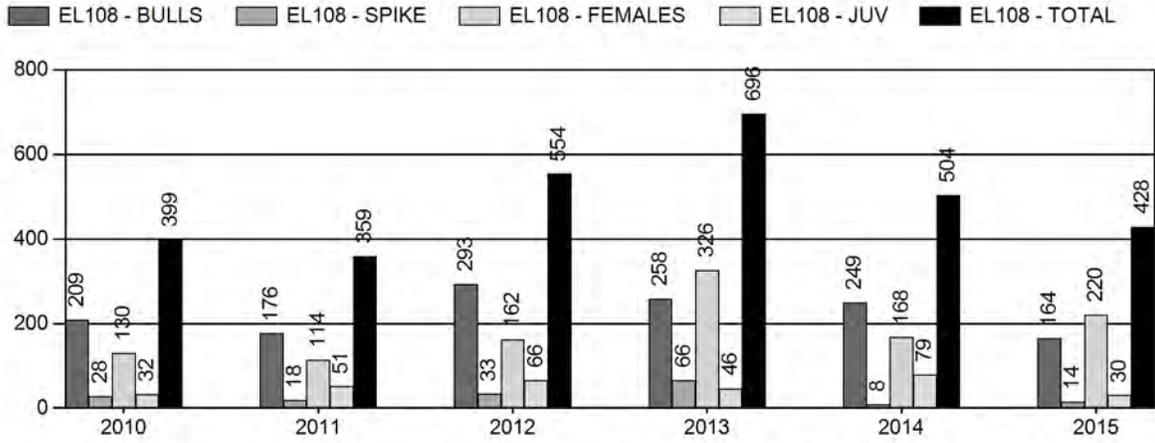
Trend Based Objective (± 20%) 1,900 (1520 - 2280)  
 Management Strategy: Recreational  
 Percent population is above (+) or (-) objective: 10%  
 Number of years population has been + or - objective in recent trend: 0

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

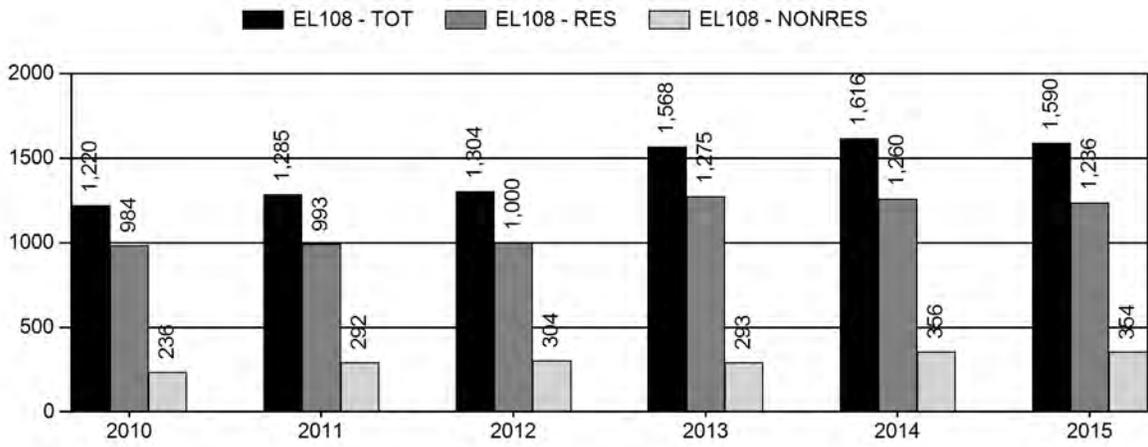
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



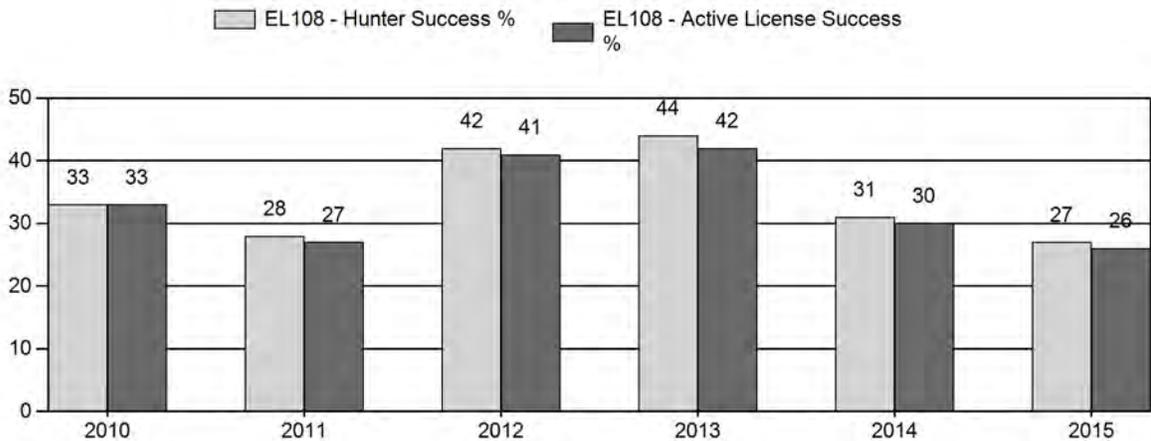
# Harvest



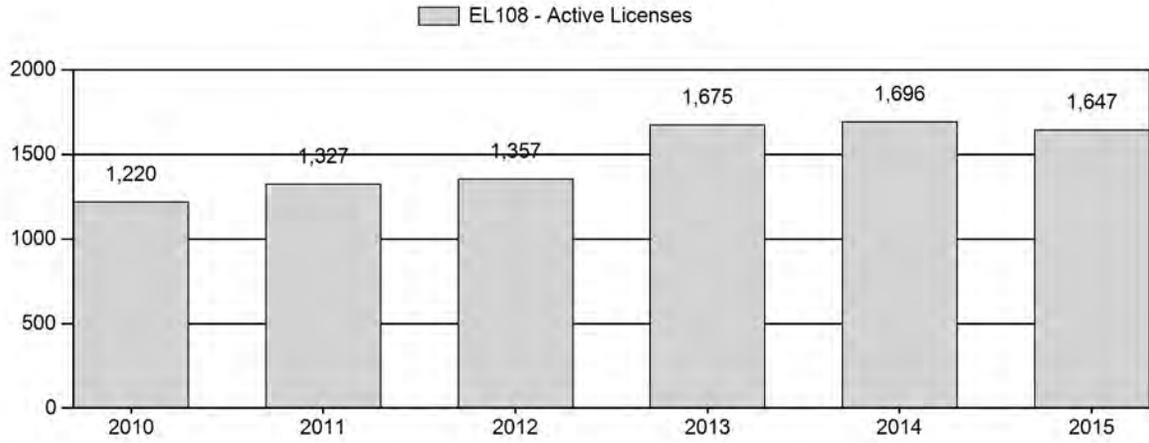
# Number of Hunters



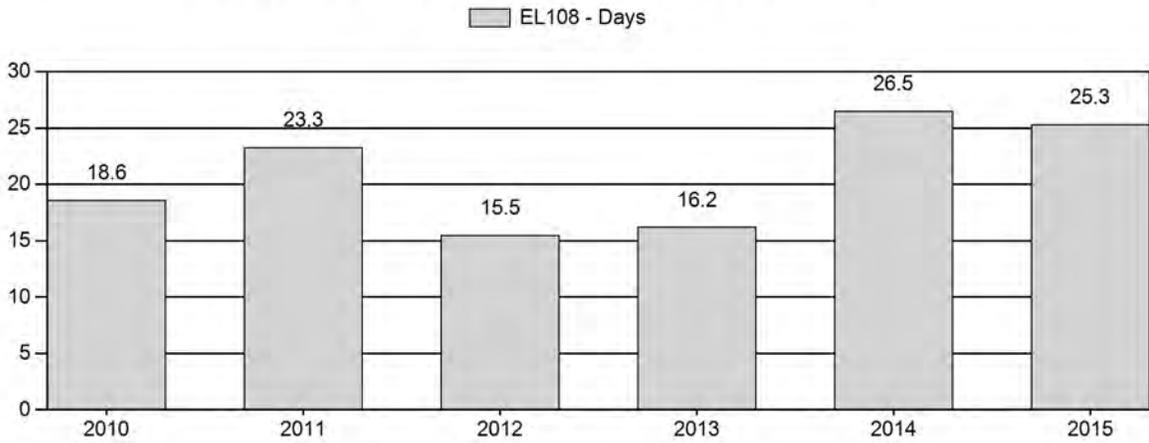
# Harvest Success



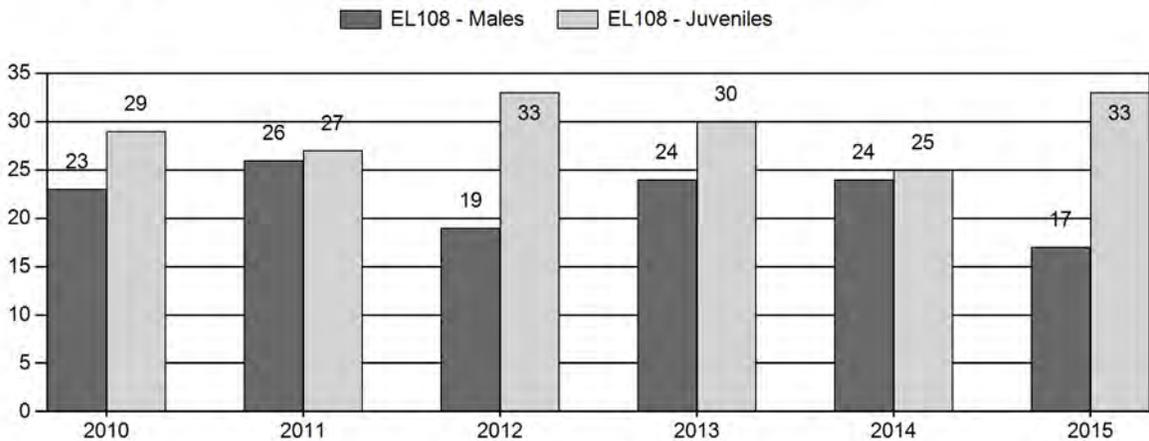
# Active Licenses



# Days per Animal Harvested



# Postseason Animals per 100 Females



**2010 - 2015 Postseason Classification Summary**

for Elk Herd EL108 - PINEDALE

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	2,000	102	186	288	15%	1,253	66%	366	19%	1,907	315	8	15	23	± 0	29	± 0	24
2011	2,168	144	219	363	17%	1,401	66%	374	17%	2,138	296	10	16	26	± 0	27	± 0	21
2012	0	120	149	269	13%	1,404	66%	457	21%	2,130	368	9	11	19	± 0	33	± 0	27
2013	0	158	174	332	16%	1,383	65%	418	20%	2,133	334	11	13	24	± 0	30	± 0	24
2014	0	133	207	340	16%	1,429	67%	356	17%	2,125	260	9	14	24	± 0	25	± 0	20
2015	0	77	165	242	12%	1,386	67%	453	22%	2,081	333	6	12	17	± 0	33	± 0	28

**2016 Seasons – Pinedale Elk Herd Unit (EL108)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
97		Oct. 1	Oct. 15		General	Any elk
97		Oct. 16	Nov. 10			Antlerless elk
97	1	Sept. 20	Oct. 31	225	Limited quota	Any elk
97	1	Nov. 1	Nov. 20			Antlerless elk
97	6	Sept. 20	Nov. 20	125	Limited quota	Cow or calf elk
98		Oct. 1	Oct. 15		General	Any elk
98		Oct. 16	Nov. 10			Antlerless elk
98	1	Sept. 20	Oct. 31	350	Limited quota	Any elk
98	1	Nov. 1	Nov. 20			Antlerless elk
98	1	Nov. 21	Jan. 31			Antlerless elk valid between the Scab Creek and the East Fork River drainage, excluding Irish Canyon Creek and Muddy Creek Drainages.
98	4	Sept. 20	Nov. 20	75	Limited quota	Antlerless elk
98	4	Nov. 21	Jan. 31			Antlerless elk valid between the Scab Creek and the East Fork River drainage, excluding Irish Canyon Creek and Muddy Creek Drainages.
98	6	Sept. 20	Nov. 20	300	Limited quota	Cow or calf elk
98	6	Nov. 21	Jan. 31			Antlerless elk valid between the Scab Creek and the East Fork River drainage, excluding Irish Canyon Creek and Muddy Creek Drainages. Drainages.
<b>Archery Seasons</b>						
97,98		Sept. 1	Sept. 19			Refer to Section 3

**Summary of Changes in License Numbers**

<b>Area</b>	<b>Type</b>	<b>Changes from 2015</b>
<b>EL107 Totals</b>		<b>No changes</b>

**Management Evaluation**

**Current Mid-Winter Trend Count Management Objective:** 1,900

**Management Strategy:** Recreational

**2014 Trend Count:** 2,081

**Most Recent 3-year Running Average Trend Count:** 2121

The Pinedale Herd Unit encompasses approximately 2,474 square miles of which only 522 square miles are considered occupied elk habitat. Only a small portion of this herd unit is located in Sweetwater County, while the majority lies in Sublette County. Hunt Area 97 (Pinedale) and Area 98 (Boulder) make up the Pinedale Herd Unit. This herd unit is managed under a mid-winter trend objective of 1,900 ( $\pm 20\%$ ) with the herd estimate derived from the 3-year trend count of elk on feedgrounds and native ranges combined. This herd is managed under “recreational” management.

**Herd Unit Issues**

Managers believe a very high proportion (>90%) of elk are typically counted in this herd unit and are located on feedgrounds during the winter. Well over half of the Forest Service lands are designated as Wilderness (Bridger Wilderness) where access is limited to foot or horseback travel. The remaining Forest Service lands outside wilderness have moderate vehicle and trail access. Hunting opportunities for self-guided non-resident sportsmen is limited because non-residents are required by law to have a licensed guide or outfitter while hunting in designated wilderness areas. Lack of public access on private lands in Area 98 along Scab and Silver Creeks provides a ‘refuge’ for elk, further limits antlerless harvest compromising the ability to achieve harvest goals.

**Weather**

Three elk feedgrounds (Fall Creek, Scab Creek, and Muddy Creek) are located within this herd unit to winter animals that otherwise would not be able survive the harsh winter conditions. Feedgrounds also reduce depredation to stored hay and reduce risk of disease transmission to livestock (primarily brucellosis).

**Habitat**

Roughly 32 square miles of crucial native winter range have been identified in this herd unit, wintering approximately 100-150 elk. Since over 90% of the elk rely on supplemental feeding (feedgrounds) within this herd unit, winter and other seasonal habitats do not limit population growth in this herd.

**Field Data**

The 2015 elk trend count of 2,081 was lower than the 2,148 elk counted in 2014. The 2012 trend count was the highest documented in the past 10 years (Table 1). As with most years, greater

than 90% of the trend count came from elk on feedgrounds. Below normal snow levels and more open terrain during early February of 2015 likely resulted in a higher number of elk missed during the helicopter survey on native ranges (away from feedgrounds).

Table 1. Herd Composition Counts in the Pinedale Elk Herd Unit, 2006-2015

Location	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Fall Creek F.G	529	494	527	0	554	655	675	660	704	656
Scab Creek F.G	750	776	754	600	780	806	912	727	850	668
Muddy Creek F.G.	383	376	510	422	467	557	522	499	488	571
<u>N.W.R.</u>	<u>96</u>	<u>68</u>	<u>154</u>	<u>766</u>	<u>161</u>	<u>120</u>	<u>144</u>	<u>247</u>	<u>106</u>	<u>186</u>
<b>Herd Unit Total</b>	<b>1758</b>	<b>1714</b>	<b>1944</b>	<b>1788</b>	<b>1962</b>	<b>2138</b>	<b>2253</b>	<b>2133</b>	<b>2148</b>	<b>2081</b>

Herd composition counts in 2015 documented a bull:cow:calf ratio of 17:100:33. Compared to the previous 5-year average bull:cow:calf ratio was 23:100:29, bull ratios were down and calf ratios were up in 2015. The low 2015 bull ratio is attributed to mild weather and lower bull attendance on feedgrounds.

### Harvest Data

With the termination of the 5-year Test and Removal Pilot Project after the 2009-10 winter, seasons were modified in 2010 to increase female harvest opportunities. Type 4 and Type 6 licenses were added, and general license hunters were allowed to harvest “any” elk instead of “antlered” elk. Since 2010, seasons have been designed to incrementally increase antlerless harvest and since 2013, bull harvest opportunities have been shortened. The 2015 harvest survey reported approximately 425 total elk taken, a decrease from approximately 500 elk taken in 2014 and 700 elk in 2013. Good forage conditions and mild fall weather attributed to the low harvest of both cows and bulls during 2014 and 2015. During the 2015 hunting season it took an average of 25 days to kill an elk, a increase of 5 days from the past 5-year average. Difficult hunting conditions were also experienced in 2015 and hunters reported a success rate at 27%, compared to the 5-year average of 35%. Early October snow during the 2013 season resulted in much better harvest as days/harvest was 16 and the success rate was 42%.

### Population

Starting in 2012, a mid-winter trend count has been utilized to manage this herd unit instead a hand-derived population model estimates. This is a somewhat “leaky” herd unit and as a result, a functional computer simulation model has not been developed, which may also be attributed to high bull harvest annually reported in this herd unit. The mid-winter trend objective for this herd is 1,900 elk ( $\pm 20\%$ ). The 2013-2015 3-year trend average is 2,121 elk, which is within this herd objective.

### Management Summary

Trend counts in this herd unit indicate elk declined from 2004-2007, recovered during 2008, stabilized in 2009 and 2010, increased in 2011 and 2012, and then stabilized in 2013. The 2014 and 2015 trend counts indicate a declining elk population, but both winters have had below normal snow conditions, especially in 2015-16 winter. Aerial surveys of native ranges during

2015 likely missed elk wintering out due to the lack of snow. Recent counts indicate bull:cow:calf ratios are adequate, although the bull ratio of 17:100 in 2015 most likely doesn't reflect actual ratios due low bull attendance on feedgrounds and lower reported bull harvest. The bull harvest annually reported for this herd unit is questionable as managers are confident that >90% elk are counted (classified) and bull harvest rates range from 50% to 60% on most years. Documented elk numbers in 2015 are currently within the management objectives. Maintaining similar female harvest opportunities as in 2015 will likely stabilize or reduce elk numbers if snow and forage conditions move elk to lower elevations by late October.

The harvest objectives for the 2016 seasons are the similar to 2015. Limited quota Type 1 licenses in Area 97 will remain at 225 from Sept. 20 – Nov. 20, valid for antlerless elk from Nov 1. – Nov. 20. Type 6 licenses will remain at 125, valid from Sept. 20 – Nov. 20 for antlerless elk.

In Area 98, the quota for Type 1 licenses will remain at 350 with a Sept. 20 – Nov. 20 season, valid for antlerless elk from Nov 1. – Nov. 20. Limited quota Type 4 licenses will remain at 75 and Type 6 licenses will remain at 300 with a Sept. 20 – Nov. 20 season. Similar to past years, antlerless harvest opportunities will be provided for unused limited quota licenses (Type 1, 4, and 6) from Nov. 21 – Jan 31 between Scab Creek and the East Fork drainage to address damage and cattle co-mingling issues.

General license seasons in both Area 97 and 98 will have a closing date that is ten days shorter than in 2015 to align with other general license seasons closure dates within the region. The general license season in both Areas will be Oct.1 – Oct. 15 valid for “any” elk as in past years and Oct. 16 – Nov. 10 for “antlerless” elk.

A predicted harvest of approximately 225 bulls, 300 cow/calves (525 total elk) during 2016 is anticipated with some average fall weather. This season should result in a postseason 2016 trend count estimate of approximately 2,100 elk.

## **Brucellosis Management**

### *Brucellosis Surveillance/Research*

#### Muddy Creek Feedground

The five-year elk Test and Slaughter (T&S) pilot project (2006-2010) was effective at reducing brucellosis seroprevalence among elk at all three feedgrounds in the Pinedale elk herd, most noticeably at the Muddy Creek feedground where seroprevalence fell from 37% to 5% during the years of the project. However, post T&S monitoring efforts in early 2012 indicate that exposure to *Brucella* at Muddy Creek had increased during the 2011 brucellosis transmission season (Feb-June); the first year that slaughter was not conducted. Subsequent trapping efforts have indicated that seroprevalence is continuing to climb. On January 25<sup>th</sup>, a total of 111 elk were captured, including 66 test-eligible (yearling and adult) females (Table 2). Additionally two adult females were captured on February 8<sup>th</sup> via chemical immobilization (1.0ml Carfentanil and 0.5ml Xylazine) to remove GPS collars that were due to drop, but the release mechanisms had failed (Table X). GPS locations were recorded at 30-minute intervals for two years. These efforts are

part of a region-wide ongoing project to evaluate elk distribution and movement with respect to brucellosis transmission to identify high risk areas. The two elk were also bled and tested for exposure to *Brucella abortus*. Tests revealed 32% (22/68) had been exposed to *Brucella abortus*.

Brucellosis testing subsequent to T&S indicates that the efficacy of the project at reducing brucellosis seroprevalence is ephemeral. T&S did not prevent brucellosis transmission events among elk during the 5 years of the project, as several females seroconverted upon recapture during the project. The 32% brucellosis prevalence observed during winter 2016 is nearly identical to pre-project levels (37%), indicating prevalence rebound after 5 years of slaughter only takes about 5-6 years.

Table 2. Ear tag data for elk trapped at Muddy Creek feedground, winter 2015-16, where each individual animal is assigned a unique UID.

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
A0411	12352	1/25/2016	Muddy Creek	Female	Adult	>=10	Red	L16
MC0259	9544	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G32
MC0260	9544	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G32
MC0268	10916	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G16
MC0397	12792	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L24
MC0398	12792	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L24
MC0495	12352	1/25/2016	Muddy Creek	Female	Adult	>=10	Red	L16
MC0530	12336	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G09
MC0742	12906	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L15
MC0743	12906	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L15
MC0811	12866	1/25/2016	Muddy Creek	Female	Adult	>=10	Red	G37
MC0812	12866	1/25/2016	Muddy Creek	Female	Adult	>=10	Red	G37
MC0969	12846	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G28
MC0973	12846	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G28
MC0982	13111	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L40
MC0983	13111	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L40
MC1003	9253	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G01
MC1004	9253	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G01
MC1009	11502	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G36
MC1010	11502	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G36
MC1078	13256	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L22
MC1079	13256	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L22
MC1144	12229	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G12
MC1145	12229	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G12
MC1255	12319	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L23
MC1256	12319	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L23
MC1334	13207	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G27
MC1335	13207	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G27
MC1368	8714	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC1369	8714	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC1372	12786	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G17
MC1373	12786	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G17

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
MC1498	12880	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L21
MC1499	12880	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L21
MC1537	8702	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L11
MC1538	8702	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L11
MC1555	12336	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G09
MC1753	12795	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L49
MC1754	12795	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L49
MC1761	12856	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G00
MC1762	12856	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G00
MC1780	12325	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L25
MC1781	12325	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L25
MC1901	12816	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G23
MC1902	12816	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G23
MC1908	13278	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G24
MC1909	13278	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G24
MC1933	13215	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G18
MC1934	13215	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G18
MC1965	12343	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G03
MC1966	12343	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G03
MC1986	12867	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G22
MC1987	12867	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G22
MC2155	13762	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC2282	10407	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G04
MC2283	10407	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G04
MC2298	10418	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L13
MC2299	10418	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L13
MC2336	11477	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L10
MC2337	11477	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L10
MC2529	11394	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L19
MC2555	12861	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L48
MC2556	12861	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L48
MC2561	13280	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L20
MC2562	13280	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L20
MC2569	13114	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L18
MC2570	13114	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L18
MC2576	12251	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L43
MC2577	12251	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L43
MC2634	13252	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L17
MC2635	13252	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L17
MC2654	12282	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L42
MC2655	12282	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L42
MC2686	11496	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G25
MC2687	11496	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G25
MC2751	13216	1/25/2016	Muddy Creek	Female	Adult	>=10	Red	L27
MC2752	13216	1/25/2016	Muddy Creek	Female	Adult	>=10	Red	L27

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
MC2895	11558	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G05
MC2896	11558	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G05
MC2902	12912	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G13
MC3000	13754	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3001	13754	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3002	10916	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G16
MC3003	13755	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3004	13755	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3005	13760	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G11
MC3006	13760	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G11
MC3007	13763	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3008	13763	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3009	13766	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3010	13766	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3012	13769	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3013	13769	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3014	13771	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G26
MC3015	13771	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G26
MC3016	13776	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3017	13776	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3018	13783	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3019	13783	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3020	13786	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3021	13786	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3022	13792	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3023	13792	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3024	13794	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3025	13794	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3026	12912	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G13
MC3027	13756	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G10
MC3028	13756	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G10
MC3029	13761	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3030	13761	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3031	13764	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3032	13764	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3033	13767	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3034	13767	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3035	13773	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G30
MC3036	13773	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G30
MC3037	13777	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3038	13777	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3039	13781	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3040	13781	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3041	13787	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3042	13787	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
MC3043	13791	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3044	13791	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3045	13793	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3046	13793	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3047	13795	1/25/2016	Muddy Creek	Male	Adult	2-5	Red	NONE
MC3048	13795	1/25/2016	Muddy Creek	Male	Adult	2-5	Red	NONE
MC3049	13805	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3050	13805	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3051	13751	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G02
MC3052	13751	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G02
MC3053	13757	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3054	13757	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3055	13768	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3056	13768	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3057	13778	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3058	13778	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3060	13779	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G06
MC3061	13779	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G06
MC3062	13790	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3063	13790	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3064	13798	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3065	13798	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3066	13801	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3067	13801	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3068	13233	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L14
MC3069	13233	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L14
MC3070	13811	1/25/2016	Muddy Creek	Female	Yearling	1	Red	L41
MC3071	13811	1/25/2016	Muddy Creek	Female	Yearling	1	Red	L41
MC3076	13750	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G15
MC3077	13750	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G15
MC3078	13753	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G29
MC3079	13753	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G29
MC3080	13770	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G21
MC3081	13772	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G19
MC3082	13759	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G34
MC3083	13759	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G34
MC3084	13772	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G19
MC3085	13775	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G08
MC3086	13775	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G08
MC3087	13780	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G07
MC3088	13770	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G21
MC3089	13780	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G07
MC3090	13782	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3091	13782	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3092	13785	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
MC3093	13785	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3094	13789	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3095	13789	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3096	13797	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3097	13797	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3098	13800	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3099	13800	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3100	13808	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L46
MC3151	13749	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3152	13749	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3153	13752	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G14
MC3154	13752	1/25/2016	Muddy Creek	Female	Yearling	1	Red	G14
MC3156	13762	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3157	13815	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3158	13815	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3159	13758	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G35
MC3160	13758	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G35
MC3162	13765	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G33
MC3163	13765	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	G33
MC3164	13774	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3165	13774	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3166	13784	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3167	13784	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3170	13788	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3171	13788	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3172	11394	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L19
MC3173	13796	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L12
MC3174	13796	1/25/2016	Muddy Creek	Female	Adult	6-9	Red	L12
MC3175	13799	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3301	13803	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3302	13803	1/25/2016	Muddy Creek	Male	Yearling	1	Red	NONE
MC3303	13810	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3304	13810	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3305	13812	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L45
MC3306	13812	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L45
MC3326	13799	1/25/2016	Muddy Creek	Female	Juvenile	0	Red	NONE
MC3327	13802	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3328	13802	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3329	13807	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3330	13001	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L26
MC3331	13807	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3351	13806	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3352	13806	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3353	13809	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L47
MC3354	13809	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L47

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
MC3355	13814	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3356	13814	1/25/2016	Muddy Creek	Male	Juvenile	0	Red	NONE
MC3376	13808	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L46
MC3378	13813	1/25/2016	Muddy Creek	Female	Yearling	1	Red	L44
MC3379	13813	1/25/2016	Muddy Creek	Female	Yearling	1	Red	L44
SC0813	13312	2/8/2016	Muddy Creek	Female	Adult	2-5	Red	L38
SC0814	13312	2/8/2016	Muddy Creek	Female	Adult	2-5	Red	L38
SC1016	13001	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	L26
SC1328	13051	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G20
SC1329	13051	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G20
SC1453	11280	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G31
SC1454	11280	1/25/2016	Muddy Creek	Female	Adult	2-5	Red	G31
SC1665	13078	2/8/2016	Muddy Creek	Female	Adult	2-5	Red	L37
SC1666	13078	2/8/2016	Muddy Creek	Female	Adult	2-5	Red	L37

### Scab Creek Feedground

A successful trapping effort was conducted at this feedground on February 9<sup>th</sup>. The primary purpose was to continue to evaluate the long-term effect of the pilot T&S project, which occurred on this feedground during two years of the 5-year project (2009 and 2010). A total of 158 elk were captured, including 72 test-eligible (yearling and adult) females (Table 3). Additionally, one adult female was captured on February 19<sup>th</sup> via chemical immobilization (1.0ml Carfentanil and 0.5ml Xylazine) to remove a GPS collar that was due to drop, but the release mechanisms had failed (Table X). GPS locations were recorded at 30-minute intervals for two years. This effort is part of a region-wide ongoing project to evaluate elk distribution and movement with respect to brucellosis transmission to identify high risk areas. That elk was also bled and tested for exposure to *Brucella abortus*. Tests revealed 58% (42/73) had been exposed to *Brucella abortus*, which greatly exceeds the 2008 pre-T&S level of 21%.

A total of 10 brucellosis elk were shipped to a research facility in Fort Collins, CO in support of a study being conducted by USDA-APHIS-VS to investigate other options for vaccination against brucellosis in elk. These elk were both seropositive and pregnant as determined by an on-site FPA test and using a portable ultrasound, respectively.

Table 3. Ear tag data for elk trapped at Scab Creek feedground, winter 2015-16, where each individual animal is assigned a unique UID.

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
F0929	8457	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E27
F0930	8457	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E27
MC1101	13011	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D80
MC1102	13011	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D80
MC2346	13108	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E9
MC2347	13108	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E9

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
MC2400	13117	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E1
MC2401	13117	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E1
MC2431	13102	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E58
MC2432	13102	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E58
MC2525	11462	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E54
MC2601	11462	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E54
SC0001	13130	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E33
SC0002	13130	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E33
SC0018	9330	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D7
SC0019	9330	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D7
SC0028	8890	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E66
SC0172	9500	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E63
SC0173	9500	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E63
SC0182	8900	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D8
SC0183	8900	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D8
SC0288	8443	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E47
SC0289	8443	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E47
SC0347	13018	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E18
SC0368	8427	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D9
SC0369	8427	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D9
SC0379	9332	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E53
SC0380	9332	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E53
SC0387	9316	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E32
SC0388	9316	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E32
SC0651	12997	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E59
SC0652	12997	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E59
SC0659	13018	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E18
SC0674	9428	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E57
SC0675	9428	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E57
SC0696	9449	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E55
SC0697	9449	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E55
SC0799	13057	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E19
SC0800	13057	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E19
SC0897	9494	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D1
SC0898	9494	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D1
SC1049	11362	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E17
SC1050	11362	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E17
SC1330	13056	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E65
SC1331	13056	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E65
SC1340	13082	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E16

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
SC1341	13082	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E16
SC1359	13126	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D00
SC1427	11279	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E37
SC1428	11279	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E37
SC1432	11289	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E21
SC1433	11289	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E21
SC1440	11309	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E61
SC1441	11309	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E61
SC1444	11324	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E6
SC1445	11324	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E6
SC1458	11286	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E23
SC1515	11350	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E30
SC1551	13049	2/19/2016	Scab Creek	Female	Adult	6-9	Grey	D46
SC1569	13012	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E38
SC1585	11369	2/9/2016	Scab Creek	Male	Adult	2-5	Grey	NONE
SC1657	13052	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E35
SC1726	13039	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E56
SC1727	13039	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E56
SC1742	13077	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E34
SC1743	13077	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E34
SC1760	13101	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D86
SC1761	13101	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D86
SC1762	13105	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E10
SC1763	13105	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E10
SC2000	13895	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2001	13895	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2002	13900	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E26
SC2003	13900	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E26
SC2004	13905	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2005	13905	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2006	13908	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2007	13908	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2008	13913	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2009	13913	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2010	13917	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2011	13917	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2012	13920	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2013	13920	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2014	13924	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2015	13924	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
SC2016	13927	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2017	13927	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2018	13012	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E38
SC2019	13936	2/9/2016	Scab Creek	Female	Yearling	1	Grey	E39
SC2020	13936	2/9/2016	Scab Creek	Female	Yearling	1	Grey	E39
SC2021	13941	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E40
SC2022	13941	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E40
SC2023	13950	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E42
SC2024	13950	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E42
SC2025	13985	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2027	14010	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2028	14010	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2036	13894	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E25
SC2037	13894	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E25
SC2038	13899	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2039	13899	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2040	13904	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2041	13904	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2042	13912	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2043	13912	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2044	13923	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2045	13923	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2046	11350	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E30
SC2047	13934	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2048	13934	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2049	13932	2/9/2016	Scab Creek	Female	Yearling	1	Grey	E20
SC2050	13932	2/9/2016	Scab Creek	Female	Yearling	1	Grey	E20
SC2053	13893	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2054	13893	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2055	13898	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2056	13898	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2057	13903	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2058	13903	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2059	13911	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2060	13911	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2061	13931	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2062	13926	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E29
SC2063	13935	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2064	13935	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2065	13931	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
SC2066	13916	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2067	13916	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2068	13944	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2069	13926	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E29
SC2070	13944	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2071	13948	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2072	13948	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2073	13952	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2074	13952	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2075	13968	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E49
SC2076	13938	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2077	13938	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2078	13930	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2079	13930	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2080	13929	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E31
SC2081	13929	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E31
SC2082	13925	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E15
SC2083	13925	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E15
SC2084	13922	2/9/2016	Scab Creek	Female	Yearling	1	Grey	E13
SC2085	13922	2/9/2016	Scab Creek	Female	Yearling	1	Grey	E13
SC2086	13919	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2087	13919	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2088	13915	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2089	13915	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2090	13910	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2091	13910	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2092	13907	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2093	13907	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2094	13902	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E28
SC2096	13902	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E28
SC2097	13897	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2098	13897	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2099	13892	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E24
SC2100	13892	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E24
SC2101	13987	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E11
SC2102	13987	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E11
SC2104	13986	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2105	13986	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2106	13979	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2107	13979	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
SC2108	13976	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2109	13976	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2110	13972	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E48
SC2111	13972	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E48
SC2112	13971	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2113	13971	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2114	13966	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E52
SC2115	13966	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E52
SC2116	13962	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E64
SC2117	13962	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E64
SC2118	13951	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2119	13951	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2120	13947	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2121	13947	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2122	13943	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E43
SC2123	13943	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E43
SC2124	13939	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E36
SC2125	13939	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E36
SC2126	13940	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2127	13940	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2128	13956	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2129	13956	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2130	13957	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2131	13957	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2132	13960	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2133	13960	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2134	14006	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2135	13052	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E35
SC2136	13964	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2137	13964	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2138	13967	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2139	13967	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2140	13968	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E49
SC2141	13973	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E50
SC2142	13973	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E50
SC2143	13963	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E62
SC2144	13963	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E62
SC2145	13953	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2146	13953	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2147	13949	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
SC2148	13949	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2149	13945	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E41
SC2150	13945	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E41
SC2151	11286	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E23
SC2152	13896	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2153	13896	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2154	13901	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2155	13901	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2156	13906	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E22
SC2158	13906	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E22
SC2159	13918	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2160	13918	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2161	13928	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2162	13928	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2163	13942	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2164	13942	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2165	13946	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E14
SC2166	13937	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2167	13937	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2168	13933	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2169	13933	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2170	13921	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2171	13921	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2172	13909	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2173	13914	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2174	13914	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2175	13909	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2176	13955	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E60
SC2177	13955	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E60
SC2178	13959	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2179	13959	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2180	13965	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2181	13965	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2182	13970	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E51
SC2183	13970	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E51
SC2184	8890	2/9/2016	Scab Creek	Female	Adult	>=10	Grey	E66
SC2185	13983	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2186	13983	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2187	13996	2/9/2016	Scab Creek	Female	Yearling	1	Grey	E2
SC2188	13996	2/9/2016	Scab Creek	Female	Yearling	1	Grey	E2

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
SC2189	13999	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2190	13999	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2191	13079	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E3
SC2192	13079	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E3
SC2200	13946	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E14
SC2201	13954	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2202	13954	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2203	13958	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E44
SC2204	13958	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E44
SC2205	13969	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2206	13969	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2207	13961	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2208	13961	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2209	13978	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E46
SC2210	13978	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E46
SC2211	13989	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2212	13989	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2213	13995	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E00
SC2214	13995	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E00
SC2215	14003	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E4
SC2216	14003	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E4
SC2217	13998	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2218	13998	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2219	14007	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2220	13975	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2221	13974	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2222	13974	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2223	13985	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2224	13982	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2225	13982	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2226	13977	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2227	13977	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2228	13981	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2229	13981	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2230	13980	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2231	13980	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2232	13984	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2233	13984	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2234	13988	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E12
SC2235	13988	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	E12

Ear Tag	UID	Capture Date	Capture Location	Sex	Age Class	Age Est	Visibility Collar Color	VIS Collar
SC2237	13126	2/9/2016	Scab Creek	Female	Adult	6-9	Grey	D00
SC2238	13994	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2239	13994	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2240	14001	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2241	14001	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2242	14002	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2243	14002	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2244	14005	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2245	14005	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2246	14006	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2247	14009	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2248	14009	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2262	14008	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2263	14008	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2264	14000	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2265	14000	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE
SC2266	13997	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2267	13997	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2268	13993	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E7
SC2269	13993	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E7
SC2270	13992	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2271	13992	2/9/2016	Scab Creek	Female	Juvenile	0	Grey	NONE
SC2272	13991	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E8
SC2273	13991	2/9/2016	Scab Creek	Female	Adult	2-5	Grey	E8
SC2274	13990	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2275	13990	2/9/2016	Scab Creek	Male	Juvenile	0	Grey	NONE
SC2276	14007	2/9/2016	Scab Creek	Male	Yearling	1	Grey	NONE

### Fall Creek Feedground

Brucellosis surveillance at this feedground is conducted on an every-other-year rotation with the Scab Creek feedground and was not trapped during winter 2016. Upon last check in 2015, seroprevalence had risen to 13% (6/45), which is up 2% from 2012 and slightly exceeds the pre-T&S level of 11%. A slow rise in post T&S seroprevalence as compared to the other two feedgrounds in the herd unit is attributed to Target feedground management (low-density feeding and managing for earlier feeding end dates; see Management section below). One GPS collar due to drop was recovered from the ground; GPS locations were recorded at 30-minute intervals for two years. This effort is part of a region-wide ongoing project to evaluate elk distribution and movement with respect to brucellosis transmission to identify high risk areas.

## *Target Feedground Management*

*Brucella abortus* strain 19 ballistic elk vaccination was discontinued following winter 2014-15 due to a lack of efficacy observed over the course of the 30-year effort, and the inability to procure the necessary vaccination supplies due to the sole provider closing its manufacturing facility. Thus, the primary brucellosis management tools now employed are low-density (LD) feeding and early end-date of feeding on select, target feedgrounds where a high opportunity exists to conduct these measures (i.e., large feeding areas and long distance away from cattle operations). Low-density feeding has been shown to reduce contacts with aborted fetuses (i.e., brucellosis transmission) by up to 75%, and truncating the 10-year average feeding season by 3 weeks is expected to reduce population seroprevalence by about 66%.

### Muddy Creek Feedground

This feedground is currently not targeted for low-density feeding or earlier feeding end dates. Because it is situated in a narrow canyon, adequate space is not available on even terrain to systematically distribute hay in a low-density fashion. This feedground is located in the southern periphery of the feedground complex adjacent to native winter ranges and in a lower precipitation zone where forage is easily accessible during most winters. However, because the perceived commingling risk is high near this feedground, elk are fed full ration until they leave on their own volition. The elk left the feedground on March 21<sup>st</sup>, although two-thirds of the population had already dispersed from the feedground weeks earlier.

### Scab Creek Feedground

Scab Creek feedground is situated on a relatively small area with diverse topography not conducive to low-density feeding, and elk numbers are typically at least double the WGFC-established quote of 300 for this feedground. This feedground has been managed for early end dates since 2009 because it is adjacent to numerous south-facing slopes with high availability of native forage and low commingling risk. Due to mild winter conditions, feeding was terminated on February 27<sup>th</sup>.

### Fall Creek Feedground

This feedground is targeted for both low-density feeding and early end date management. Low-density feeding was conducted optimally throughout the feeding season and was evaluated on January 27<sup>th</sup>, February 11<sup>th</sup>, and February 14<sup>th</sup> (Figure 1). Snow conditions at this feedground were extremely light and made low-density feeding across the entire feedground very easy. Due to mild winter conditions and early end date management at this feedground, feeding was terminated on February 16<sup>th</sup>.

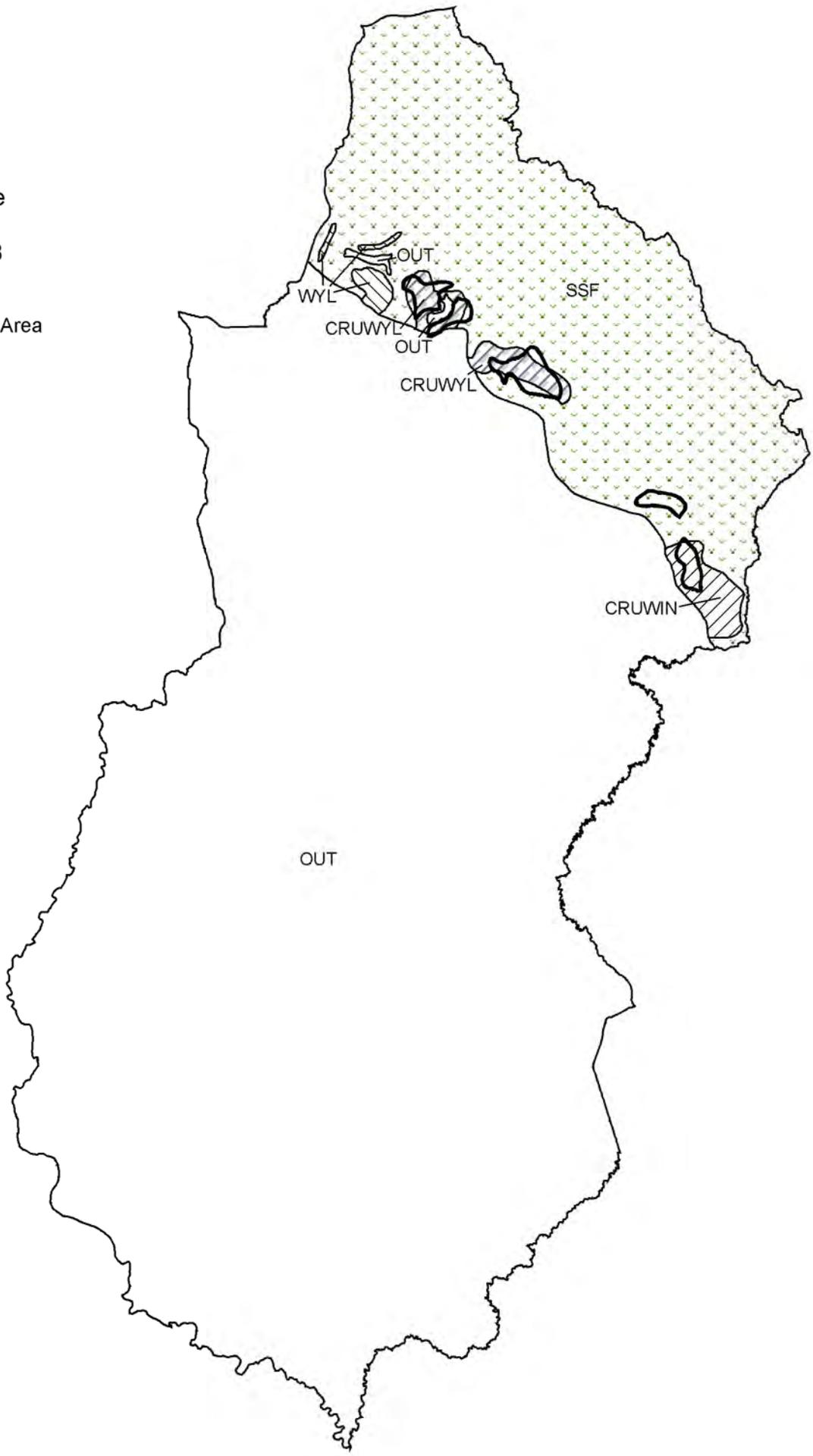


Figure 1. Photo of elk and hay distribution for low-density feeding at the Fall Creek feedground on February 14<sup>th</sup>, 2016.



E108 - Pinedale  
HA 97, 98  
Revised - 12/88

 Parturition Area



## 2015 - JCR Evaluation Form

SPECIES: Moose

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

HERD: MO105 - SUBLETTE

HUNT AREAS: 3-5, 10, 20-25

PREPARED BY: DEAN CLAUSE

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Trend Count:	1,246	999	1,200
Harvest:	223	205	190
Hunters:	252	226	210
Hunter Success:	88%	91%	90 %
Active Licenses:	252	226	210
Active License Success	88%	91%	90 %
Recreation Days:	1,899	1,930	1,900
Days Per Animal:	8.5	9.4	10
Males per 100 Females:	65	67	
Juveniles per 100 Females	40	43	

Trend Based Objective (± 20%) 1,500 (1200 - 1800)

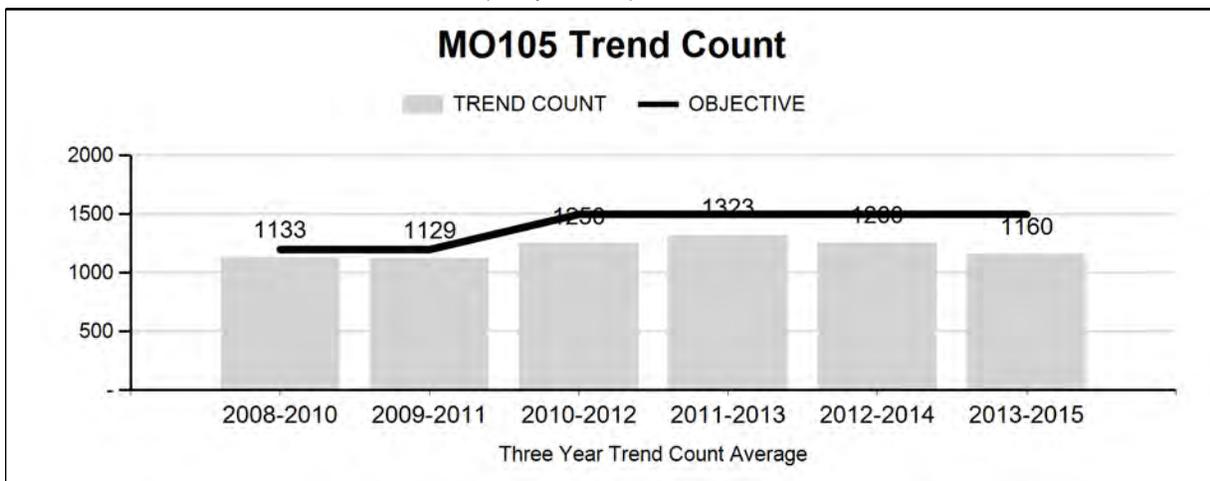
Management Strategy: Special

Percent population is above (+) or (-) objective: -33.4%

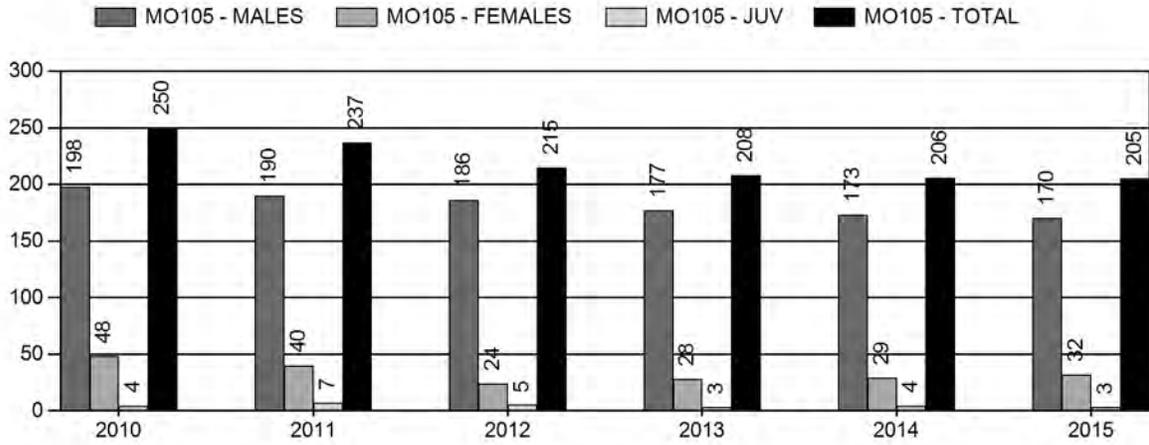
Number of years population has been + or - objective in recent trend: 2

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

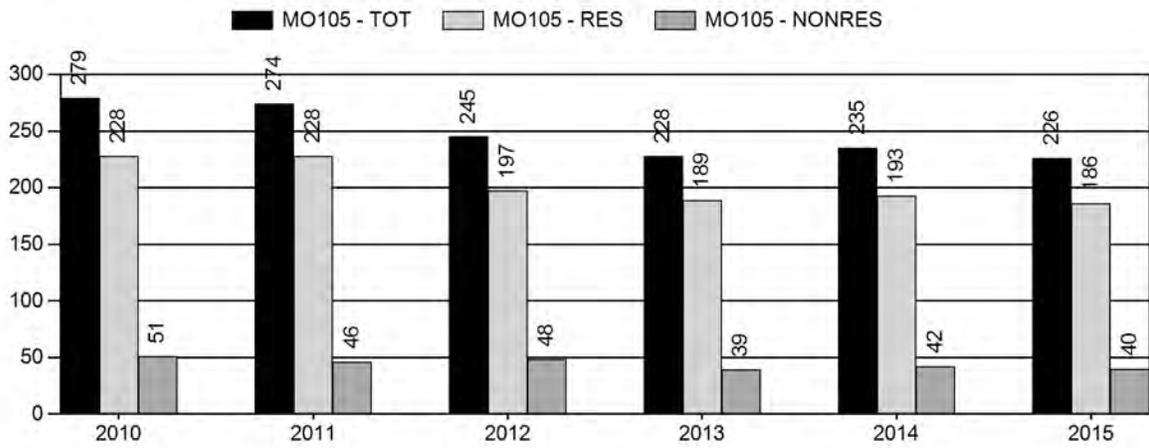
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



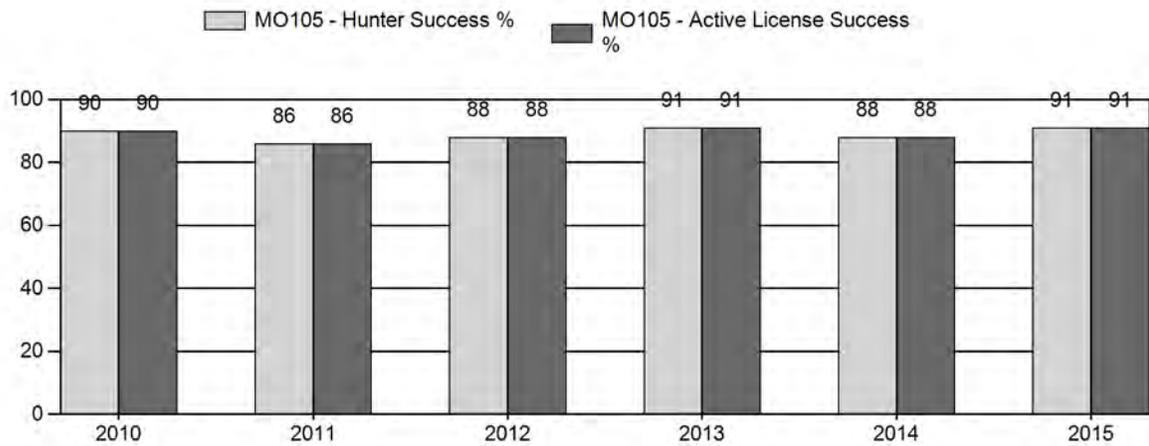
# Harvest



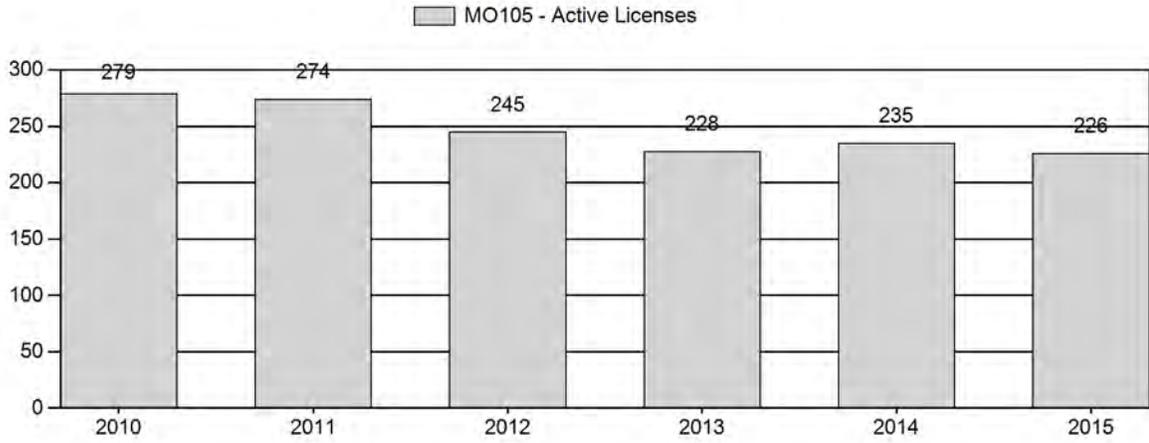
# Number of Hunters



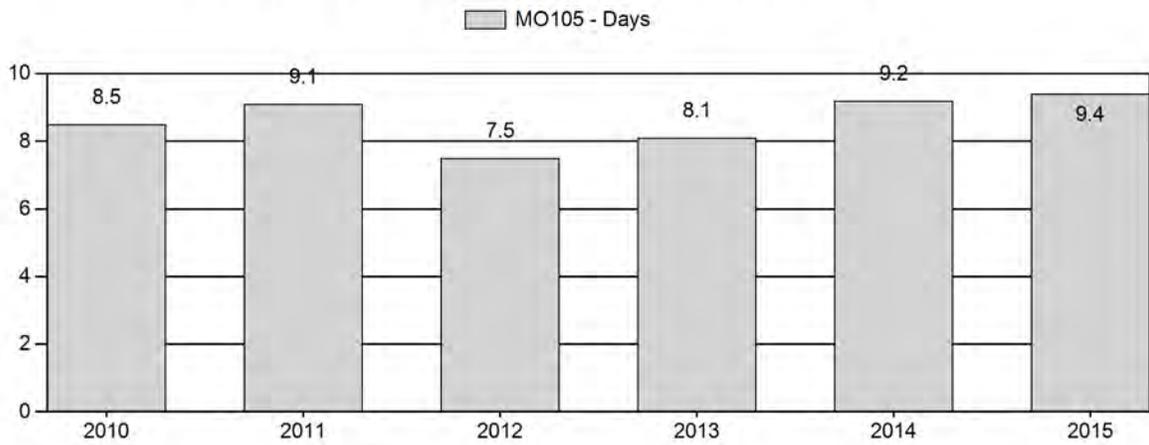
# Harvest Success



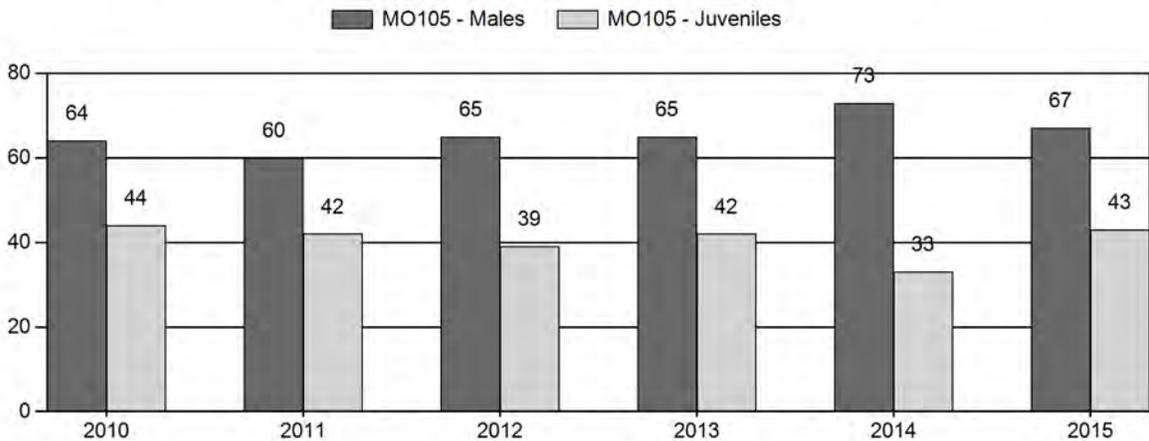
# Active Licenses



# Days per Animal Harvested



# Postseason Animals per 100 Females



**2010 - 2015 Postseason Classification Summary**

for Moose Herd MO105 - SUBLETTE

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	4,908	0	361	361	31%	563	48%	246	21%	1,170	1,111	0	64	64	± 0	44	± 0	27
2011	5,000	0	377	377	30%	625	49%	262	21%	1,264	1,016	0	60	60	± 4	42	± 3	26
2012	0	0	413	413	32%	632	49%	247	19%	1,292	1,118	0	65	65	± 0	39	± 0	24
2013	0	0	435	436	31%	669	48%	282	20%	1,387	909	0	65	65	± 0	42	± 0	26
2014	0	0	380	380	35%	518	48%	173	16%	1,071	800	0	73	73	± 0	33	± 0	19
2015	0	0	314	314	32%	469	48%	202	21%	985	886	0	67	67	± 0	43	± 0	26

**2016 Seasons – Sublette Moose Herd Unit (MO105)**

Hunt Area	Type	Season Dates			Quota	License	Limitations
		Opens	Closes				
3	1	Sep. 20	Oct. 31	10	Limited quota	Antlered moose	
4	1	Sep. 20	Oct. 31	10	Limited quota	Antlered moose	
4	4	Sep. 20	Oct. 31	5	Limited quota	Antlerless moose, except cow moose with calf at side	
5	1	Oct. 1	Oct. 31	25	Limited quota	Antlered moose	
5	4	Oct. 1	Oct. 31	10	Limited quota	Antlerless moose, except cow moose with calf at side	
10	1	Sep. 15	Oct. 31	15	Limited quota	Antlered moose	
20	1	Sep. 15	Oct. 31	15	Limited quota	Antlered moose	
21	1	Sep. 15	Oct. 31	5	Limited quota	Antlered moose, also valid in Area 10	
22	1	Oct. 1	Oct. 31	10	Limited quota	Antlered moose	
23	1	Sep. 15	Oct. 31	20	Limited quota	Antlered moose	
24	1	Sep. 15	Oct. 31	25	Limited quota	Antlered moose	
24	4	Sep. 15	Oct. 31	5	Limited quota	Antlerless moose, except cow moose with calf at side	
25	1	Oct. 1	Oct. 31	45	Limited quota	Antlered moose	
25	4	Oct. 1	Oct. 31	10	Limited quota	Antlerless moose, except cow moose with calf at side	
Archery Seasons							
3, 4		Sept. 1	Sept. 19			Refer to Section 3	
5, 22, 25		Sept. 1	Sept. 30			Refer to Section 3	
10, 20, 21, 23, 24		Sept. 1	Sept. 14			Refer to Section 3	

**Note: Boundary Changes in HA 10 and 22**

**Summary of Changes in License Numbers**

Hunt Area	License Type	Quota Changes from 2015
5	1	-5
5	4	-5
22	1	-5
25	4	-5
<b>MO105 Totals</b>	<b>1</b>	<b>-10</b>
	<b>4</b>	<b>-10</b>

## **Management Evaluation**

**Current Mid-Winter Trend Count Management Objective:** 1,500

**Management Strategy:** Special

**2013 Trend Count:** 1,000

**Most Recent 3-year Running Average Trend Count:** 1,160

The Sublette Moose Herd Unit encompasses approximately 3,306 square miles of occupied moose habitat that lies within portions of Lincoln, Sublette, and Teton Counties. The Wyoming Range and Salt River Range Mountains, along with a portion of the Wind River and Gros Ventre Mountains lie within this herd unit. A total of 10 Hunt Areas (Areas 3, 4, 5, 10, 20, 21, 22, 23, 24, & 25) make up the Sublette Herd Unit. A mid-winter trend objective of 1,500 ( $\pm 20\%$ ) moose is the management objective for this herd unit. This herd unit is also under a “special” management strategy to maintain an average harvest age of 4 years old for bulls as a measure to maintain “trophy” harvest opportunities.

## **Herd Unit Issues**

Undetermined moose deaths have been documented within this herd unit during the past years. The significance of these spring mortalities are currently unknown, and it appears other factors besides hunter harvest is slowing population growth. A study is currently being conducted within a portion of this herd unit to document moose demographics, body condition, and survival rates to help managers better understand issues and problems within this moose population. Preliminary findings from this study have indicated lower than expected adult female survival, fluctuating pregnancy rates, and normal calf survival rates. Factors such as habitat conditions, disease, predation, etc. may be attributing to limited population growth in this herd and research findings may help identify problems and issues associated with this moose population.

## **Weather**

Although winter snow accumulations appear to influence winter counting conditions as trend data increase on low elevation ranges during winters with above average snow depths, little is known about the other affects climate has on this moose herd. Recent weather trends have been drier and warmer, with sporadic periods of harsh winter conditions. Both the 2014-15 and 2015-16 winters have had below normal snow levels at lower basin elevations.

## **Habitat**

The main plant community associations in this herd unit are willow, sagebrush, mixed shrub, aspen, conifer, and alpine communities from low to high elevations (6,500 to 12,500 feet). Moose in this herd unit can be found on both private lands and public land managed by the U.S. Forest Service and Bureau of Land Management (BLM) throughout the year. During the winter, most moose migrate to lower elevation willow riparian, aspen, or mixed shrub dominated habitats associated with lower elevations. Roughly 700 square miles of native winter range have been identified in this herd unit, which encompasses all types of land ownership (private, public, and state trust land).

The 2015 Annual Report Strategic Habitat Plan Accomplishments, Jackson and Pinedale Region sections can be located on the WGFD website or at either the Jackson or Pinedale Game & Fish

Regional Office which provides detailed summaries of habitat work within the Sublette Herd Unit.

### Field Data

A lower number of moose were documented during 2014 and 2015 postseason classification surveys compared to 2013 (Table 1). Snow conditions were below normal during the 2014-2015 winter and classification counts were conducted roughly a month later than usual. During the 2015-2016 winter snow conditions were again below normal. Mild conditions the past two winters have resulted in a higher proportion of moose observations scattered outside riparian bottom habitats, which most likely attributed the lower trend counts. High concentrations of moose at lower elevations (Areas 4 and 25) and fewer moose at higher elevation habitats is typical during winter surveys on all years, see Table 1. Trend counts are influenced by winter snow depths. On heavy snow years, moose vacate higher elevation forested habitats where observability is limited and move to lower elevation willow habitats. Budgeted survey time limits the coverage of forested habitats, concentrating survey efforts to lower elevation habitats where moose congregate and observability is good. Overall, trend counts increased from 2009 - 2013 and declined in 2014 and 2015.

Postseason classification surveys for 2015 produced a bull:100 cow ratio of 67:100, slightly higher than the previous 5-year average of 65:100. The 2015 calf: 100 cow ratio of 43:100 was higher than the 5-year average of 40:100. During the previous 5-year periods observed bull:cow and calf:cow ratios have ranged from 60:100 to 73:100 bulls:100 cows and 33:100 to 44:100 calves:100 cows.

**Table 1. Trend counts by Hunt Area for the Sublette Moose Herd Unit, 2006-2015.**

<u>Hunt Area</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
3	24	19	11	56	18	38	21	24	22	32
4	248	244	271	212	261	320	319	346	224	235
5	75	76	106	48	100	44	82	79	34	73
10	52	11	7	13	10	8	4	0	10	31
20	13	39	19	10	16	28	13	32	65	49
21	12	10	22	4	30	23	18	11	7	17
22	6	17	28	30	23	27	49	47	17	13
23	60	50	28	60	46	26	52	55	37	32
24	0	0	0	0	0	0	0	0	0	0
<u>25</u>	<u>606</u>	<u>729</u>	<u>788</u>	<u>503</u>	<u>679</u>	<u>754</u>	<u>742</u>	<u>806</u>	<u>664</u>	<u>517</u>
<b>Total</b>	<b>1096</b>	<b>1195</b>	<b>1280</b>	<b>936</b>	<b>1183</b>	<b>1268</b>	<b>1300</b>	<b>1400</b>	<b>1080</b>	<b>999</b>

### Harvest Data

A total of 205 moose (170 bulls and 35 cows/calves) were harvested in 2015, similar to the 2013 and 2014 harvest. Harvest estimates have continued to decline slightly during the years, as managers continue to make adjustments the availability of licenses. The total number of licenses issued declined from 630 in 2002 to 230 in 2015, a total decrease of 400 (63%). These reductions in license types since 2002 equates to declines of 83% (230 to 40) of cow/calf licenses and 53% (400 to 190) of bull licenses. Compared to the previous 5-year averages, hunter success was slightly higher at 91%, and hunter effort increase to 9.4 days per animal harvested.

A total of 127 teeth representing approximately 62% of the reported 2014 harvest were aged using cementum annuli analysis. The 2014 tooth age results from the WGF lab showed an average age of 4.1 (derived from 66% of reported harvest) for bulls and 5.0 (derived from 47% of reported harvest) for cows. Average age of harvest for 2015 increased slightly for both bulls and cows compared to the 2014 (Figure 1). The 10-year average (2006-2015) age of harvest for this herd unit is approximately 4.0 years for both bulls and cows.

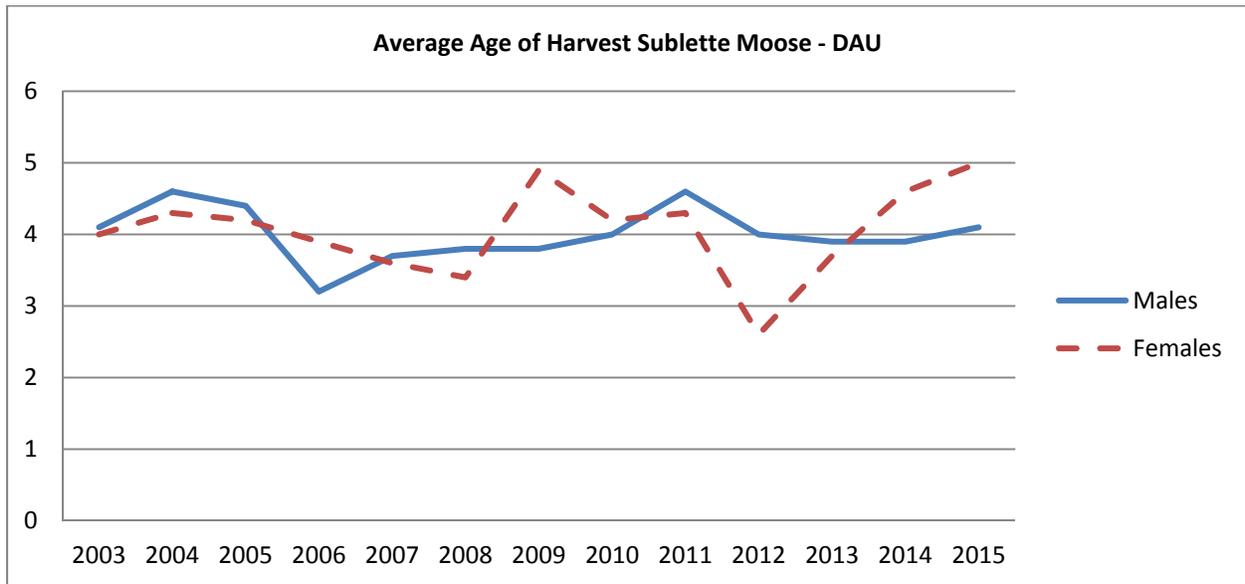


Figure 1. Average age of harvested male and female moose, Sublette Herd Unit, 2003-2015.

### Population

Starting in 2013, a mid-winter trend count was approved as the management objective for this herd unit instead post-hunt population estimates. The mid-winter trend objective for this herd is 1,500 moose ( $\pm 20\%$ ). The 2015 mid-winter trend count was 999 moose and the most recent 3-year average (2013-2015) trend is 1160 moose. This trend count does not represent the actual or estimated moose population.

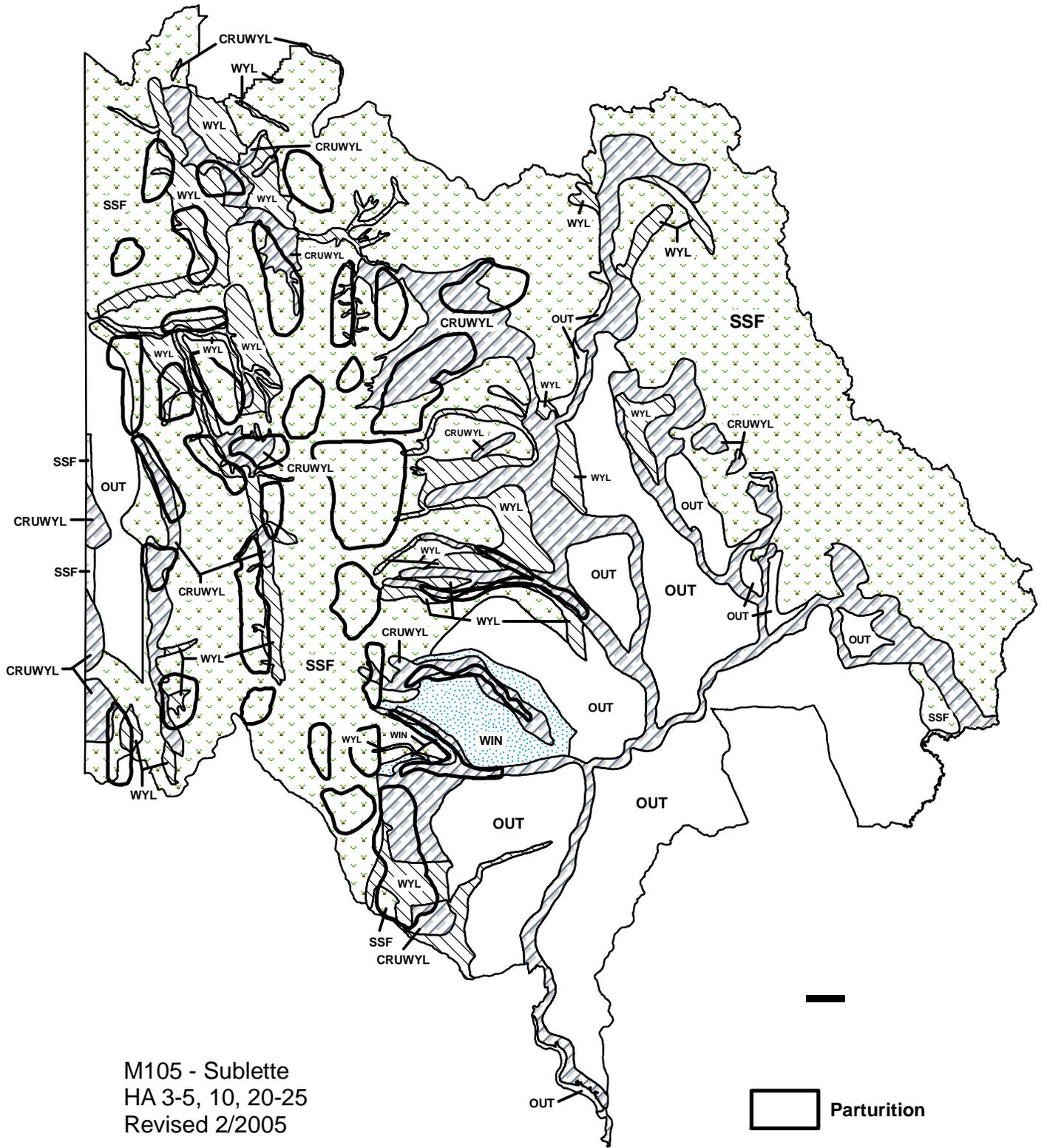
Past population modeling efforts for this herd have typically produced estimates higher, usually ~75% higher, than what annual trend counts document. Maintaining comparable classification survey efforts (flight time) compared to past years will provide managers a reliable data set that will reflect population trends in this herd unit. These mid-winter trend counts do not reflect the actual moose population, as not all areas with wintering moose are surveyed and not all moose are observed in those areas that are surveyed.

### Management Summary

Data for this herd unit suggest this postseason moose population declined during the late 1990's, stabilized in 2004 and 2005, then began slowly increasing through 2013. During 2014 calf:cow and bull:cow ratios fluctuated more than usual, as reproductive rates dropped to 33 calves:100 cows, and male ratios increased to 73 bulls:100cows. In 2015 calf and bull ratios returned to average levels. Harvest success remains high and hunter satisfaction appears good in most hunt areas. In addition, average age of harvested males is adequate and hunter reported antler widths

average 37 inches, suggesting bull quality is being maintained in this herd unit. Since 2009 trend data suggest the population is slowly increasing, with the exception of the lower counts during 2014 and 2015. Local managers believe these recent lower trend counts is attributed to poor counting conditions due to mild winter conditions and not reflective of a declining moose population.

A few changes were made for the 2016 season. A reduction of five Type 1 licenses in Area 5 (30 to 25 licenses) and a reduction in 10 Type 4 licenses (-5 licenses in both Area 5 and Area 25). Boundary changes were made between Area 10 and Area 22 increasing the size of Area 10, while reducing Area 22 to the north side of Hwy 191. This boundary change resulted in the proposal to reduce the Type 1 licenses in Area 22 by five licenses. Area 21 will be combined with Area 10 due to poor hunter success and high hunter effort in Area 21 the last two years, resulting in a reduction of 5 licenses previously available in Area 21. A total of 180 Type 1 (antlered) and 30 Type 4 (antlerless) licenses are available for 2016. Harvest for 2016 is estimated at 170 bulls and 20 cows/calves for a total harvest of 190 moose. Given average reproduction and survival, this harvest should result in a 2016 mid-winter trend count near 1,200 - 1,300 moose.





## 2015 - JCR Evaluation Form

SPECIES: Bighorn Sheep

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

HERD: BS121 - DARBY MOUNTAIN

HUNT AREAS: 24

PREPARED BY: GARY FRALICK

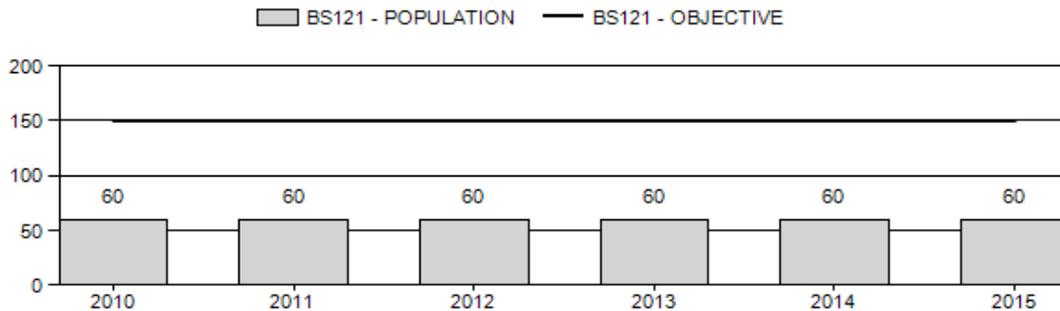
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	60	60	75
Harvest:	0	0	1
Hunters:	1	0	1
Hunter Success:	0%	0%	100 %
Active Licenses:	1	0	1
Active License Success:	0%	0%	100 %
Recreation Days:	1	0	14
Days Per Animal:	0	0	14
Males per 100 Females	56	36	
Juveniles per 100 Females	50	61	

Population Objective (± 20%) :	150 (120 - 180)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-60%
Number of years population has been + or - objective in recent trend:	24
Model Date:	2/23/2016

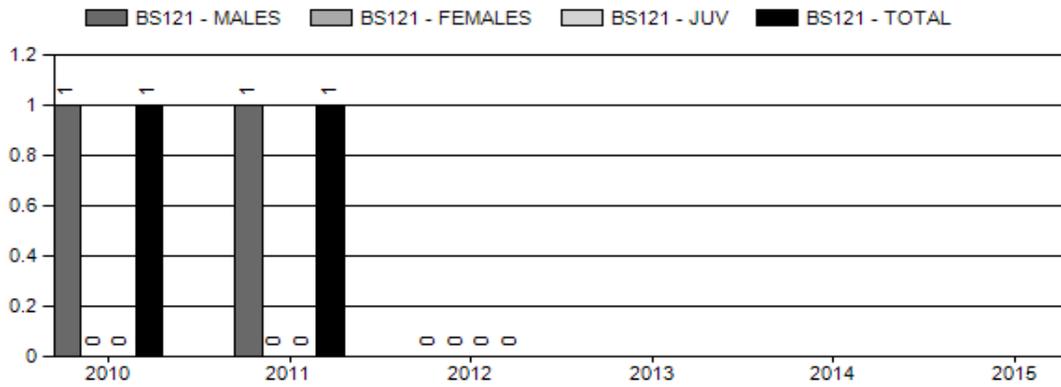
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

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

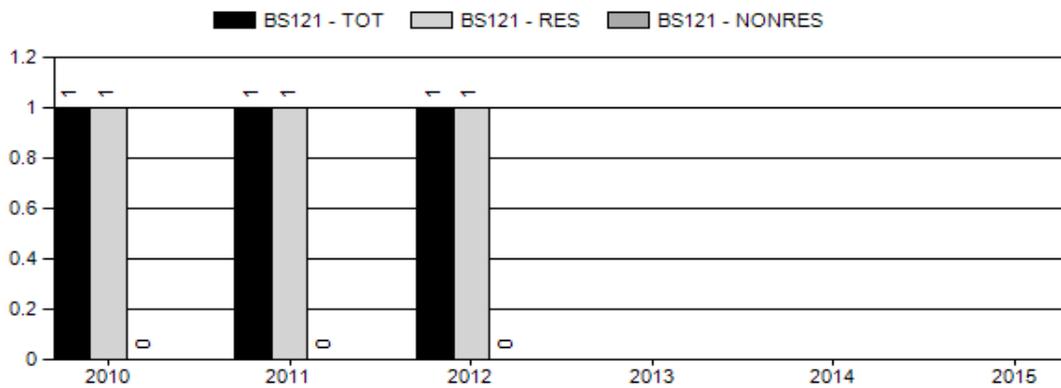
## Population Size - Postseason



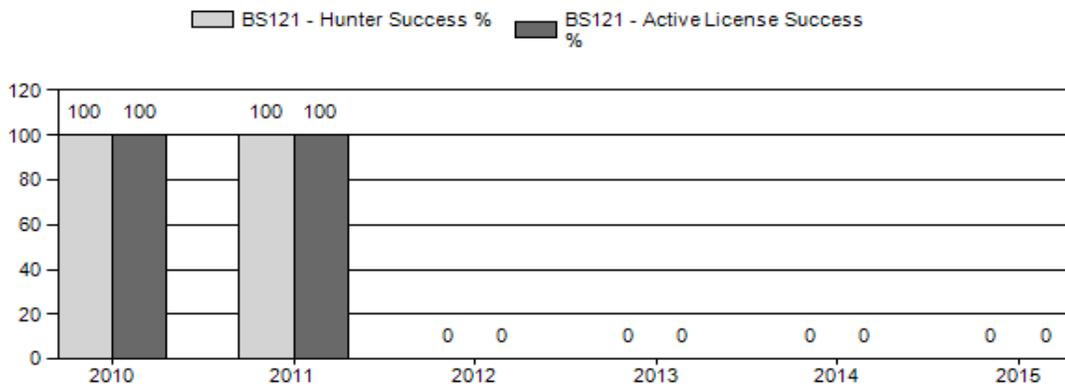
## Harvest



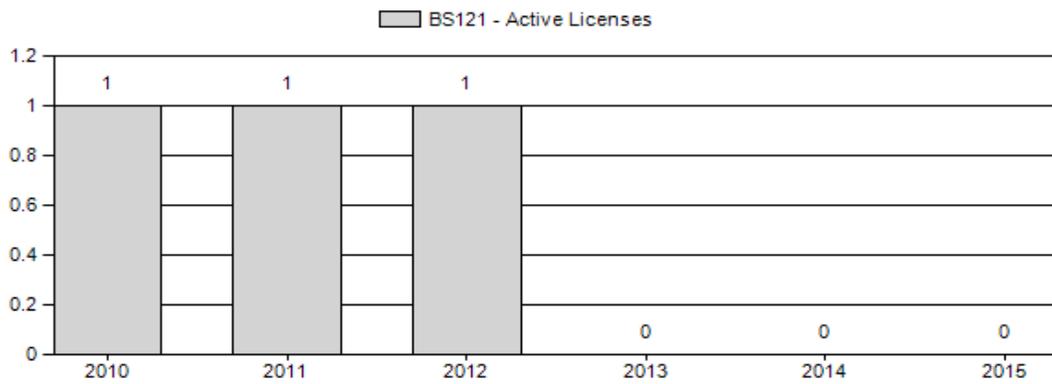
## Number of Hunters



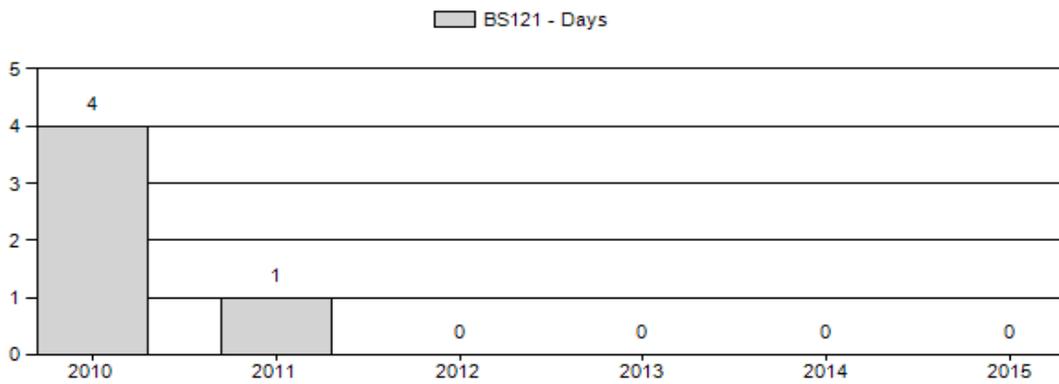
## Harvest Success



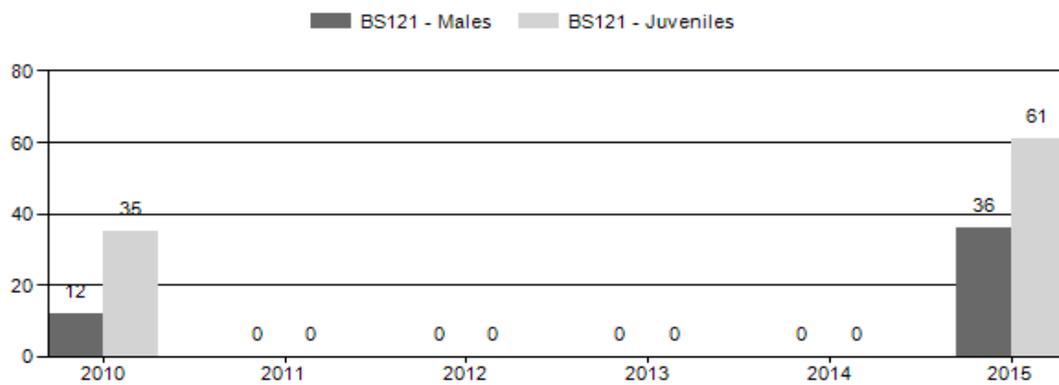
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



**2010 - 2015 Postseason Classification Summary**

for Bighorn Sheep Herd BS121 - DARBY MOUNTAIN

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females			Conf Int	Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total		100 Fem	Conf Int	100 Adult
2010	60	1	1	2	80%	17	68%	6	24%	25	0	6	6	12	±0	35	±0	32
2011	60	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2012	60	0	5	5	100%	0	0%	0	0%	5	0	0	0	0	±0	0	±0	0
2013	60	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2014	60	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2015	75	3	7	10	18%	280	51%	17	31%	55	0	11	25	36	±0	61	±0	45

**2016 HUNTING SEASON  
DARBY MOUNTAIN HERD UNIT - BHS121**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
24	1	Sep. 1	Oct. 31	1	Limited quota	Any ram
		Aug. 15	Aug.31			Archery only; REFER TO SECTION 4

**SUMMARY OF PROPOSED CHANGES BY LICENSE NUMBER**

Area	License Type	Change from 2015
24	Limited Quota Type 1	Change from Closed Season to Issuance of one (1) Type 1 license valid for any ram
Herd Unit Total	Net Change	+ 1 Limited Quota license for any ram

## **Management Evaluation**

**Current Postseason Population Management Objective: 150**

**Management Strategy: Special**

**2015 Postseason Population Estimate: 60**

**2016 Proposed Postseason Population Estimate: 75**

The Darby Mountain bighorn sheep herd population objective is 150 sheep. This objective was established in 1991, and will be reviewed in 2016 (Appendix A).

The 2016 hunting season will be the first year of hunting since the season was closed in 2012. During this time period the season was closed due to concerns over the general absence of trophy class rams in the population.

On-ground and aerial surveys were conducted in April through July 2015. The 2015 surveys resulted in a minimum of 55 different sheep being observed.

## **Herd Unit Issues**

In 1981 the Wyoming Game and Fish Department and U.S. Forest Service reintroduced bighorn sheep (*Ovis canadensis*) into the Wyoming Mountain Range, west of Big Piney, Wyoming. The last wild sheep occupied this range in the early 1960s. Competition with domestic sheep and illegal harvest were believed responsible for their extirpation. Prior to the transplant, domestic sheep were removed from allotments on Fish Creek and Darby Mountain, which provided the best historic bighorn sheep habitat. In January 1981, 35 Rocky Mountain sheep were transplanted from the Whiskey Basin Habitat Unit near Dubois, Wyoming to Fish Creek Mountain. In January 1987, another 25 bighorn sheep were transplanted from Whiskey Basin to the Fish Creek Mountain site. Funding assistance for this relocation effort was provided by the Foundation for North American Wild Sheep (FNAWS).

The estimated herd size in mid-winter 1988 was 110 sheep. However, the actual count on 20 February 1988 was 70 sheep and poor weather prevented completion of the survey. A comprehensive on-ground and aerial survey was conducted from 20 June - 14 July 1988 in approximately a 90 square mile area around Fish Creek Mountain. These surveys resulted in a post-lambing count of a minimum of 124 sheep consisting of 56 ewes, 28 lambs and 40 rams in the herd. In 1988 the first hunt was conducted in Hunt Area 24, based primarily on the results of the previous survey. Four permits were issued with 3/4 curl restrictions and four rams were harvested. The population is estimated to have increased to approximately 150 sheep in 1994. The department continued to issue four permits for 3/4 curl rams from 1988 through 1997.

Forage production and availability studies on Fish Creek and Darby Mountain winter ranges, (prior to the 1981 re-introduction) suggested a combined capacity for 150 to 175 sheep in most winters. Other potential wintering sites were identified north and east of Fish Creek Mountain. Since 1981 individuals and small groups of sheep that typically number less than 15 individuals have been observed wintering near Star Hill, above the

Middle Piney Creek summer homes, the hydrographic divide between the Greys River and Green River drainages in Box Canyon Creek in Greys River drainage, and the windblown ridge tops in the Straight Creek drainage west of Mount Schidler. Fish Creek Mountain and Darby Mountain continue to support the largest concentrations of wintering sheep.

Most summer observations have occurred within the 90 square mile core area around Fish Creek Mountain. However, since 1994 a few sub legal rams and small ewe-lamb groups have been observed on summer range outside the core area. Summer dispersal of bighorn sheep have been documented along the crest of the Wyoming Mountain Range in the vicinity of the headwaters of South Cottonwood Creek, McDougal Peak, Gunsight Pass, Middle Piney Creek, Straight Creek, North Piney Creek and Roaring Fork drainages as well. This dispersal has resulted in bighorn sheep and domestic sheep mingling on summer ranges in several active sheep allotments.

## **Weather**

Weather conditions during the 2015 were ideal for forage production beginning in early spring and continuing through fall. By late summer the moisture regime had changed frequent precipitation scenario that persisted into the fall hunting season. Drought conditions in the early portion of the summer abated by late fall as persistent snow storms began to deposit snowpack in the Wyoming and Salt Mountain Ranges. By mid winter snow conditions on winter ranges had changed significantly. Little to no snow had accumulated on core winter ranges. These conditions persisted throughout the remainder of the winter. By late winter 2016 snowpack in western Wyoming watersheds were estimated to be at or slightly above normal. For additional weather and precipitation data please visit the following websites: <http://www.ncdc.noaa.gov/temp-and-precip/time-series> and <http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html>.

## **Habitat**

Winter range browse plants have been measured each spring and fall to assess production and utilization since the late 1990s. Growing conditions improved in 2015 on winter ranges because of moisture regimes in early spring and throughout the growing seasons. Improved growing conditions were due to spring and summer rains which have a different effect on shrubs than winter snowpack due to rates of infiltration. Leader production on Wyoming big sagebrush and black sagebrush were the species most notably improved compared to the 2013 and 2014 leader growth. However, average leader growth was still less than a half inch for Wyoming big sagebrush sites and less than two inches for mountain shrubs. For additional site specific information, please refer to the 2015 Annual Report Strategic Habitat Plan Accomplishments, for Pinedale Region habitat improvement project summaries ( <http://wgfd.wyo.gov/web2011/wildlife-1000708.aspx>).

## **Field Data**

### **2015 Survey**

An aerial survey was conducted on April 2, 2015 from a Bell 47 Turbine helicopter. The primary survey area encompassed the crest of the Wyoming Mountain Range and Bighorn Sheep Hunt Area 24. The objective of the survey was to document the location and age/sex characteristics of bighorn sheep.

The survey was initiated on the north at Mount McDougal and terminated on the south along the crest of the Wyoming Range at Cheese Pass and Fish Creek and Darby Mountains. All suitable bighorn sheep habitat was surveyed within the required budgetary constraints and as weather conditions permitted safe fly conditions. Incidental observations of other species were recorded as noted. No mountain goats (*Oreamnos americanus*) were observed along the Wyoming Range crest during this survey. Approximately 6 hours of survey time were completed.

A total of 55 sheep were observed. The age/sex classes were: 7 adult rams; 3 yearling rams; 28 ewes, and 17 lambs were observed. The observed age/sex ratios were noted as follows: 36 rams:100 ewes:61 lambs.

Bighorn sheep were observed in three primary locations. Those locations were: the crest of the Wyoming Range from Marten Creek south to Box Canyon Creek; Fish Creek Mountain to include Middle Piney Creek; and, Darby Mountain. A total of three (n=3) sheep were observed in Marten Creek and 16 sheep observed in Box Canyon Creek. Two rams (n=2) were observed in Straight Creek and one ewe and one lamb were observed in Middle Piney Creek. A total of 27 sheep were observed on Fish Creek Mountain, while five adult rams were noted on Darby Mountain.

### **Harvest**

One license valid for any ram was issued annually during the period from 2008 to 2012. A total of four rams were harvested from 2008 – 2011. In 2012, the one licensed hunter observed very few sheep and could not find a mature ram older than 5 years of age after 15 total days of hunting. The lack of mature rams observed by the hunter is consistent with Department field surveys over the past five years.

### **Population**

The population has stabilized at approximately 60 - 75 sheep. Systematic surveys, typically conducted from a helicopter in winter, have resulted in fewer than 60 sheep observed. Summer on-ground surveys conducted in August have identified the Box Canyon and Fish Creek Mountain areas as locations that typically support the highest aggregations of sheep.

### **Management Summary**

The 2016 bighorn sheep hunting season for Hunt Area 24 will be re-opened to hunting. A total of one (1) limited quota license will be issued valid for any ram. This hunting season will result in the harvest of one adult ram 2+-years old. The population estimate will remain at approximately 75 sheep.

## **DARBY MOUNTAIN BIGHORN SHEEP HERD AND POPULATION OBJECTIVE REVIEW**

**Prepared by:** Gary L. Fralick, Thayne & Big Piney Wildlife Biologist

### **POPULATION OBJECTIVE REVIEW**

In 1981 the Wyoming Game and Fish Department and U.S. Forest Service reintroduced bighorn sheep (*Ovis canadensis*) into the Wyoming Mountain Range, west of Big Piney, Wyoming (Figure 1). The Wyoming Range is historical bighorn sheep range with observations dating back to the 1920s. The last wild sheep occupied this range in the early 1960s. Competition with domestic sheep and illegal harvest were believed responsible for their extirpation. Prior to the transplant, domestic sheep were removed from allotments on Fish Creek and Darby Mountain, which provided the best historic bighorn sheep habitat. In January 1981, 35 Rocky Mountain sheep were transplanted from the Whiskey Basin Habitat Unit near Dubois, Wyoming to Fish Creek Mountain. In January 1987, another 25 bighorn sheep were transplanted from Whiskey Basin to the Fish Creek Mountain site. Funding assistance for this relocation effort was provided by the Foundation for North American Wild Sheep (FNAWS).

The estimated herd size in mid-winter 1988 was 110 sheep. However, the actual count on 20 February 1988 was 70 sheep and poor weather prevented completion of the survey. A comprehensive on-ground and aerial survey was conducted from 20 June - 14 July 1988 in approximately a 90 square mile area around Fish Creek Mountain. These surveys resulted in a post-lambing count of a minimum of 124 sheep consisting of 56 ewes, 28 lambs and 40 rams in the herd. As a result of this survey, the first hunt was held in Hunt Area 24, with four permits issued. The population is estimated to have increased to a maximum of approximately 150 sheep in 1994. The department continued to issue four permits for 3/4 curl rams from 1988 through 1997.

Forage production and availability studies on Fish Creek and Darby Mountain winter ranges (prior to the 1981 re-introduction) suggested a combined capacity for 150 to 175 sheep in most winters. Other potential wintering sites were identified north and east of Fish Creek Mountain. Since 1981 individuals and small groups of sheep (less than 10 individuals) have been observed wintering near Star Hill, above the Middle Piney Creek summer homes, the hydrographic divide between the Greys River and Green River drainages in Box Canyon Creek in Greys River drainage, and the windblown ridge tops in the Straight Creek drainage west of Mount Schidler. Fish Creek Mountain and Darby Mountain continue to support the largest concentrations of wintering sheep.

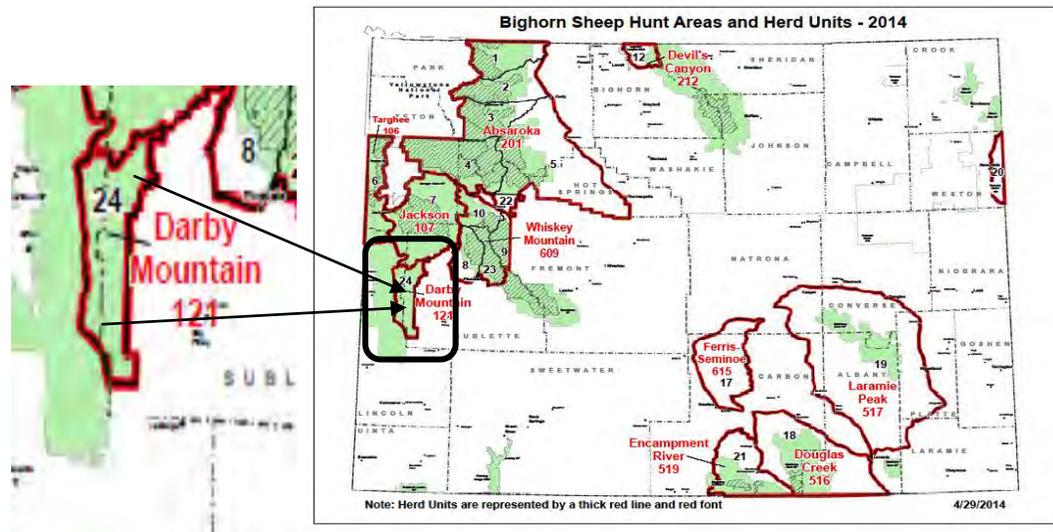


Figure 1. Darby Mountain bighorn sheep herd, Hunt Area 24, Wyoming.

### Bighorn Sheep Harvest Strategies

The first legal hunting season was established in 1988. Four licenses were issued which were valid for greater than or equal to  $\frac{3}{4}$  curl rams. The last hunting season was in 1997. During the 10-years that hunting seasons were in place, the following number of rams were legally harvested: 1988- 4 rams; 1989- 2 rams; 1990 and 1991- 2 rams each year; 1992-3 rams; 1994- 4 rams; 1995- 2 rams; 1996-3 rams; and, 1997 – 0 rams harvested.

Since 1996 the hunting season has been opened and closed during two separate periods. The 1996 hunting season was the last time a legal ram was harvested in this hunt area since hunting was first initiated in 1988. Four license holders harvested three legal rams in that year. The 1997 hunting season was the last year that legal hunting was permitted. No legal rams were harvested. Hunters reported observing very few sheep and no legal rams. The hunting season remained closed from 1998 – 2007. The hunting season was re-opened in 2008 and remained open through the 2012 hunting season.

It is likely that this population has stabilized at approximately 60 sheep (Figure 2). Systematic surveys, typically conducted from a helicopter in winter, have resulted in fewer than 60 sheep observed. Summer on-ground surveys conducted in August have identified the Box Canyon and Fish Creek Mountain areas as locations that typically support the highest aggregations of sheep.

## Population Size - Postseason

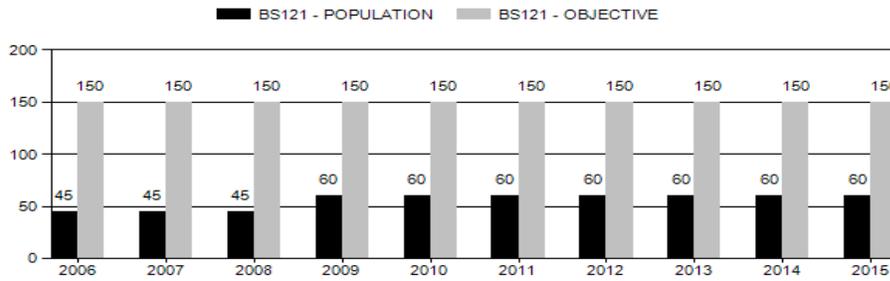


Figure 2. A posthunt population summary of the Darby Mountain bighorn sheep herd, Wyoming, 2006 – 2015.

Most summer observations have occurred within the 90 square mile core area around Fish Creek Mountain. However, since 1994 a few sub-adult rams and small ewe-lamb groups have been observed on summer range outside the core area. Summer dispersal of bighorn sheep have been documented along the crest of the Wyoming Mountain Range in the vicinity of the headwaters of South Cottonwood Creek, McDougal Peak, Gunsight Pass, Middle Piney Creek, Straight Creek, Box Canyon Creek, North Piney Creek and Roaring Fork drainages as well. In 2009, sub-adult bighorn rams were reported in Three Forks Creek (Greys River). This dispersal has resulted in bighorn sheep and domestic sheep co-mingling on summer ranges in several active sheep allotments.

### Current Management Strategy

Since 1996, bighorn sheep hunting seasons were implemented from 2008 – 2012 (Figure 3). Since 2012 the season has been closed due to the lack of mature rams, low lamb numbers and poor recruitment of sheep from juvenile to older age classes. The hunting season will be re-opened in 2016 for the first time since 2012 because a sufficient number of mature rams documented during spring and summer surveys conducted in 2015.

## Active Licenses

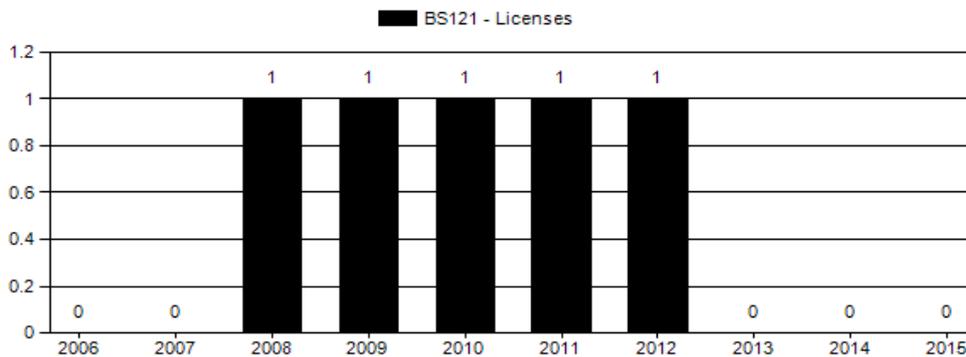


Figure 3. A summary of active licenses issued, 2006 – 2015, Darby Mountain bighorn sheep herd, Wyoming.

An aerial survey was conducted on April 2, 2015 from a Bell 47 Turbine helicopter. The primary survey area encompassed the crest of the Wyoming Mountain Range and Bighorn Sheep Hunt Area 24. The objective of the survey was to document the location and age/sex characteristics of bighorn sheep.

The survey was initiated on the north at Mount McDougal and terminated on the south along the crest of the Wyoming Range at Cheese Pass and Fish Creek and Darby Mountains. All suitable bighorn sheep habitat was surveyed within the required budgetary constraints and as weather conditions permitted safe fly conditions. Incidental observations of other species were recorded as noted. No mountain goats (*Oreamnos americanus*) were observed along the Wyoming Range crest during this survey. Approximately 6 hours of survey time were completed.

A total of 55 sheep were observed. The age/sex classes were: 7 adult rams; 3 yearling rams; 28 ewes, and 17 lambs were observed. The observed age/sex ratios were noted as follows: 36 rams:100 ewes:61 lambs (Figure 4).

Bighorn sheep were observed in three primary locations. Those locations were: the crest of the Wyoming Range from Marten Creek south to Box Canyon Creek; Fish Creek Mountain to include Middle Piney Creek; and, Darby Mountain. A total of three (n=3) sheep were observed in Marten Creek and 16 sheep observed in Box Canyon Creek. Two rams (n=2) were observed in Straight Creek and one ewe and one lamb were observed in Middle Piney Creek. A total of 27 sheep were observed on Fish Creek Mountain, while five adult rams were noted on Darby Mountain.

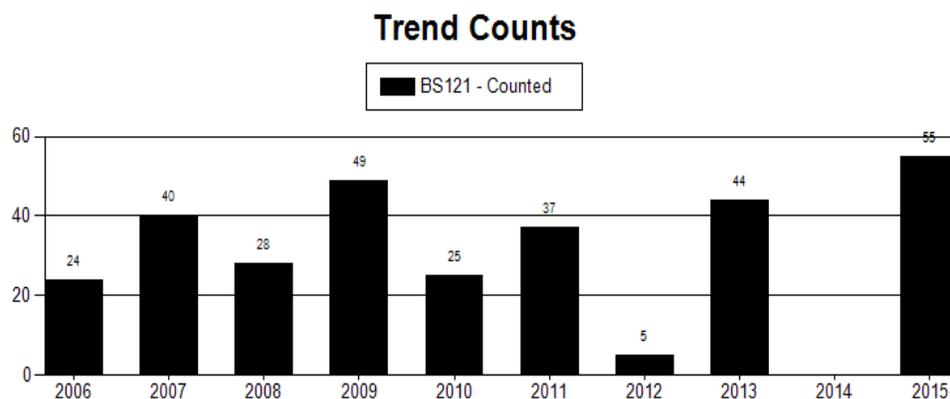


Figure 4. A summary of bighorn sheep observed during the annual trend counts, 2006 – 2015, Darby Mountain bighorn sheep herd, Wyoming.

Since 2006, four rams have been harvested in Hunt Area 24 (Figure 5) during years of open hunting seasons, 2008 – 2012. The licensed hunter in 2012 did not harvest a ram. Licensed hunters have focused efforts primarily on harvesting rams at least 5-years old. Since the hunt was initiated in 2008 – 2012, several trophy class rams were taken in the Darby Mountain herd.

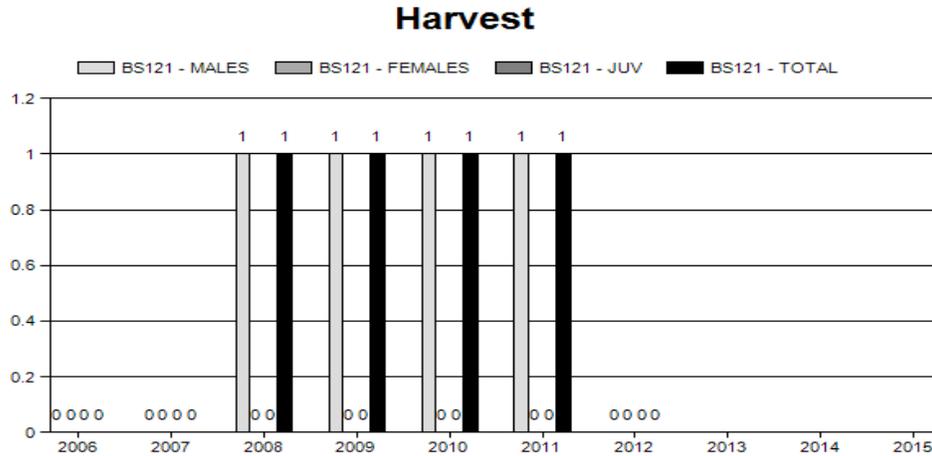


Figure 5. A summary of sex and age harvest characteristics, 2006 – 2015, Darby Mountain bighorn sheep herd, Wyoming.

**PROPOSED PRIMARY AND SECONDARY OBJECTIVE FOR THE DARBY MOUNTAIN BIGHORN SHEEP POPULATION AND SPECIAL MANAGEMENT STRATEGY**

A revised population objective review is warranted for the Darby Mountain bighorn sheep herd. A revision is based on the inability to approach within 20% of the current population objective of 150 sheep since 1991. The last population objective review was conducted in 1988.

*Primary Objective*

The primary objective for the Darby Mountain bighorn sheep herd is to manage for a summer trend objective of 65 bighorn sheep. The trend objective will be based on the average of the most recent three years of surveys of all known summer ranges occupied by the Darby Mountain bighorn sheep herd. Trend data will be analyzed using a 3-year running average to assess the variation between trend counts. The trend count objective will encompass a range of  $\pm 20\%$  ( $\pm 13$  animals, 52 – 78 sheep) of the target value.

*Secondary Objective*

The management criterion for the Darby Mountain bighorn sheep herd is Special Management. Parameters for the Special Management designation are proposed as secondary objectives and include:

- a. Maintain a mean age of hunter-harvested males of  $\geq 5$  years of age;
- b. Maintain a 5-year average hunter success of  $\geq 75\%$  ; and,
- c. Document at least 10 rams annually that exhibit horn characteristics of  $\geq \frac{3}{4}$  curl in length, or are estimated at least 7 years of age.

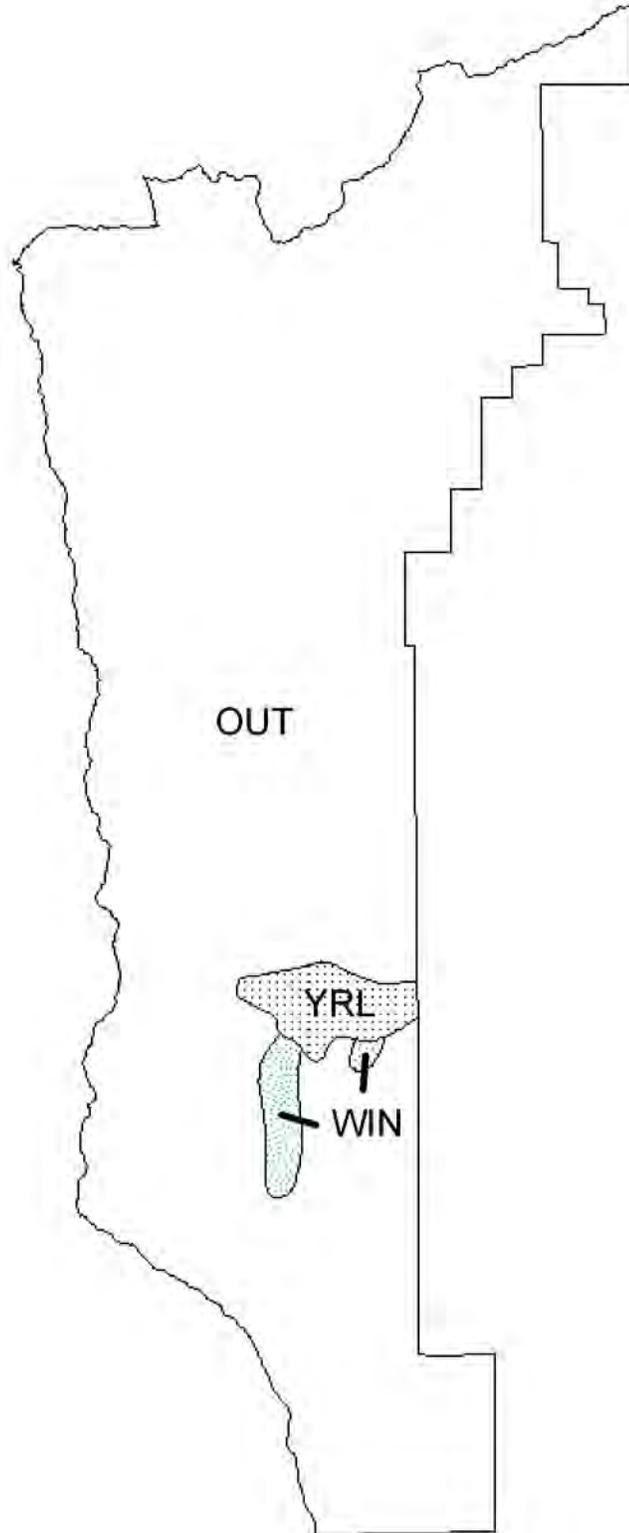
## **LANDOWNER, AGENCY AND PUBLIC INVOLVEMENT**

On March 2, 2016, the Department presented a preliminary assessment of proposed 2016 Big Game Hunting Seasons to the Jackson Hole Outfitters and Guides Association. Included in this presentation was a brief discussion of the Darby Mountain bighorn sheep herd management, proposed 2016 hunting seasons, and the upcoming review of the Darby Mountain population objective in March – May, 2016. Approximately 30 outfitters and guides were in attendance.

The Darby Mountain population objective was presented to the Bridger-Teton National Forest personnel during the annual WGFD/USFS coordination in Jackson on March 17, 2016.

During 2016 big game hunting season public meetings and open houses in Marbleton (March 14; 2 people), Thayne (March 15; 17 people), Pinedale (March 16; 14 people), and Jackson (March 17; 35 people) the Darby Mountain bighorn sheep population objective review was presented for public review.

Additional big game population review public meetings were held in Jackson and Pinedale on April 25, 2016.



BHS 121- Darby Mtn.  
HA 24  
Revised 7/02