

ELK

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2016 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL320 - FORTIFICATION

HUNT AREAS: 2

PREPARED BY: ERIKA PECKHAM

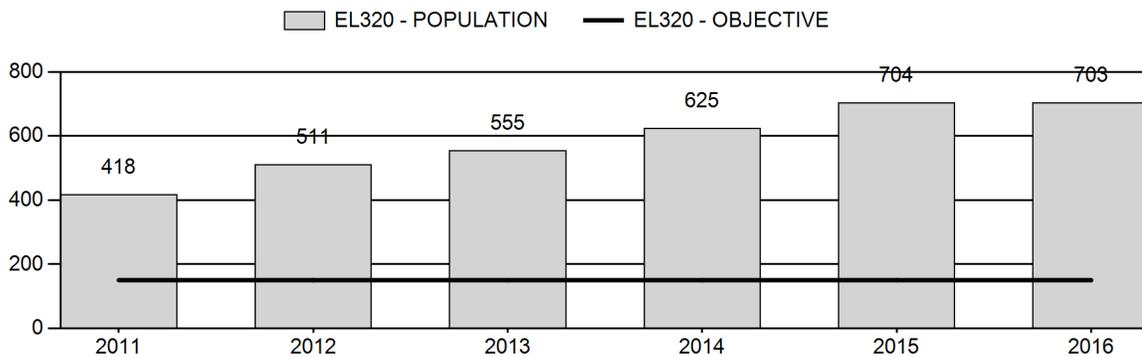
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	563	703	753
Harvest:	72	110	100
Hunters:	104	120	110
Hunter Success:	69%	92%	91%
Active Licenses:	104	132	120
Active License Success:	69%	83%	83%
Recreation Days:	422	423	400
Days Per Animal:	5.9	3.8	4
Males per 100 Females	50	52	
Juveniles per 100 Females	73	52	

Population Objective (± 20%) :	150 (120 - 180)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	369%
Number of years population has been + or - objective in recent trend:	9
Model Date:	2/26/2017

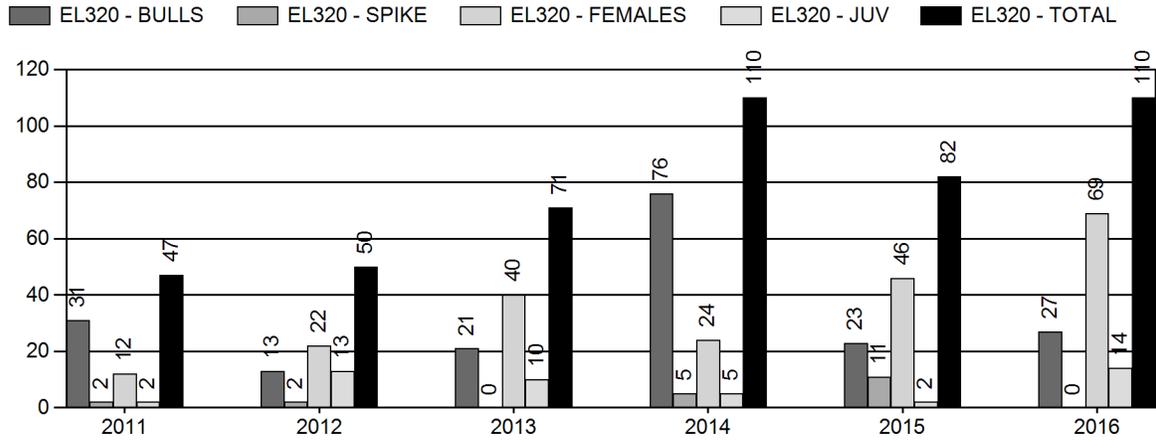
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	15.9%	20.0%
Males ≥ 1 year old:	7.3%	9.1%
Total:	10.6%	12.7%
Proposed change in post-season population:	8.4%	7.1%

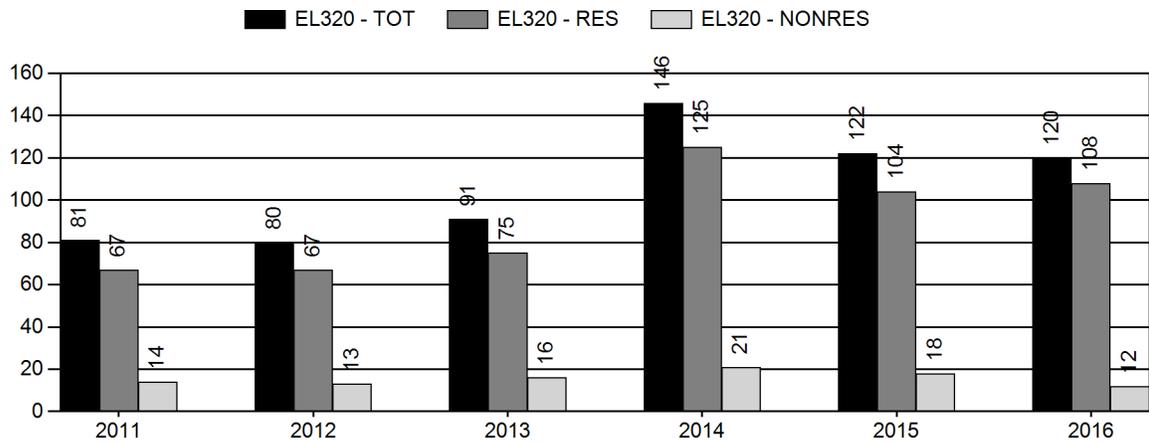
Population Size - Postseason



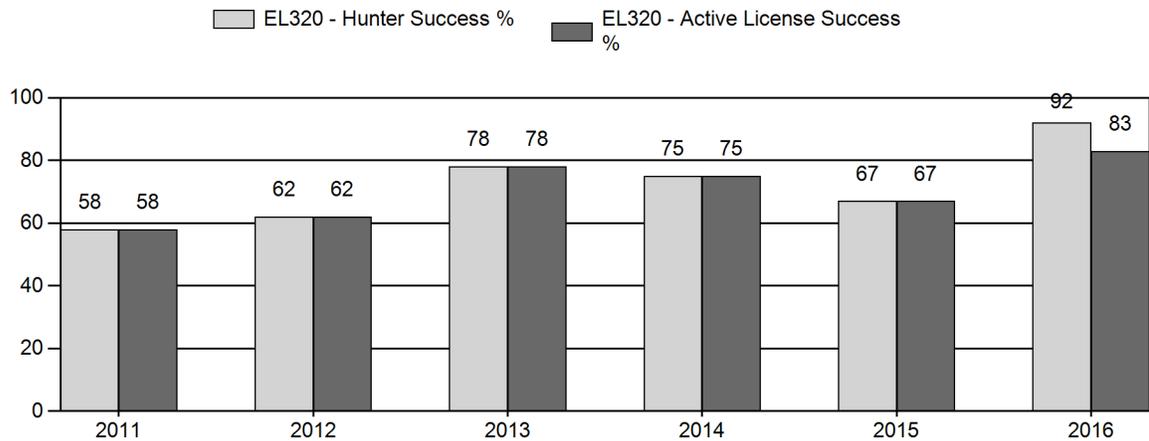
Harvest



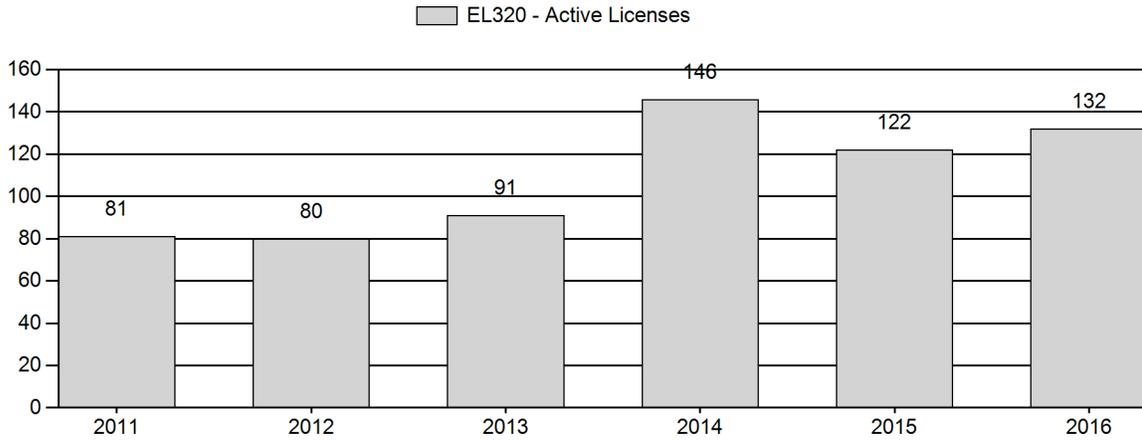
Number of Hunters



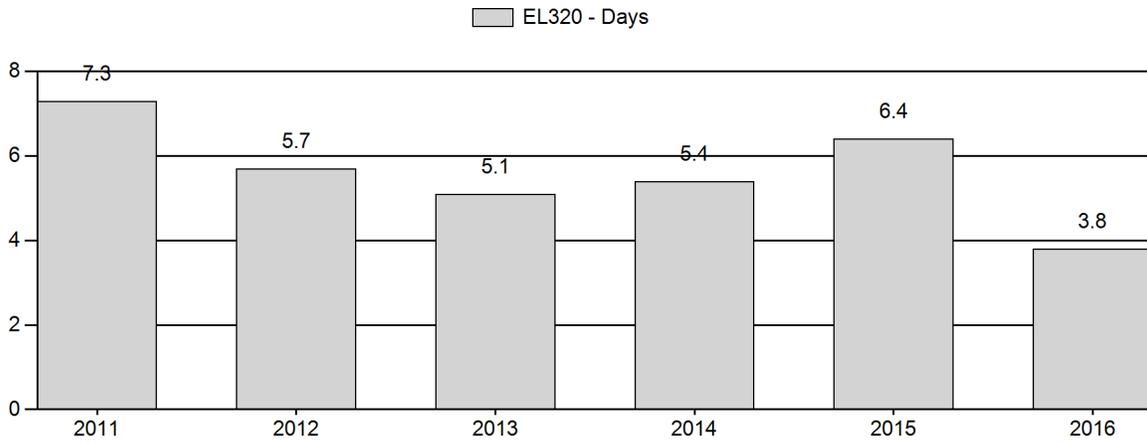
Harvest Success



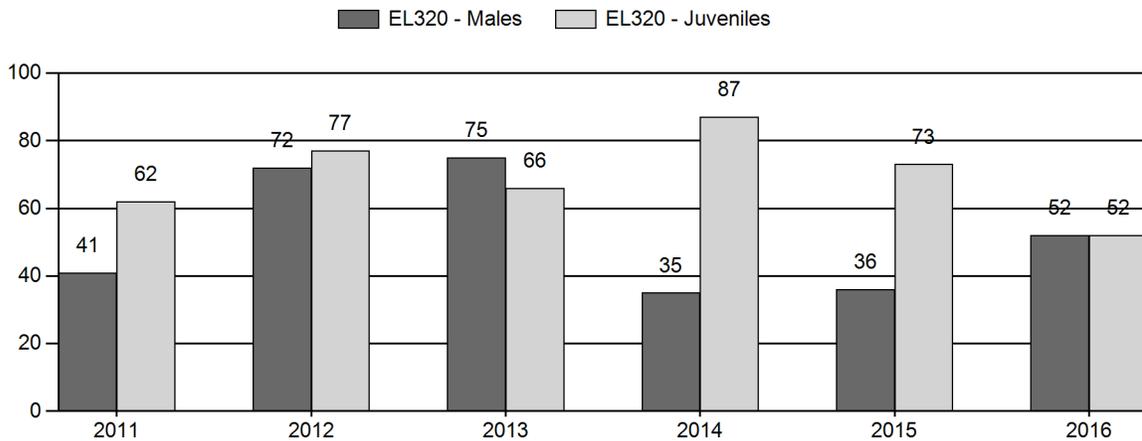
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2016 Postseason Classification Summary

for Elk Herd EL320 - FORTIFICATION

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	418	18	18	36	20%	87	49%	54	31%	177	197	21	21	41	± 8	62	± 10	44
2012	511	32	27	59	29%	82	40%	63	31%	204	215	39	33	72	± 12	77	± 13	45
2013	555	23	63	86	31%	114	41%	75	27%	275	438	20	55	75	± 10	66	± 9	38
2014	625	25	17	42	16%	121	45%	105	39%	268	0	21	14	35	± 6	87	± 11	64
2015	704	31	22	53	17%	148	48%	108	35%	309	0	21	15	36	± 6	73	± 9	54
2016	703	43	36	79	25%	153	49%	80	26%	312	517	28	24	52	± 7	52	± 7	34

**2017 HUNTING SEASONS
FORTIFICATION ELK HERD (EL320)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
2	1	Oct. 21	Oct. 31	35	Limited quota	Any elk
2	4	Oct. 21	Oct. 31	40	Limited quota	Antlerless elk
2	6	Oct. 21	Oct. 31	40	Limited quota	Cow or calf

Hunt Area	Type	Quota change from 2016
2	1	-5
2	4	-10
2	6	-10
Herd Unit Total	1	-5
	4	-10
	6	-10

Management Evaluation

Current Postseason Population Management Objective: 150

Management Strategy: Recreational

2016 Postseason Population Estimate: ~700

2017 Proposed Postseason Population Estimate: ~760

2016 Hunter Satisfaction: 91% Satisfied, 9% Neutral, 0% Dissatisfied

Herd Unit Issues

The management objective for the Fortification Elk Herd Unit is a post-season population objective of 150 elk. The management strategy is recreational management. The objective and management strategy were last reviewed in 2009. At that time landowners did not want the post-season population objective increased even though the population was over objective, nor did they want the herd decreased to 150 elk. This herd is slated for objective review in 2017.

This herd has great potential for growth if access cannot continue to be improved. Much of the occupied range for this herd includes land administrated by the Bureau of Land Management. Private land is scattered, but also surrounds the herd unit, resulting in a tightly controlled access situation. The opinions of landowners controlling hunting access thus have a great impact on how this herd is managed. At this time, landowners allowing access to this elk herd seem to be

relatively satisfied with the management direction, and have allowed access to the current number of license-holding hunters.

Coal bed methane development has occurred in the herd unit and has resulted in a network of roads and other development associated with the infrastructure required to support CBM extraction. The phased development plan was designed when it was projected there was going to be extensive CBM development in core elk habitat. This reduced impacts on the Fortification Elk Herd. The increased traffic was an issue with hunting in the past, however in recent years, development and activity has tapered off substantially. The more pressing issue in this herd unit will be proper reclamation as these wells are abandoned. There has been increased activity surrounding conventional oil drilling, however at this time it also has slowed with not much development planned in the immediate future.

The 2016 post-season population estimate from the spreadsheet model was about 700 elk. It is possible that this number is inflated as the highest number ever counted during a classification and trend count survey was 331 elk observed in February 2016. However field data and observations indicate that this herd has steadily trended upwards. This upwards trend has been occurring since around 2003. The field estimate is there are currently around 600 elk within the boundaries of the herd unit.

Weather

Weather throughout 2016 and into 2017 was not ideal for optimal rangeland conditions in this area. Drought conditions were experienced in much of this herd unit. The winter of 2015-2016 was mild with not much for snow accumulation, or prolonged snow cover. In contrast, the winter of 2016-17 was severe with numerous snowstorms and frequent below average temperatures. During this winter snow cover was persistent. With the cold temperatures, icing conditions occurred, making access to the limited forage even more difficult. As a result, over winter survival could have been impacted. The Palmer Drought Index indicates that more than half of 2016 experienced “moderate” or “severe” drought conditions in the Powder River drainage. Additionally, looking at historic temperature information for December and January, records indicate that the 30-year mean low temperature for Gillette in December is 13.2F and 14.5F for January. In contrast, December of 2016 experienced a mean low temperature of 2.5 with January reported as 9.7. These are substantially lower than the 30-year average.

Habitat

There is currently no formal habitat monitoring occurring in this herd unit. It should be noted that various stands of sagebrush in this area appeared to be stressed with overall low vigor. It is unknown for certain what may be the cause of this but is speculated that it may be related to the previous prolonged drought as stressed appearing sagebrush has been noted throughout the general area. These areas are being monitored to see if die-off is imminent or if the plants were stressed and will potentially rebound.

Field Data

This herd is classified aerially via a helicopter. Typically around 4 hours are spent in this area. Usually the elk are found in their preferred locations and these areas are systematically searched. If there is additional time then outlying areas are searched.

In general, the numbers of animals observed has been increasing since 2005. The day of the November 2016 classification flight, the conditions were ideal for a survey with good snow cover and cool temperatures. The elk were scattered throughout, with one larger group located in a slightly different area than they are typically seen. In total there were 312 elk classified. The numbers from the November flight indicate that the post season 2016 calf to cow ratio was 52, down from the 2015 ratio of 73:100. The 2016 bull ratio was 52:100, up from the 36:100 observed in 2015. It should also be noted that beginning a few years ago elk have been sighted increasingly in the areas adjacent to this Herd Unit. They are regularly spotted south of I-90, west of the Powder River and also east of Echeta Road. This is likely indicating that they have exceeded the capacity of their preferred range and are expanding outwards.

Classifications of Fortification Elk Herd 2004-2015

	Total	Juv	YrlgMale	AdultMale	Female
2004	66	13	3	9	41
2005	62	12	7	12	31
2006	173	56	21	15	81
2007	113	21	17	6	69
2008	135	40	12	14	69
2009	59	12	1	17	29
2010	164	36	13	31	84
2011	177	54	18	18	87
2012	204	63	32	27	82
2013	275	75	23	63	114
2014	268	105	25	17	121
2015	331*	108	31	22	148
2016	312	80	43	36	80

*Total is different, as there were 22 that were not classified

As this is a small herd, the ratios can very quickly become skewed when harvest emphasis is placed on either males or females, which is illustrated by the 2016 bull ratio of 56:100. Historically, each year rotates, with a focus on cows to keep the overall number in check, and bulls to keep the bull ratio in a healthy range. In both 2015 and 2016 cow harvest was emphasized, as it was noted that the herd was continuing to grow. It does appear that the bull ratio is beginning to be skewed.

One difficulty associated with the management of this herd is achieving adequate sample sizes during classification surveys. The elk can be difficult to locate under dense juniper cover and frequently they do not run when disturbed by survey flights. With these habitat factors, sightability is likely decreased and it is probable that there are a fair number of animals that are not detected during classification. The Fortification Herd Unit might be a candidate to attempt using infa-red survey techniques to find out if more elk can be located.

Harvest

In 2016 there were 140 licenses available, 40 Type 1 any elk, 50 Type 4 antlerless elk license and 50 Type 6, cow or calf licenses. The addition of the Type 6 licenses was to have the ability to harvest more cows with the potential for less people on the ground, with some Type 1 or 4 licenses holders potentially purchasing an additional Type 6 licenses. It seemed that this was achieved to some degree. This number of licenses was in line with what the landowners allowing access were willing to accommodate, however it was felt that after experiencing this number of hunters it was too many for what the available landscape could accommodate. The season time and length seemed to be adequate to allow a reasonable harvest and worked well for the private landowners who allowed public access. It should be noted that the conditions during this time span were very favorable to hunting. In years when moisture is received it results in many roads being closed and decreased access to elk. In 2016 the overall success rate was 92%, which is the highest on record for this herd and well above the preceding 5-year average of 68%.

Population

The “Constant Juvenile – Constant Adult Mortality Rate” (CJCA) spreadsheet model was chosen to use for the post season population estimate of this herd. This model equals the SCA-CJ model with the lowest AIC value (103) and appears to depict the trend that is occurring. It is likely that the population estimate of ~750 is inflated (poor model), although the increasing trend is probably accurate. The efficacy of the Spreadsheet Model can be affected by several factors. One factor that comes into play is the herd size. These models work better with larger herds. The Fortification Herd is a relatively small herd, and therefore the accuracy of the model likely decreases. None of the other models for this herd appeared to be accurate, and due to the hardiness of elk, it is unlikely that they were substantially negatively impacted in some of the more difficult winters from 2008-2010. Other methods of estimating population may be looked into in the future.

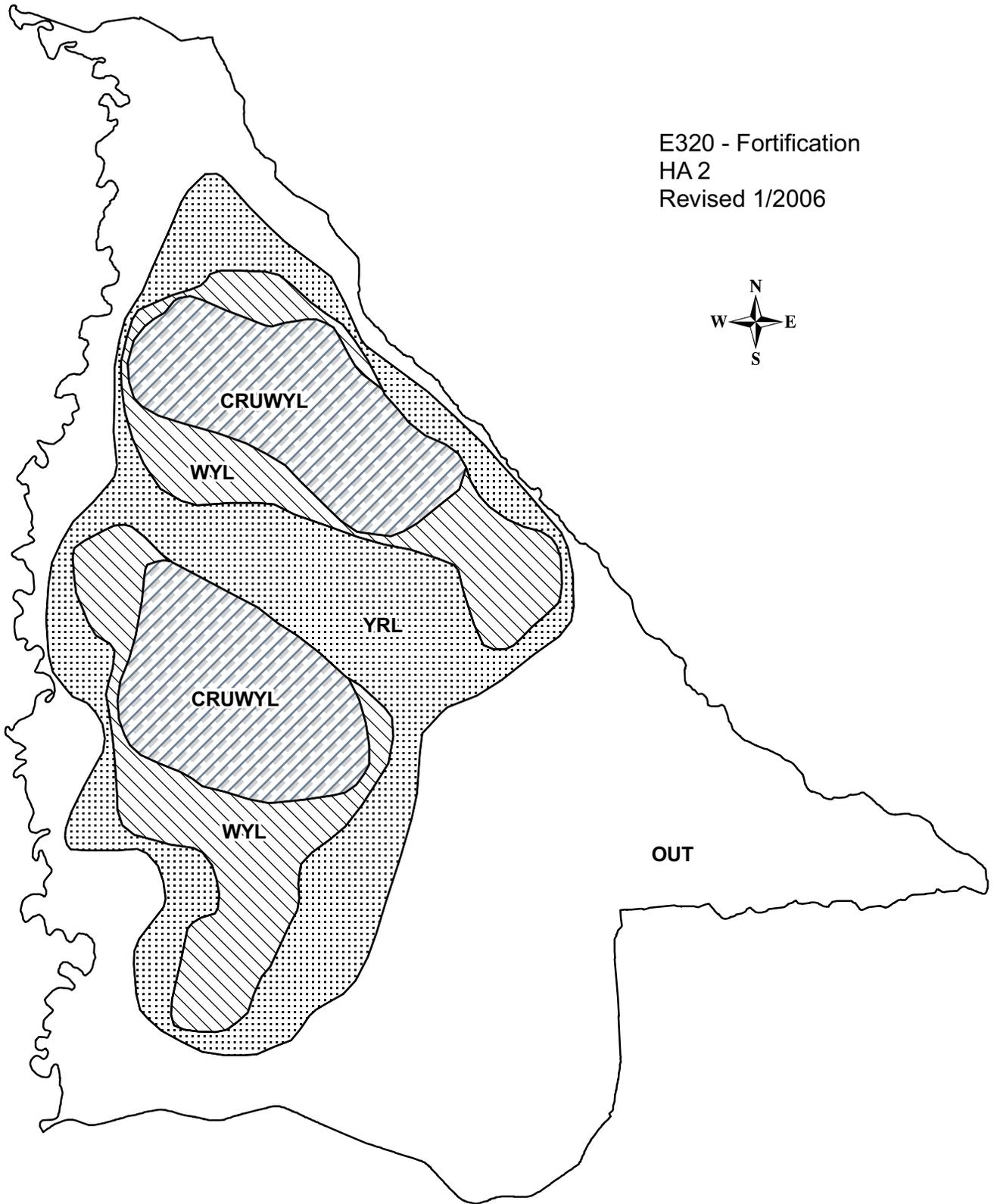
Management Summary

Both BLM and Game and Fish staff have dedicated efforts to studying the behavior and movements of elk with an ongoing radio-collar study. In March of 2011, 35 cow elk were fitted with GPS collars. In addition to that collaring effort, in January of 2014 another 35 cow elk were also fitted with GPS collars. Currently there are 8 collared individuals with functioning collars. These are collars that should have fallen off, but did not. In the past collaring of the elk was funded in part by Anadarko Petroleum. Moving forward, as oil companies that are active in the Fortification area change, it is uncertain when the next collaring effort will be undertaken.

Several nongovernmental organizations have taken a keen interest in the area and the elk herd in particular. The viewpoint of many of these groups is that elk should be more protected within the herd unit. Coal bed methane development in the herd unit has reduced the total amount of effective elk habitat. Conventional oil development is anticipated to increase at some point in the Powder River Basin and could be a factor in the Fortification Elk Herd Unit. However, even with past and current development, the population is well over the management objective. Harvesting elk towards objective would help reduce risks of overcrowding and degradation of suitable remaining habitat. A high priority is being placed upon maintaining habitat quality during development so that the area can continue to support a healthy herd of elk after energy development has ceased.

In 2016 there were 140 licenses issued. After experiencing the season with this number of hunters, it was believed by the landowners allowing the majority of hunting, that this was too many licenses for the area. During the annual meeting held in January 2017 continued concern was expressed regarding the number of elk. Although typically the harvest pressure rotates from bulls to cows, due to the continued and projected growth of this herd, another year emphasizing cow harvest was desired. If we attain the projected harvest of 100 elk, the population may still increase in spite of the highest harvest in recent years.

E320 - Fortification
HA 2
Revised 1/2006



2016 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL321 - NORTH BIGHORN

HUNT AREAS: 35-40

PREPARED BY: TIM THOMAS

	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Trend Count:	5,766	5,021	5,000
Harvest:	1,363	1,460	1,500
Hunters:	4,250	4,435	4,500
Hunter Success:	32%	33%	33%
Active Licenses:	4,408	4,719	4,750
Active License Success	31%	31%	32%
Recreation Days:	32,064	34,080	35,000
Days Per Animal:	23.5	23.3	23.3
Males per 100 Females:	23	34	
Juveniles per 100 Females	49	51	

Trend Based Objective (± 20%) 4,350 (3480 - 5220)

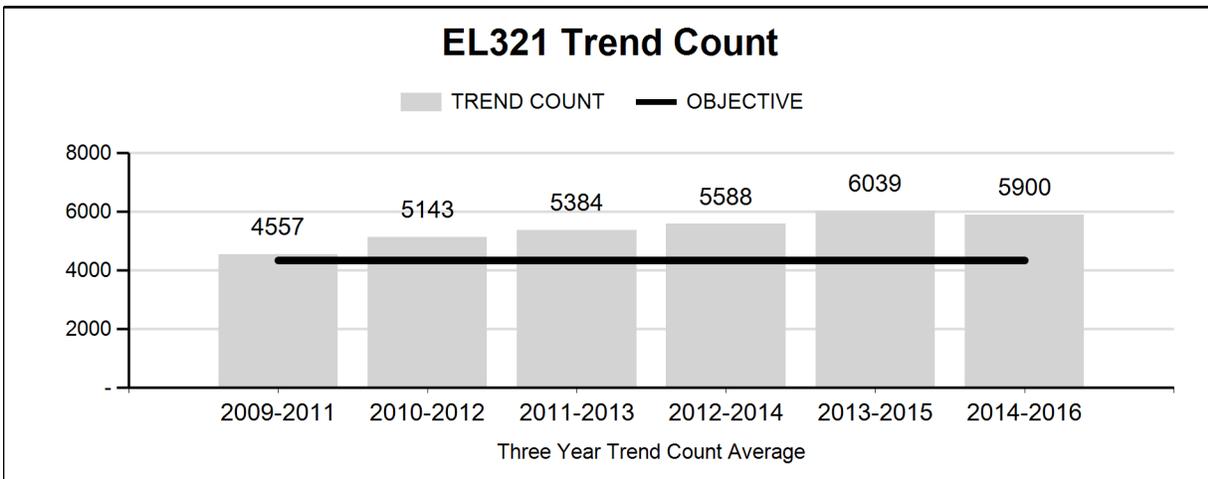
Management Strategy: Special

Percent population is above (+) or (-) objective: 15%

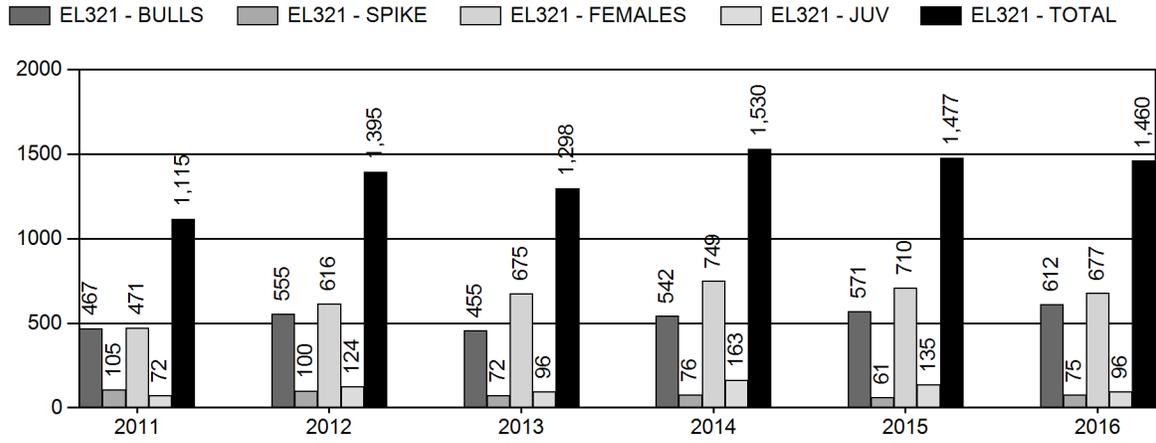
Number of years population has been + or - objective in recent trend: 5

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

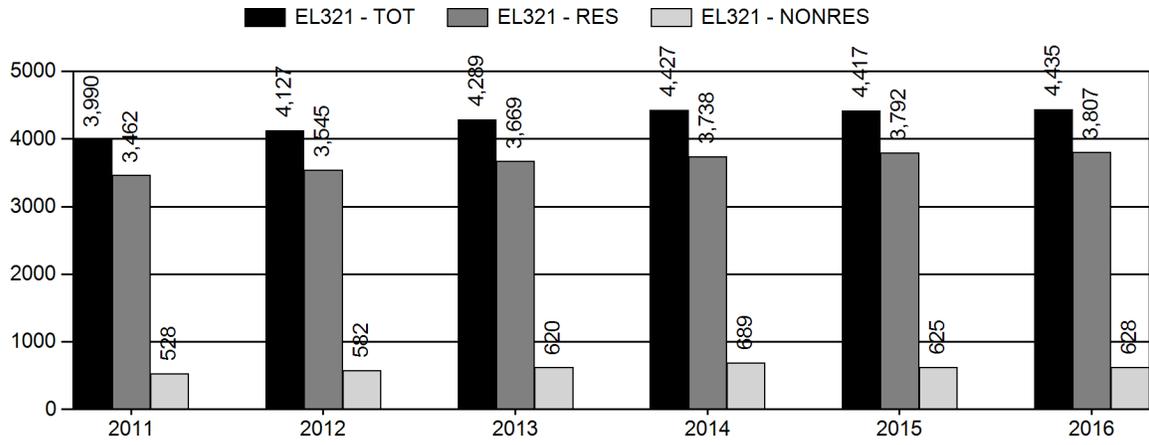
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	20%	22%
Males ≥ 1 year old:	36%	36%
Juveniles (< 1 year old):	5%	5%



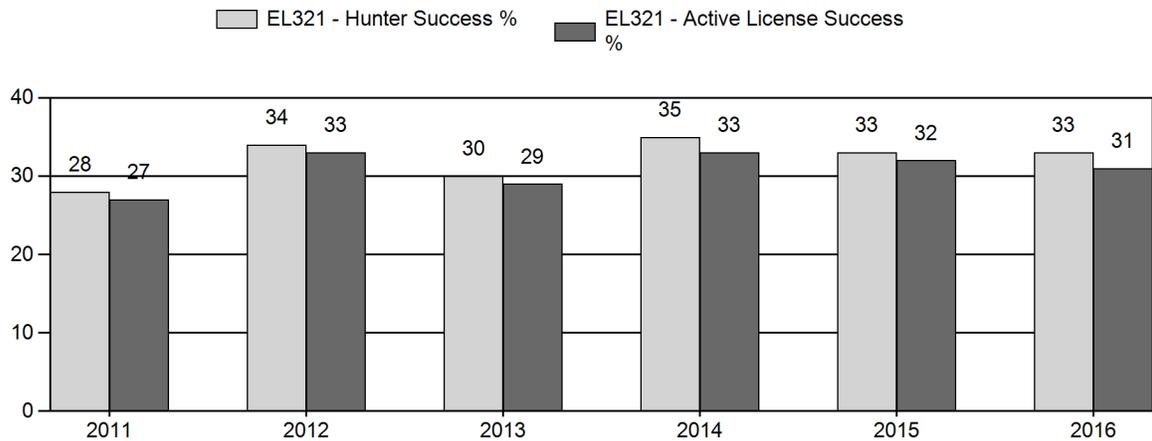
Harvest



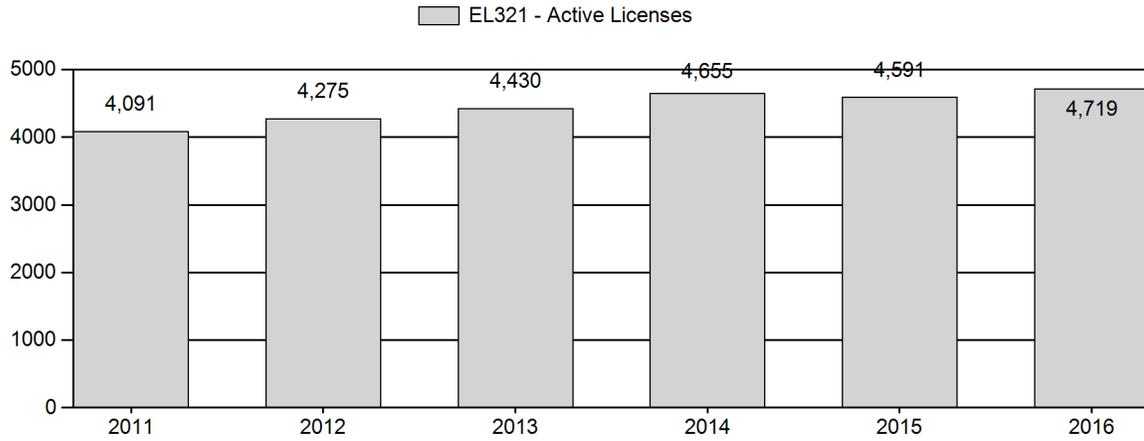
Number of Hunters



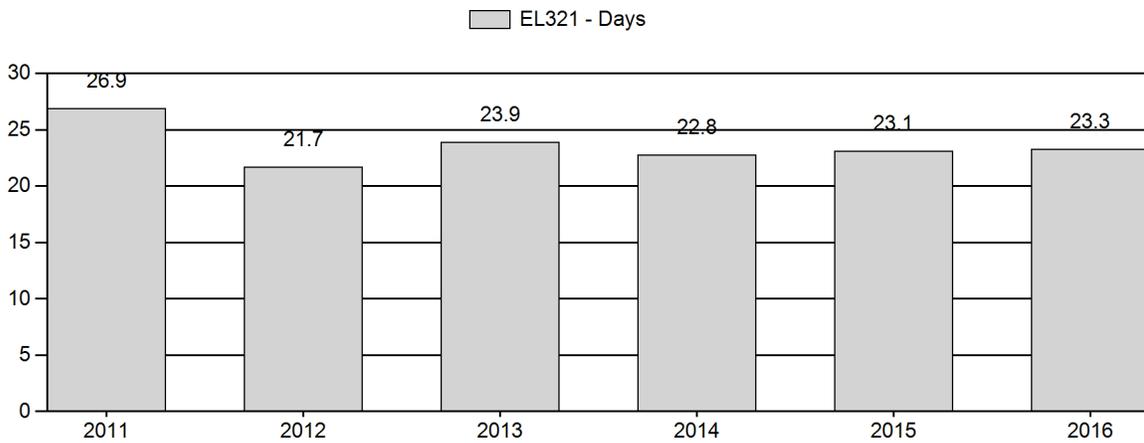
Harvest Success



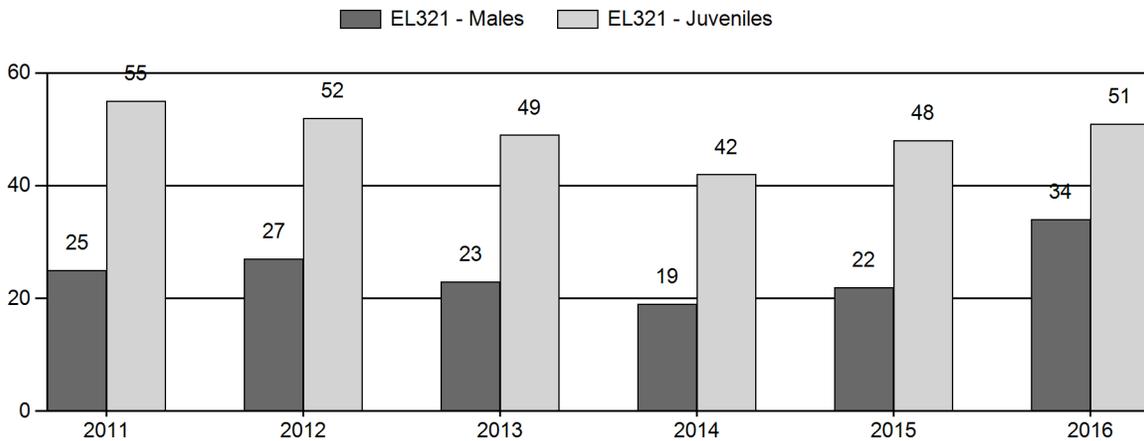
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2016 Postseason Classification Summary

for Elk Herd EL321 - NORTH BIGHORN

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	5,500	160	103	263	14%	1,059	55%	587	31%	1,909	853	15	10	25	± 2	55	± 3	44
2012	5,400	148	111	259	15%	977	56%	509	29%	1,745	791	15	11	27	± 2	52	± 3	41
2013	0	103	43	146	13%	643	58%	312	28%	1,101	736	16	7	23	± 0	49	± 0	40
2014	0	146	88	234	12%	1,221	62%	514	26%	1,969	504	12	7	19	± 0	42	± 0	35
2015	0	74	101	175	13%	787	59%	377	28%	1,339	709	9	13	22	± 0	48	± 0	39
2016	0	137	115	252	19%	734	54%	372	27%	1,358	801	19	16	34	± 0	51	± 0	38

**2017 HUNTING SEASONS
NORTH BIGHORN ELK HERD (EL321)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
35	1	Oct. 15	Nov. 5	150	Limited quota	Antlered elk
	4	Oct. 15	Dec. 31	200	Limited quota	Antlerless elk
	6	Oct. 15	Dec. 31	200	Limited quota	Cow or calf elk valid off national forest
	9	Sep. 1	Sep. 30	50	Limited quota	Any elk, archery only
36		Oct. 15	Nov. 5		General	Antlered elk
	4	Oct. 15	Dec. 31	300	Limited quota	Antlerless elk
	6	Oct. 15	Nov. 5	200	Limited quota	Cow or calf
	9	Sep. 1	Sep. 30	50	Limited quota	Any elk, archery only
37		Oct. 15	Nov. 5		General	Any elk
	6	Sep. 1	Sep. 30	400	Limited quota	Cow or calf valid off national forest
	6	Oct. 1	Nov. 30			Cow or calf valid in the entire area
	7	Dec. 1	Dec. 31	100	Limited quota	Cow or calf valid off national forest
	9	Sep. 1	Sep. 30	150	Limited quota	Any elk, archery only
38	1	Oct. 15	Nov. 5	350	Limited quota	Any elk
	1	Nov. 6	Nov. 15			Antlerless elk
	4	Oct. 1	Oct. 10	500	Limited quota	Antlerless elk
	4	Oct. 15	Nov. 15			Antlerless elk
	6	Nov. 16	Dec. 31	50	Limited quota	Cow or calf valid off national forest; the Wyoming Game and Fish Commission's Kerns and Amsden Creek Wildlife Habitat Management Areas shall be closed
	9	Sep. 1	Sep. 30	200	Limited quota	Any elk, archery only
39	1	Oct. 15	Nov. 4	200	Limited quota	Any elk
	1	Nov. 5	Nov. 15			Antlerless elk
	4	Oct. 1	Oct. 10	75	Limited quota	Antlerless elk
	4	Oct. 15	Nov. 15			Antlerless elk
	9	Sep. 1	Sep. 30	75	Limited quota	Any elk, archery only

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
40	1	Oct. 15	Nov. 4	225	Limited quota	Any elk
	4	Oct. 15	Nov. 30	200	Limited quota	Antlerless elk
	5	Oct. 1	Oct. 10	50	Limited quota	Antlerless elk
	5	Oct. 15	Nov. 30			Antlerless elk
	6	Sep. 1	Oct. 14	100	Limited quota	Cow or calf valid off national forest
	6	Oct. 15	Nov. 30			Cow or calf valid in the entire area
	9	Sep. 1	Sep. 30	100	Limited quota	Any elk, archery only

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
36, 37	All	Sep. 15	Sep. 30	Valid in the entire area(s)
35	1, 4	Sep. 15	Sep. 30	Valid in the entire area(s)
35	6	Sep. 15	Sep. 30	Valid off National Forest

Hunt Area	Type	Quota change from 2016
35	1	+ 50
	4	+ 50
	6	+ 50
40	1	+ 50
40	9	+ 25
Herd Unit Total	Type	Quota change from 2016
	1	+100
	2	No Change
	4	+ 50
	5	No Change
	6	+ 50
	7	No Change
	9	+ 25

Management Evaluation

Current Mid-Winter Trend Management Objective: 4,350

Management Strategy: Special

2016 Winter Trend Count: 5,021

Most Recent 3-year Running Average Winter Trend Count: ~ 5,900

2016 Hunter Satisfaction: 58% Satisfied; 20% Neutral; 22% Dissatisfied

Herd Unit Issues

The management objective for the North Bighorn Elk Herd Unit is a mid-winter trend count of 4,350 elk. The management strategy is special management overall, with special management emphasis in limited quota hunt areas (Areas 35, 38, 39 and 40) and recreational management emphasis in general license hunt areas (Areas 36 and 37). The objective and management strategy were last revised in 2012. The objective and management strategy 5 year evaluation was conducted in 2017 with no changes recommended.

There are several areas, consisting primarily of private lands, within the various hunt areas of this herd unit that act as refugia for elk, providing a safe harbor from harvest. This limits managers' ability to maintain these groups within desired population levels, leading to frustration for the general hunting public as elk move from publically accessible areas to these refuge areas. Landowners are also frustrated as elk move off refuge areas and cause damage to stored and standing crops on adjacent ranches. This problem has grown over the past 25+ years, especially in the eastside hunt areas – specifically Areas 35, 36 and 37 - as larger ranches have changed ownership and traditional views on elk management and hunter access have changed.

During four of the last five seasons (2012, 2013, 2014 and 2016), hunter harvested elk from this herd unit tested seropositive for exposure to the bacterium *Brucella abortus*. *B. abortus* is the bacterium that causes the disease brucellosis in livestock, elk and bison. In 2012, blood samples were collected from hunter harvested elk in Hunt Area 40 on the west side of the Bighorn Mountains during routine statewide monitoring for brucellosis. Two of these samples tested seropositive. In response, an enhanced brucellosis surveillance effort was initiated in all elk hunt areas in the Bighorn Mountains in 2013 and has occurred every year since then.

Weather

The temperature and precipitation data referenced in this section were collect at the Burgess Junction (#481220), Shell (#488124) and Sheridan Airport (#488155) weather stations located within this herd unit. These data were reported by the Western Region Climate Center on their website (www.wrcc.dri.edu).

The spring of 2016 was relatively warm and wet, resulting in a good start for forage production in the Bighorn Mountains. Starting in May, precipitation was below average for the summer, with temperatures near or above normal. The fall of 2016 was generally warm and wet. Precipitation was significantly above normal (September) or near normal (October – November), with temperatures slightly (September) to well (October-November) above normal. Temperatures were well below average in December and January, moderating in February. Precipitation was above normal to normal during December and January. Elk appeared to have entered the winter in good condition. Increased fall and winter precipitation, combined with prolonged periods of below average temperatures likely decreased overwinter survival of calf elk.

Field Data

Biologists and wardens conduct winter trend counts in this herd unit during January – February using aerial survey techniques with rotary and fixed-wing aircraft. Good snow cover and

favorable flying conditions dictate survey time period annually. Managers on the west side (Areas 39 and 40) usually classify elk during these surveys also.

We counted 5,021 elk on winter ranges during January-February 2016, which is ~15% above the established mid-winter count objective of 4,350 (Table 1). This is the lowest winter count since 2010 in this herd unit.

Table 1. Desired elk distribution and actual winter trend counts in North Bighorn Elk Herd Unit.

Hunt Area	Winter Count Objective	2014 Winter Count	2015 Winter Count	2016 Winter Count	2016 # Over / Under Objective	3-year (2014-16) Running Mean
35	400	926	1,179	148	-252	751 (+88%)
36	800	1,002	1,074	905	+105	994 (+24%)
37	800	1,466	1,752	1,668	+868	1,605 (+104%)
38	1,000	1,000	1,560	942	-58	1,167 (+17%)
39	500	989	718	452	-48	720 (+4%)
40	850	686	327	906	-56	640 (-25%)
	4,350	6,069	6,610	5,021	+671	5,900 (+36%)

Hunt Area 40 saw an increase in elk numbers, where an additional 579 elk were counted compared to the previous year (Table 1). All other hunt areas saw a decrease in observed elk. A large number of elk that normally winter in Area 35 moved south into Area 34, which is part of the South Bighorn Elk Herd Unit. The extra elk that wintered near the Kerns WHMA in 2015 did not show up this year. Elk likely moved from Area 39 into Garvin Basin, MT this year. Upwards of 1,500 elk winter in Garvin Basin and return to Wyoming during the summer months. Seasons have been liberalized and harvest increased in recent years to reduce elk populations to more desired levels.

We classified 1,358 elk during January 2016, all on the west side (Areas 39 and 40) of the Bighorn Mountains. We observed 51 calves:100 cows, suggesting excellent calf production. This could be a function of favorable environmental conditions the past couple of years, resulting in cows in good physical condition and improved pregnancy rates.

We observed 34 bulls (19 yearling; 16 adult):100 cows, the highest bull to cow ratio recorded in 30+ years. The observed yearling bull to cow ratio suggests excellent recruitment of bulls in 2016, likely the result of increased calf production in 2015 and mild winter conditions. This level of recruitment should be sufficient to maintain current levels of bull harvest. The observed adult bull to cow ratio is not likely representative of the true population. The total bull to cow ratio is a minimum bull:cow ratio as mature bulls (> 2 yrs old) tend to winter away from cow/calf/young bull groups, making them more difficult to find during surveys. We did locate several wintering bulls groups in some hunt areas that are not included in the above ratio because the corresponding cow/calf groups weren't classified.

According to the 2016 hunter satisfaction survey, 58% of 1,204 hunters were satisfied with their elk hunting experience in this herd unit, 22% were dissatisfied, with the balance being neutral. This was similar to satisfaction levels for the 2015 season. Hunters were more satisfied in the limited quota hunt areas (65%) compared to the general license areas (49%) which is expected. Limited quotas areas tend to be less crowded, have higher success and generally have better quality bulls, factors that likely influence satisfaction levels. Nonresident hunters (n=220)

tended to be more satisfied (61%) than resident hunters (57%, n=984), although the difference is not as pronounced as it has been in previous years. Hunter satisfaction is subjective and based on individual values, perceptions and success.

Harvest Data

Hunters harvested an estimated 1,460 elk in 2016, about the same as in 2015. This is the third highest estimated harvest ever in this herd unit. Both yearling and adult bull harvest increased in 2016, with the highest adult bull harvest ever this year. While combined cow and calf harvested decreased slightly in 2016, it was still the third highest combined harvest ever in this herd unit.

During 2007-2011, hunters harvested an average of 558 total bulls compared to an average of 624 bull elk during 2012-2016. Adult bull harvest averaged 454 during 2007-2011 compared to an average 547 during 2012-2016. Estimated branched antlered bull harvest was over 500 bulls four of the past five years. With an emphasis on special management in the limited quota hunt areas of this herd unit, we are concerned with the level of bull harvest in recent years. We plan to monitor bull quality in these areas. Yearling bull harvest has remained relatively stable over the past four years, ranging from 61 to 77. This is actually a decline from the previous decade, suggesting a shift in hunter selection for branched antlered bulls.

Hunter success was estimated at 33%, the same as in 2015 and generally an increase from the previous 10 years. Effort, as measured by the days required to harvest elk, was 23.3 days per harvest, similar to 2015. Open weather conditions during much of October and early November kept elk scattered across most of the herd unit, requiring hunters to expend some additional effort to find them. The open conditions also allowed good access to most of the herd unit, resulting in good success. Extended hunting season strategies helped provide opportunity for antlerless harvest.

Archery hunters harvested an estimated 184 elk in this herd unit, 13% of the total harvest. Statewide, archery hunts harvested ~10% of the elk in 2016. Archers are particularly successful on bull elk, harvesting an estimated 154 bulls (22% of total bull harvest), consisting of 114 adult bulls (≥ 2 years old) and 40 yearling bulls. Several hunt areas in this herd unit are generally considered some of the best opportunities for trophy elk archery hunting in Wyoming. This level of bull harvest, by either archery or firearm hunters, may not be sustainable over time to meet special management objectives and will be monitored.

Population

We do not have a spreadsheet model developed for this herd unit because: 1) we do not manage this herd based on a post-season population objective; 2) this is an interstate elk herd; and 3) up to 25% of this herd migrates onto the Crow Indian Reservation in Montana each fall, where harvest is unregulated and unmonitored. We manage this herd based on mid-winter trend counts. Elk generally winter in traditional areas within this herd unit and we likely count 80-90% of wintering elk in any given year.

Based on elk winter trend counts, it appears this population has increased in recent years (Fig. 1). It is difficult to know how much of this is an actual increase in the population and how much a shift of elk wintering in Wyoming versus Montana due to varying winter conditions. Efforts are being made, through liberalized hunting season strategies, to reduce this population towards

objective. Harvest the past 5 years has been the highest 5 years ever, averaging over 1,400 elk harvested each year.

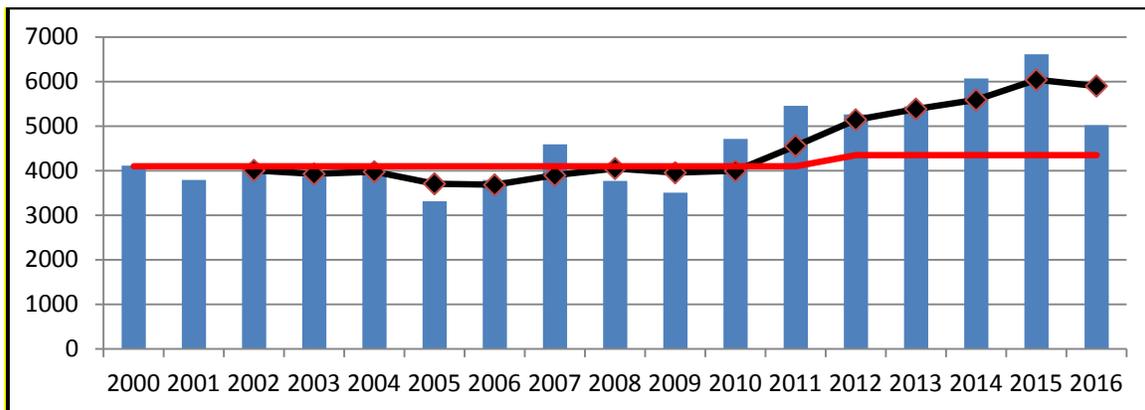


Figure 1. Elk numbers, with 3-year running average (black line), observed during trend and classification surveys compared to the management objective (red line).

Management Summary

In general, bull elk hunting runs from October 15 thru November 4 or 5 in this herd unit. With 4 of the 6 hunt areas in this herd unit managed under limited quota strategies, we have been successful maintaining trophy quality hunting opportunities throughout the herd unit. Recent increases in bull harvest may reduce bull quality and will be closely monitored. Cow hunting, either on full price antlerless licenses or reduced price cow or calf licenses, varies among hunt areas based on local management desires and concerns.

Archery hunting is allowed during the month of September. In Hunt Areas 35, 36, and 37, Type 9 (archery only) license holders can hunt the entire month, while other license holders (i.e. General, Type 1, Type 4 or Type 6 license holders) can hunt starting September 15. In Hunt Areas 38, 39, and 40, archery hunting is by Type 9 license only. These areas are extremely popular, with draw odds of around 29% for residents in these 3 areas (2016 resident draw odds for Type 9 license: Area 38 = 24%; Area 39 = 33%; Area 40 = 50%). Non-resident hunters needed 7+ preference points to draw an Area 38 or 39 Type 9 license and 6 preference points to draw an Area 40 Type 9 license in 2016 (regular preference points draw).

A significant number of elk in Area 35 move to private lands south of U.S. Highway 16 in September to forage on alfalfa meadows. The Area 35 Type 6 season was implemented to target these private land elk, which may account for 75% of the winter count for this hunt area. In 2016, the Wyoming Office of State Land and Investments completed the Bull Creek Ranch #1 exchange which secured 5,272 deeded acres into State ownership with managed public access. This acquisition, along with existing BLM and State leases, provided access for significant public hunting opportunity which resulted in numerous elk being harvested. The Bull Creek Ranch #2 land exchange is progressing and, if completed, will secure acquisition of the remaining 2,379 deeded acres of the Bull Creek Ranch into State ownership. Once completed, the Bull Creek Ranch will total 8,713 acres. The property provides crucial elk and deer winter range, and provides an opportunity to increase elk harvest to manage this sub-population.

Hunting seasons in Area 36 will be slightly longer by extending the Type 4 (antlerless elk) license through the end of December. The winter trend count continues to exceed the sub-objective so additional opportunity is warranted.

A special early firearm season during September was initiated in 2009 in a portion of Area 37. That season was expanded in 2012. This season strategy was designed to increase harvest as well as block a migration route to private lands, keeping elk on public lands longer. This season has been popular with some hunters and appears to have had at least limited success in the first few years. Its effectiveness appears to have faded and elk move through this area onto private lands with little regard for this season. As such, we eliminated the “on forest” portion of the September firearm season in 2016. We have retained the “off forest” portion during September, allowing cow harvest on private lands as elk move off the mountain early.

Type 1 and Type 9 licenses were reduced in Hunt Area 38 for the 2015 season, and kept at the lower level for 2016, in response to increased bull harvest the previous 5 years, especially for branch antlered bulls. In this hunt area, hunters harvested an average of 148 branch antlered bulls annually from 2011-2015, compared to 130 branch antlered bulls during the 2006-2010 seasons and well above the 28 years average branch antlered bull harvest of 107. Sixteen percent of the total branch antlered bull harvest in this herd unit was from Area 38 in 2016, a decrease from previous years. Also, there has been documented illegal killing of elk near the Kerns WHMA, a high percentage of which were bulls. We plan to maintain reduced bull harvest for 3-5 years in an effort to maintain or improve bull quality.

There is a split in the antlerless elk seasons in Hunt Areas 38, 39, and 40. These seasons run for 10 days, are closed for 4 days, and reopen in conjunction with other license types. This split is in response to feedback from antlered elk hunters worried that hunting pressure up to the opening day of their season could impact harvest opportunities. This split has seemed to pacify most hunters while providing opportunity to increase antlerless harvest. Based on reported day of harvest in 2016, an estimated 27% of the cow harvest in these hunt areas occurred during this early October season.

A late season Type 6 (cow or calf) license was created in 2015 in Area 38 to address damage issues on private lands. This season was designed to harvest elk that have become habituated to leaving the WHMAs and feeding on stored hay crops. Weather conditions were fairly mild during the 2015 season and hunters harvested only 5 elk. In 2016, hunters harvested 11 elk on this license. We will use this season strategy again in 2017. We added a similar license and season to Area 37 for the 2016 season, where 41 elk were harvested. We hope this targeted harvest will better allow us to deal with damage situations.

Winter elk counts in Hunt Area 39 have exceeded desired levels during two of the last three years (2014-15 winter = 989 elk; 2015-16 winter = 718; objective = 500). This is likely a function of fewer elk migrating to Garvin Basin, MT or migrating later (i.e. in Wyoming during our survey but migrating after our survey) during those fairly open winters. It could also be a shift in elk between hunt areas. Managers are reluctant to increase Type 4 licenses due to hunter crowding issues. Type 1 license holders can harvest any elk. In 2016, 61% of the cow harvest was on Type 1 licenses. This strategy seems to be working well to address hunter crowding concerns while providing opportunity and achieving desired harvest.

Winter elk counts in Area 40 have been below desired levels during two of the past three years (2014-15 winter = 686; 2015-16 winter = 327; objective = 850). Managers felt they located the majority of cow/calf groups in addition to large concentrations of bulls during mid-winter surveys. Based on the high observed bull to cow ratio, we have increased Type 1 and Type 9 license quotas for 2017. This area continues to be the focal point of brucellosis sero-positive elk in this herd unit.

With liberal seasons and favorable hunting conditions, we anticipate a similar harvest (~1,500 elk) during 2017. Continued harvest, especially on cows, should help bring some segments of this herd where winter counts exceed management objectives down to desired levels. Until access to key private lands improve in some areas, our ability to reach desired harvest will be limited.

Over 750 samples from Hunt Areas 33-41, 45, 47-49 and 120 were collected in 2013, with 437 usable samples (~58%). Two additional samples from Hunt Area 40 tested seropositive in 2013. During the 2014 season, we collected 646 useable samples from elk harvested in all the Bighorn Mountain hunt areas (Table 2). Within this herd unit, we collected 338 usable samples. Four samples tested positive in 2014, including 1 bull from Hunt Area 39, 1 bull and 1 cow from Hunt Area 40, and 1 bull from Hunt Area 41. During the 2015 season, we collected 482 useable samples from all the Bighorn Mountains, with 234 of those samples for this herd unit. All samples tested negative in 2015. During the 2016 season, we collected 476 usable samples for all of the Bighorn Mountains with 193 of those samples from this herd unit. Two samples tested seropositive, with one seropositive in Hunt Area 40 and one in Hunt Area 49. We plan to continue the enhanced brucellosis surveillance during the 2017 season. As such, antlerless elk seasons were opened earlier than traditionally in Hunt Areas 37, 38, 39 and 40 to accommodate antlerless harvest and sample collection.

Table 2. Usable blood samples collected during enhanced Brucellosis surveillance in Bighorn Mountains during 2016 hunting season. The North Bighorn Elk Herd Unit hunt areas (Areas 35-40) are in bold. Seropositive positive samples are highlighted.

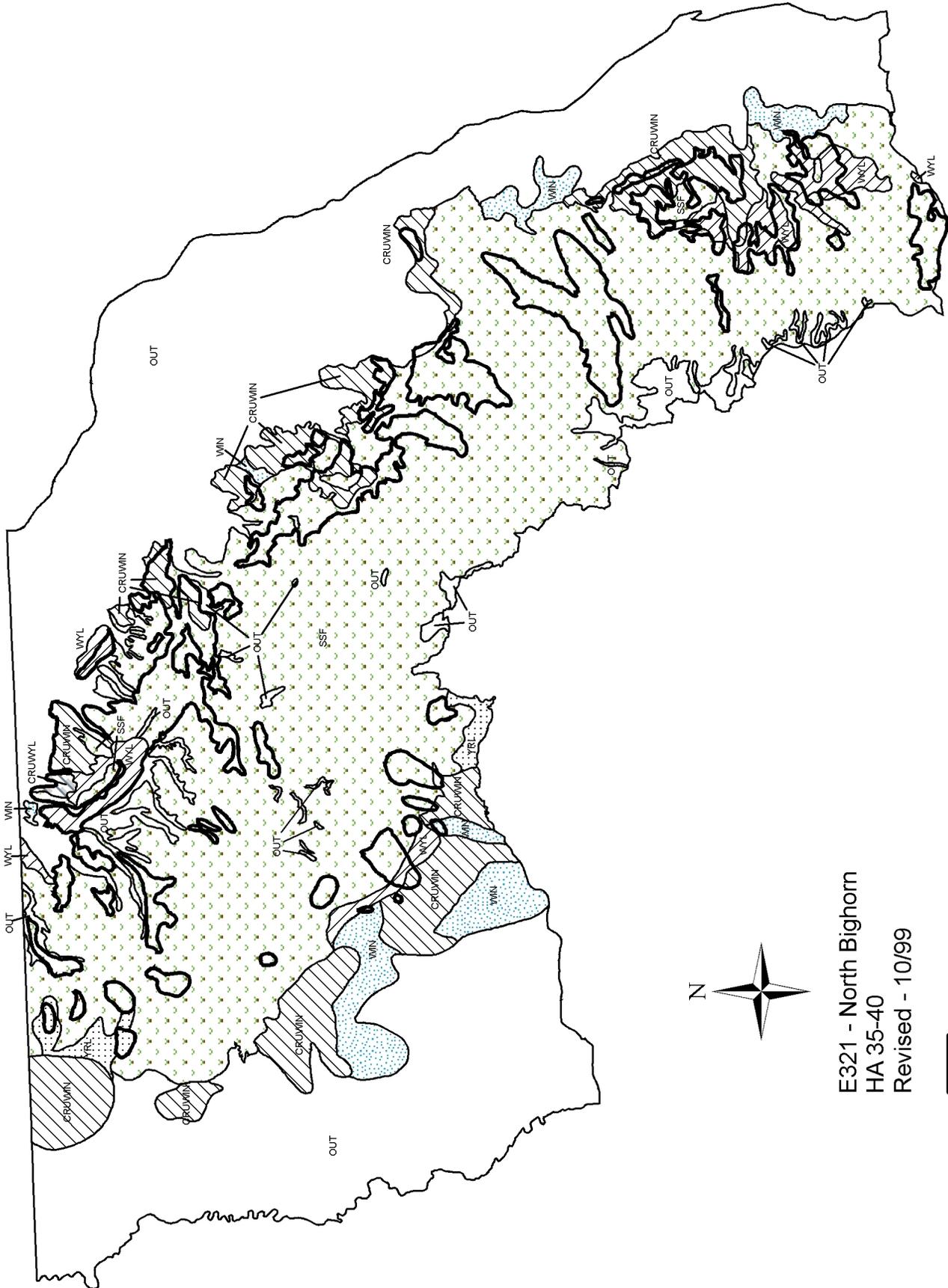
Hunt Area	Usable Samples	Seropositive	Hunt Area	Usable Samples	Seropositive
033	8	0	040	38	1
034	39	0	041	82	0
035	13	0	045	47	0
036	10	0	047	6	0
037	16	0	048	6	0
038	84	0	049	51	1
039	32	0	120	28	0
			Total	476	2

In response to finding seropositive elk in the Bighorn Mountains, we developed a research proposal and solicited funding from the U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS). The study objectives are:

1. Evaluate movement of possible source herds to determine if elk are migrating into/near the Bighorn Mountains.

2. Evaluate movement/dispersal of migratory elk in the Bighorn Mountains with a focus on Hunt Area 40.
3. Evaluate movement and interactions of elk herds in the northern Bighorns to determine how brucellosis may spread if it becomes established.
4. Perform a landscape genetics study to further evaluate relatedness of elk herds in and around the Bighorns.

Using Native Range Capture Service, we captured 58 elk on February 16-19, 2016. Elk were captured via a net-gun fired from a helicopter. Once entangled, elk were hobbled, blood samples were taken, ear tags were put on, and an Advanced Telemetry System's (ATS) GPS collar was attached. Elk were then released on-site. Of the 58 captured, 46 were within this herd unit. We captured another 53 elk on February 17-20, 2017, with 29 of those elk in this herd unit. We currently have ~80 elk with active satellite collars in the Bighorn Mountains.



E321 - North Bighorn
 HA 35-40
 Revised - 10/99

 Parturition Area

**NORTH BIGHORN ELK HERD UNIT (EL 321)
Hunt Areas 35, 36, 37, 38, 39 and 40**

**5 Year Evaluation of
Herd Unit Objective and Management Strategies**

Prepared by: Tim Thomas, Sheridan Wildlife Biologist
Leslie Schreiber, Greybull Wildlife Biologist
Dan Thiele, Buffalo Wildlife Biologist

Management Evaluation

Date of Last Herd Objective Review: 2012

Current Objective: Mid-Winter Trend Count - 4,350

Current Sub-Objective(s): Hunt Area Mid-Winter Trend Counts

HA 35 – 400; HA 36 – 800; HA 37 – 800; HA 38 – 1,000; HA 39 – 500; HA 40 – 850

Current Management Strategy: Special (HAs 35, 38, 39 & 40); Recreational (HAs 36, 37)

The North Bighorn Elk Herd Unit (EL 321) contains elk Hunt Areas 35, 36, 37, 38, 39 and 40, and is located in north central Wyoming (Figure 1), encompassing an area from Buffalo, north to Sheridan and across the Bighorn Mountain divide to Greybull and Lovell. The Herd Unit boundary was revised in 1998, incorporating the Northeast Bighorn HU (Areas 37, 38 and 39) with Areas 35 and 36 from the Southeast Bighorn HU and Area 40 from the Horse Creek HU. This revision was based on research conducted on elk distribution and movement (Johnson 1989; Sawyer and Lindzey 1997; Williams 1980, 1981, 1983).

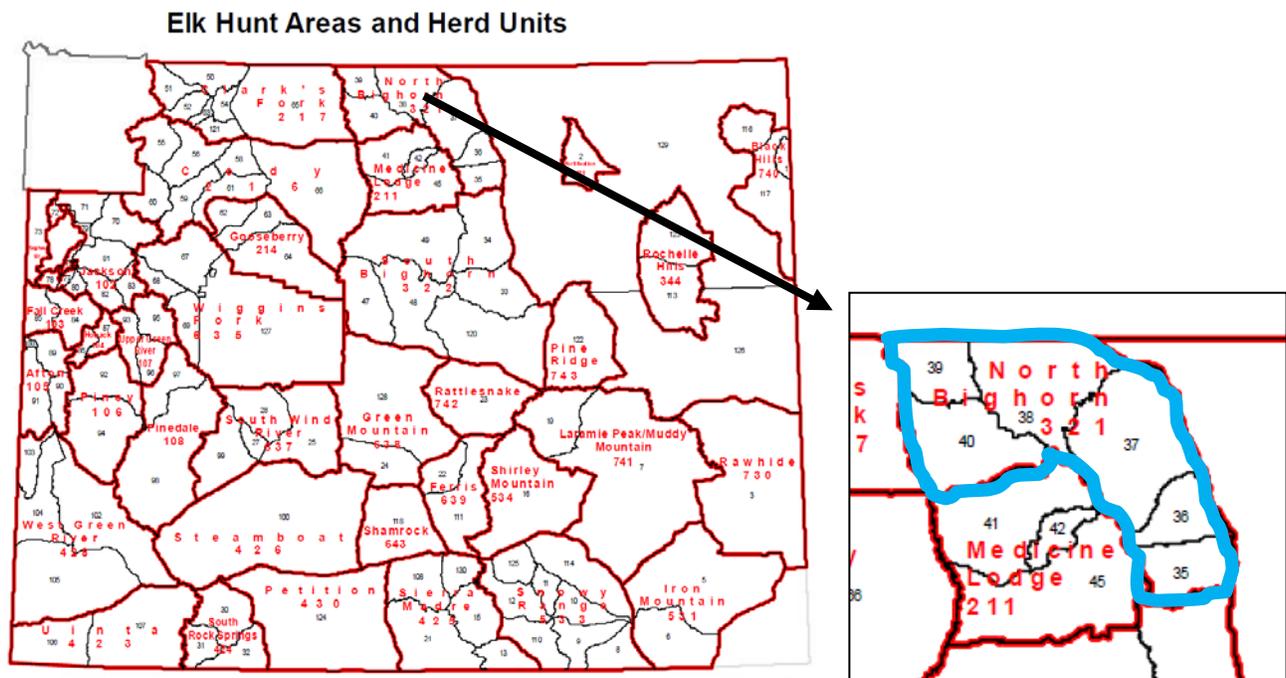


Figure 1. Map of elk hunt areas and herd units in Wyoming during 2016 with the North Bighorn Elk Herd Unit highlighted.

OBJECTIVE AND MANAGEMENT STRATEGY EVALUATION

During the 2012 Herd Unit Review, a mid-winter trend count objective of 4,350 was adopted for this herd unit. We have exceeded that objective during each of the past 5-years (Table 1). The 2014 and 2015 winters were fairly open and elk that normally winter in Montana, and are not considered part of the mid-winter objective, may have still been in Wyoming during the survey period. Until we can reduce and maintain this herd unit near the established management objective, managers are not comfortable adjusting the objective.

At the hunt area level, we have generally observed higher than desired elk numbers on the east side of the Bighorns (Hunt Areas 35-38) during this evaluation period. Counts on the west side of the Bighorns (Hunt Areas 39-40) have been much more variable, and are likely influenced by the seasonal movements of the Garvin Basin, MT segment of this elk herd.

Table 1. Elk winter trend counts in the North Bighorn Elk Herd Unit during evaluation period (2012 – 2016).

Hunt Area	Winter Count Objective	2012 Winter Count	2013 Winter Count	2014 Winter Count	2015 Winter Count	2016 Winter Count	3-year (2014-16) Mean
35	400	841	928	926	1,179	148	751
36	800	914	905	1,002	1,074	905	994
37	800	1,175	1,598	1,466	1,752	1,668	1629
38	1,000	1,255	924	1,000	1,560	942	1167
39	500	307	290	989	718	452	720
40	850	767	792	686	327	906	640
	4,350	5,259	5,437	6,069	6,610	5,021	5900

Four of the six hunt areas (Area 35, 38, 39, and 40) comprising the North Bighorn Herd Unit are managed under limited quota license strategy. This has resulted in relatively high bull numbers and quality. These hunt areas are managed under special management, with an emphasis on providing quality bull hunting. We feel we are achieving this strategy based on hunter comments, hunter satisfaction, demand for licenses in these areas and harvest statistics. During this evaluation period, 88% of the harvested bulls are ≥ 2 years old.

Two hunt areas (Areas 36 and 37) are managed with a combination of general license (antlered or any elk) and limited quota license (antlerless or cow/calf elk) strategies. These areas are managed under recreational management emphasis. Areas 36 and 37 are the only two general license hunt areas in the Bighorn Mountains and receive considerable hunting pressure. We feel we are meeting the desired management strategy for these hunt areas at this time, although increased access to private lands would improve recreational opportunities as well as help increase harvest, allowing us to achieve our management count objective.

Elk Habitat Evaluation

The Department does not have formal habitat monitoring in this herd unit. The Bighorn National Forest has collected various vegetation information, usually associated with livestock grazing standards and riparian habitats. Managers with the Forest Service have expressed concerns with browsing pressure on some vegetation communities. High elk numbers in some areas are likely contributing to high grazing pressure. Due to the mobility of wild animals, it can be difficult to target specific elk through harvest that may have been causing problems earlier in the year. Attempts are being made to reduce elk numbers in general in herd unit.

Grazing permittees on federal leases on the Bighorns generally see elk as a potential competitor for forage. The Forest Service has documented some grazing issues, which elk are likely contributing to. Attempts are being made to reduce elk numbers in general in this herd unit.

Elk numbers on some private land areas are higher than desired and are likely competing directly with livestock for available forage. Access to these or adjacent private lands for hunting is generally limited, which in turn limits manager's ability to address this problem. Managers are working to provide tools to landowners to address this problem.

Elk numbers on properties owned and managed by the Department are generally within desired levels. These Wildlife Habitat Management Areas are generally managed for winter range.

Environmental Concerns

Climate change could result in dry, hot summers, which could adversely affect both summer range and winter range forage production.

Constituents Concerns

Hunters are generally satisfied with elk numbers and quality in this herd unit (Table 2). Hunters are more satisfied in limited quota areas (Hunt Areas 35, 38, 39, 40) compared to general license areas (Hunt Areas 36-37). Limited access to private lands frustrate some hunters as elk move off public lands onto these refuge areas. Managers are working with private landowners on various options to allow hunter access.

Attitudes and tolerance for elk numbers by landowners in this herd unit vary. Some landowners are satisfied with the number of elk on their property. Some landowners benefit financially from hunting elk on their property and may limit harvest. Other landowners have less tolerance, especially since brucellosis has been detected in this herd unit. We are encouraging landowners to maintain elk at desired numbers and are attempting to work with landowners with higher than desired elk numbers to reduce those numbers to desired levels.

Brucellosis was detected in elk in this herd unit in 2012. Since that time, nine elk have tested seropositive for exposure the *Brucella abortus*. Since brucellosis can be transmitted to cattle, some landowners are concerned co-mingling of elk and cattle. Some hunters are concerned the discovery of brucellosis may result in efforts to significantly reduce elk numbers.

Table 2. Unweighted hunter satisfaction with overall hunting experience for 2016.

AREA		SATISFACTION WITH OVERALL QUALITY OF HUNT *				
		VERY SATISFIED	SATISFIED	NEUTRAL	DISSATISFIED	VERY DISSATISFIED
35. Hunter Mesa	Nonres	36.8%	28.9%	15.8%	13.2%	5.3%
	Res	27.6%	41.9%	19.0%	9.5%	1.9%
	Total	30.1%	38.5%	18.2%	10.5%	2.8%
36. Rock Creek	Nonres	20.0%	33.3%	17.8%	22.2%	6.7%
	Res	15.7%	37.7%	25.0%	13.2%	8.3%
	Total	16.5%	36.9%	23.7%	14.9%	8.0%
37. Goose	Nonres	10.8%	29.7%	21.6%	21.6%	16.2%
	Res	15.5%	30.5%	22.3%	20.3%	11.3%
	Total	15.1%	30.4%	22.3%	20.5%	11.8%
38. Tongue	Nonres	39.4%	30.3%	15.2%	6.1%	9.1%
	Res	24.4%	39.7%	15.4%	13.5%	7.1%
	Total	27.0%	38.1%	15.3%	12.2%	7.4%
39. Deer Creek	Nonres	27.8%	44.4%	16.7%	0.0%	11.1%
	Res	28.1%	41.7%	13.5%	11.5%	5.2%
	Total	28.1%	42.1%	14.0%	9.6%	6.1%
40. Horse Creek	Nonres	28.8%	38.5%	19.2%	7.7%	5.8%
	Res	22.3%	42.4%	23.0%	9.4%	2.9%
	Total	24.1%	41.4%	22.0%	8.9%	3.7%
321. North Bighorn	Nonres	26.9%	33.6%	17.9%	13.0%	8.5%
	Res	20.5%	36.7%	21.1%	14.4%	7.4%
	Total	21.7%	36.1%	20.5%	14.1%	7.6%

Attainability of Current Objective and Management Strategies

It will be difficult to lower this population to the desired mid-winter trend count objective during the next 5-year evaluation period with just harvest on accessible public lands. Access to key private lands continues to hamper our ability to direct harvest to certain segments of this population. Managers will continue to evaluate various harvest strategies to increase harvest and address problems in this herd unit.

Managers are confident we are currently meeting desired management strategies of providing a balance of quality elk hunting with recreational opportunities in the majority of the herd unit. We feel we can continue to meet the established management strategies during the next 5-year evaluation period.

Table 3. Elk classifications in the North Bighorn Elk Herd Unit.

2012 - 2016 Postseason Classification Summary																			
for Elk Herd EL321 - NORTH BIGHORN																			
Year	MALES				FEMALES		JUVENILES		Tot		Cls		Males to 100 Females				Young to		
	Ylg	Adult	Total	%	Total	%	Total	%	Cls	Obj	Ylng	Adult	Total	Conf	100 Fem	Conf Int	100 Adult		
2012	148	111	259	15%	977	56%	509	29%	1,745	791	15	11	27	± 2	52	± 3	41		
2013	103	43	146	13%	643	58%	312	28%	1,101	736	16	7	23	± 0	49	± 0	40		
2014	146	88	234	12%	1,221	62%	514	26%	1,969	504	12	7	19	± 0	42	± 0	35		
2015	74	101	175	13%	787	59%	377	28%	1,339	709	9	13	22	± 0	48	± 0	39		
2016	137	115	252	19%	734	54%	372	27%	1,358	801	19	16	34	± 0	51	± 0	38		

2016 - JCR Evaluation Form

SPECIES: EIK

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

HERD: EL322 - SOUTH BIGHORN

HUNT AREAS: 33-34, 47-49, 120

PREPARED BY: DAN THIELE

	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Trend Count:	4,467	4,626	4,500
Harvest:	1,582	1,989	2,100
Hunters:	3,407	3,872	4,000
Hunter Success:	46%	51%	52%
Active Licenses:	3,538	4,032	4,200
Active License Success	45%	49%	50%
Recreation Days:	25,110	28,517	30,000
Days Per Animal:	15.9	14.3	14.3
Males per 100 Females:	24	28	
Juveniles per 100 Females	38	32	

Trend Based Objective ($\pm 20\%$) 3,300 (2640 - 3960)

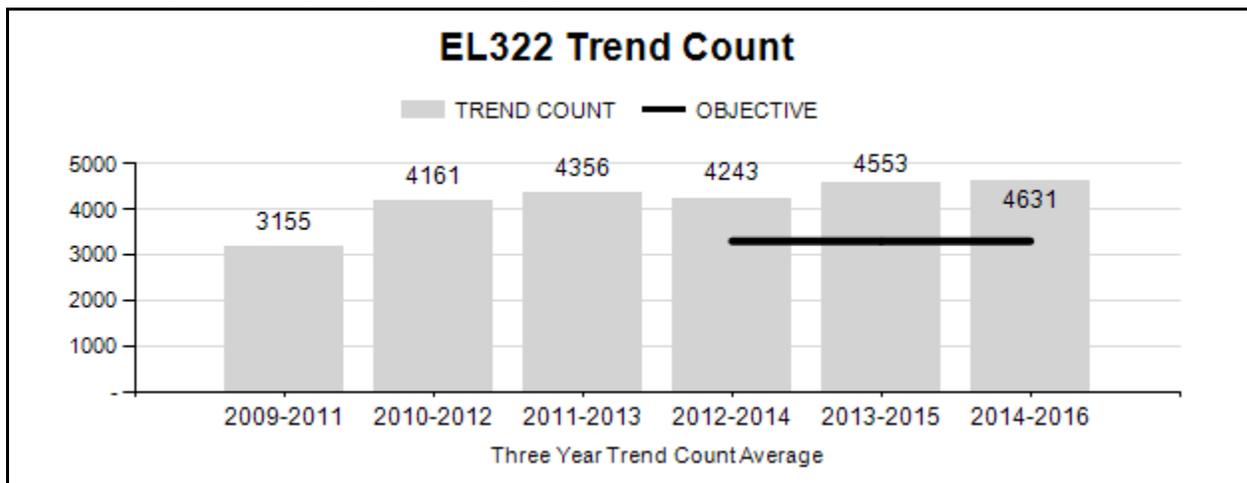
Management Strategy: Private Land

Percent population is above (+) or (-) objective: 40%

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

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

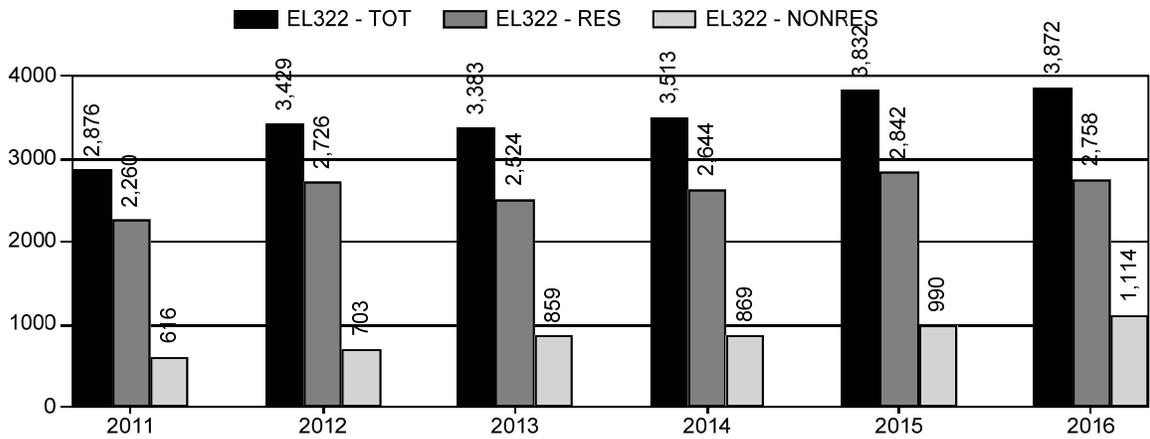
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	na%	na%
Males ≥ 1 year old:	na%	na%
Juveniles (< 1 year old):	na%	na%
Total:	25%	27%
Proposed change in post-season population:	-11%	-3%



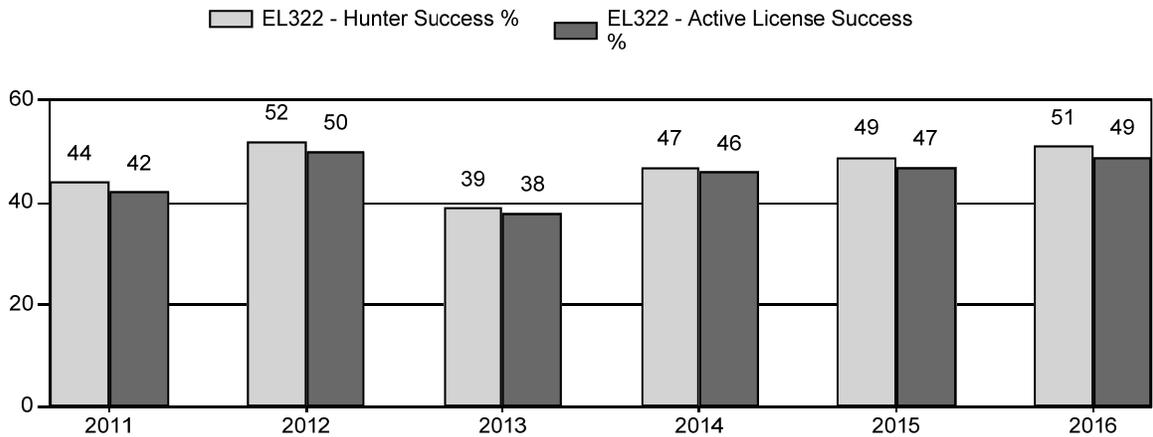
Harvest



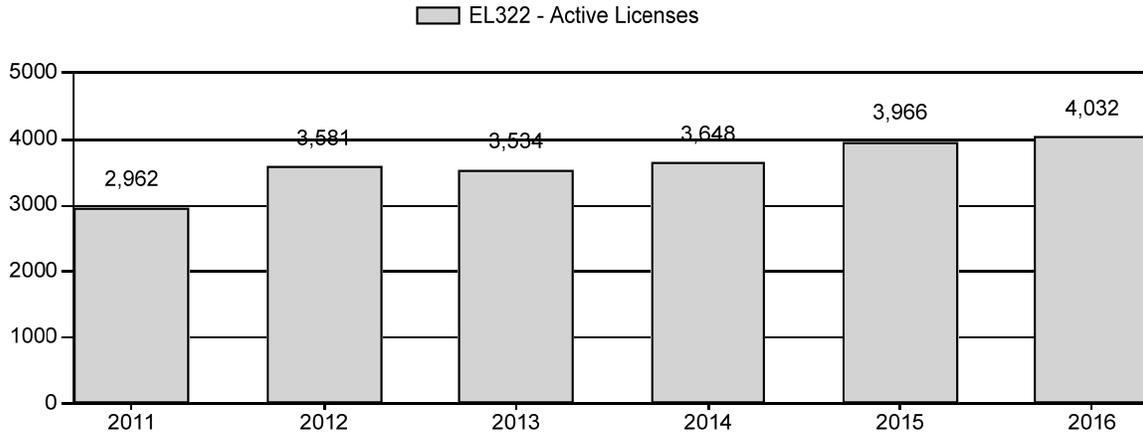
Number of Hunters



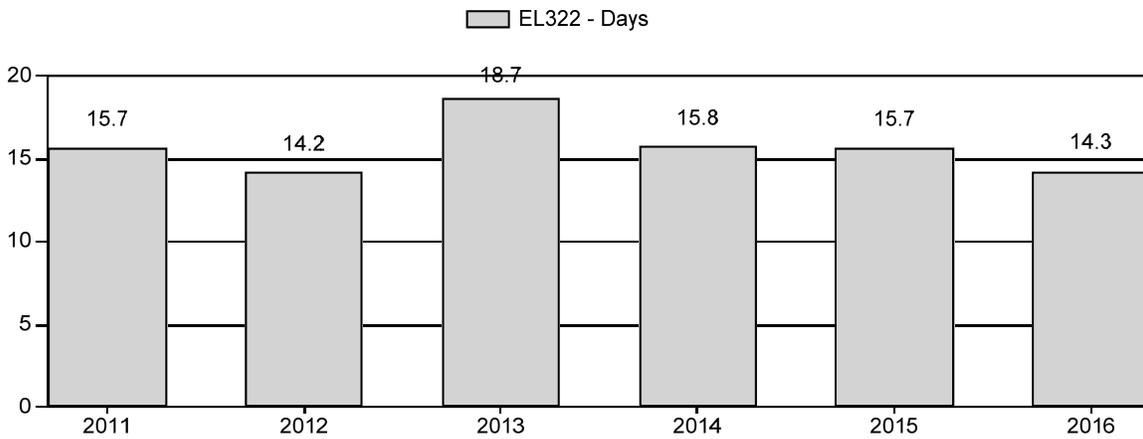
Harvest Success



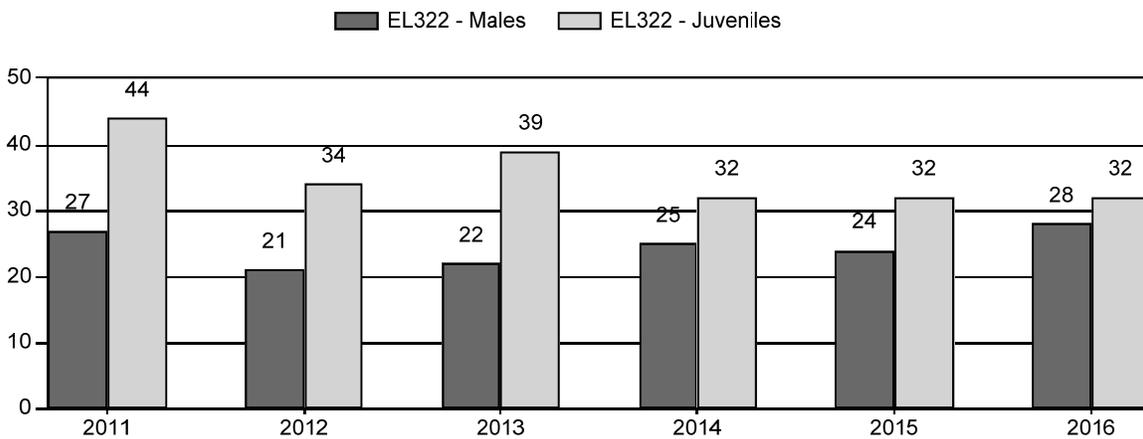
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2016 Postseason Classification Summary

for Elk Herd EL322 - SOUTH BIGHORN

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	5,483	304	250	554	16%	2,064	58%	914	26%	3,532	660	15	12	27	± 1	44	± 1	35
2012	5,360	215	167	382	14%	1,814	65%	612	22%	2,808	438	12	9	21	± 1	34	± 1	28
2013	5,490	290	207	497	14%	2,224	62%	878	24%	3,599	521	13	9	22	± 1	39	± 1	32
2014	5,060	104	114	218	16%	887	64%	281	20%	1,386	403	12	13	25	± 2	32	± 2	25
2015	6,525	125	137	262	16%	1,071	64%	345	21%	1,678	405	12	13	24	± 2	32	± 2	26
2016	6,000	164	128	292	17%	1,054	63%	338	20%	1,684	415	16	12	28	± 2	32	± 2	25

2017 HUNTING SEASONS
SOUTH BIGHORN ELK HERD (EL322)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
33	1	Oct. 9	Oct. 31	200	Limited quota	Any elk
33	1	Nov. 1	Dec. 31			Antlerless elk
33	4	Aug. 15	Sept. 30	150	Limited quota	Antlerless elk valid on private land east of Buffalo Creek and the Bar C Road (BLM Road 6214)
33	4	Oct. 9	Dec. 31			Antlerless elk valid in the entire area
33	6	Nov. 1	Dec. 31	300	Limited quota	Cow or calf
34	1	Oct. 15	Nov. 15	800	Limited quota	Any elk
34	1	Nov. 16	Dec. 31			Antlerless elk
34	6	Aug. 15	Sep. 30	600	Limited quota	Cow or calf valid on private land north of the North Fork Powder River
34	6	Oct. 15	Dec. 31		Limited quota	Cow or calf valid off National Forest
47	1	Oct. 9	Oct. 31	300	Limited quota	Any elk
47	1	Nov. 1	Nov. 30			Antlerless elk
47	6	Oct. 9	Nov. 30	200	Limited quota	Cow or calf
48	1	Oct. 9	Oct. 31	350	Limited quota	Any elk
48	1	Nov. 11	Dec. 15			Antlerless elk
48	4	Oct. 9	Oct. 31	50	Limited quota	Antlerless elk
48	4	Nov. 11	Dec. 15			Antlerless elk
48	6	Oct. 9	Oct. 31	600	Limited quota	Cow or calf
48	6	Nov. 11	Dec. 15			Cow or calf
49	1	Oct. 9	Oct. 31	350	Limited quota	Any elk
49	1	Nov. 11	Dec. 21			Antlerless elk
49	4	Oct. 9	Oct. 31	50	Limited quota	Antlerless elk
49	4	Nov. 11	Dec. 21			Antlerless elk
49	6	Aug. 15	Oct. 31	900	Limited quota	Cow or calf
49	6	Nov. 11	Dec. 21			Cow or calf
120	1	Oct. 9	Oct. 31	100	Limited quota	Any elk
120	1	Nov. 1	Dec. 15			Antlerless elk

120	4	Oct. 9	Dec. 15	75	Limited quota	Antlerless elk
120	6	Oct. 9	Dec. 15	75	Limited quota	Cow or calf

Special Archery Season Hunt Areas	Season Dates	
	Opens	Closes
33, 34, 47, 48, 49, 120	Sep. 1	Sep. 30

SUMMARY OF CHANGES IN LICENSES NUMBERS

Hunt Area	Type	Quota change from 2015
47	6	-100
48	6	+100
49	1	+25
49	6	+100
Herd Unit Total	1	+25
	4	No change
	6	+100

Management Evaluation

Current Winter Trend Count Objective: 3,300

Management Strategy: Private Lands

2016 Postseason Population Estimate: ~5,800 (80% trend count observability)

2014-16 Winter Trend Count Average (3 Yr): 4,631

2017 Proposed Postseason Population Estimate: ~5,500

2016 Hunter Satisfaction: 63% Satisfied, 18% Neutral, 19% Dissatisfied

Herd Unit Issues

The South Bighorn Elk Herd objective and management strategy were reviewed in 2016 with the objective changed to a mid-winter trend count based on a three year running average and a private land management strategy adopted. The objective is most appropriate for this herd as winter trend counts are flown annually and a reliable population model has not been developed. Hunt Area sub-objectives were established to address elk distribution across the herd unit with 1,100 elk for Area 33, 1000 elk for Area 34, 200 elk for Area 47, 400 elk for Area 48, 300 elk for Area 49 and 300 elk for Area 120. A private lands management strategy is well adapted to this herd as hunting access is largely dependent on private land access.

Since 1997, hunting seasons have been liberalized with increased any elk and antlerless elk license quotas, the addition of cow/calf licenses and extended hunting seasons. Harvest has increased significantly, although at less than desired levels because of the inability to sell antlerless and cow/calf licenses in some hunt areas. Last year, 4,975 total licenses were allocated for the six hunt areas comprising this herd unit. Two-hundred licenses went unsold, 31 of which were antlerless licenses and 169 cow/calf licenses. Restrictive private land access continues to hamper efforts to achieve harvest objectives.

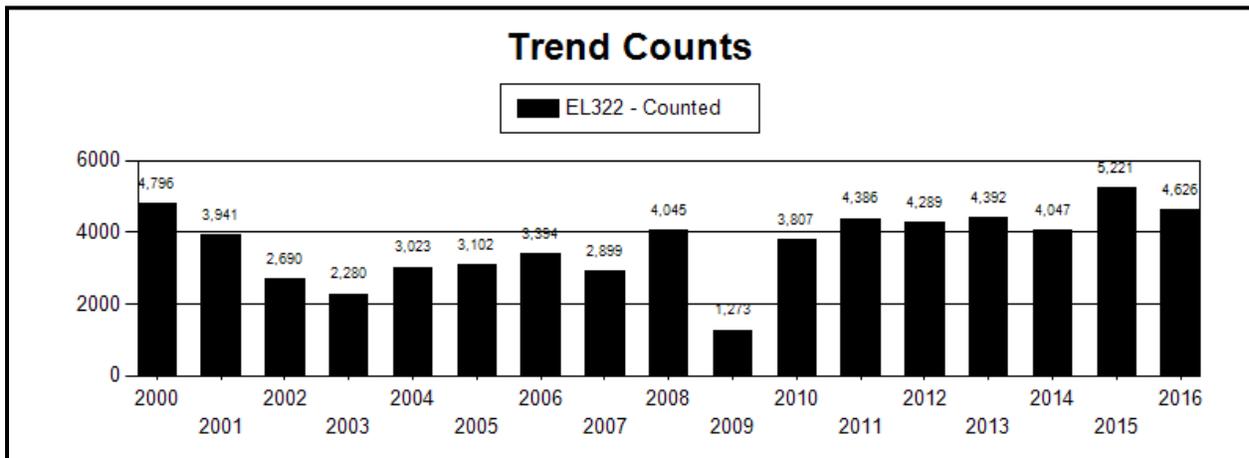
Weather

Favorable weather in the South Bighorn Herd Unit continued into 2016 with above normal April precipitation, however, this was balanced by below normal May and June precipitation. The May 2016 Palmer Drought Index for Climate Divisions 4 (Bighorn drainage) and 5 (Powder, Little Missouri and Tongue drainages) showed “mid-range” conditions but progressed to “severe drought” for the months of July and August. Conditions improved slightly on the east slope of the Bighorn Mountains as “moderate drought” was recorded through March after which conditions improved to “mid-range” due to improved precipitation. The west slope fared better improving to “moderately moist” in December and January, “very moist” in February and March and “extremely moist” in April. Winter weather was mild through November after which extreme cold and snow persisted through December and January. Weather moderated through the remainder of the winter season. Snowtel sites for the southern Bighorn Mountains reported below normal snow moisture content through most of the winter before improving markedly through April resulting in May 1st readings at 137% of normal with Powder River Pass at 124%, Beartrap at 778%, Middle Powder at 112% and Grave Springs at 119%. As of May 1st, 2017, total precipitation reported at the four snowtel sites since October 1st was 91% of normal.

Habitat

There are no habitat transects for grass production in this herd unit. The South Bighorn Herd Unit is primarily private, state and BLM lands with a limited amount of U.S. Forest Service in Area 34. Cattle and sheep grazing are common. The drought conditions of 2012 and early 2013 ended with above normal precipitation in 2014 and 2015. Precipitation was near normal in 2016. Timely spring moisture resulted in good herbaceous forage production.

Figure 1. South Bighorn Elk Herd Unit Winter Trend Counts, 2000-2016.



Field Data

The 2016 winter trend count totaled 4,626 elk, down 13% from the all time high of 5,221 elk observed in 2016 (Figure 1). Even so, the 2016 total was the third highest total observed since the herd unit was formed in 1999. Counts were down in all areas except Areas 48 and 120 which suggest lower sightability. Given that license quotas and harvest have significantly increased in recent years and hunter success and hunter effort trends remain favorable, it is unreasonable to conclude this population is decreasing.

Postseason classifications resulted in 1,684 elk classified easily exceeding the minimum adequate sample. Resulting herd ratios were 32 calves per 100 cows and 28 bulls per 100 cows. Productivity in this herd is relatively low with the calf ratio averaging 38 per 100 for the five year average. Classification samples were limited in Areas 33 and 34 due to time constraints and inability to classify large herds. Calf ratios tend to be higher in these hunt areas so the resulting herd unit calf ratio is believed to be biased low. The bull ratio is believed to be higher based on hunter success and composition of the bull harvest (~90% adult bulls). Representative classifications are difficult to attain due to bulls wintering away from cow/calf herds.

Harvest Data

The 2016 harvest reached a new high of 1,989 elk, exceeding the previous high of 1,879 elk harvested in 2015. Both bull harvest (801) and antlerless harvest (1,188) reached new highs under liberal license quotas and season dates. The high harvest occurred in spite of unseasonal mild weather throughout most of the hunting season. Hunter success and active license success were both one percentage point shy of the six year highs. Full price license (Type 1 and 4) hunter success (51%) remained favorable in 2016 and harvest composition showed 90% of the bull harvest was comprised of adult bulls indicating hunters could be selective and were successful in finding adult bulls. Hunters holding reduced price licenses (Type 6) averaged 48% success.

Hunter numbers (3,872) and active license numbers (4,032) reached new highs indicating continued hunter interest in these areas. Hunter success (51%) matched a six year high and exceeded the five year average of 46% while hunter effort (14.3 days/animal) decreased for the third year in a row. Hunter access to higher elevations was excellent due to mild fall weather. Significant harvest occurred October 9th to October 31st which would have accounted for the bull harvest. Seasons open prior to October 9th and after October 31st saw cow harvest uniformly dispersed over those periods. Hunter success at the hunt area level ranged from 24% in Area 47 to 67% in Area 120. Harvest objectives were not met due to low hunter success on some license types and 200 unsold antlerless and cow/calf licenses in three of the six hunt areas. Fifty percent of the unsold licenses were in Area 33 (31 Type 4 and 69 Type 6 licenses) and Area 34 (36 Type 6 licenses) where hunter access to private lands remains problematic. The remaining unsold licenses were in Area 47 (64 Type 6 licenses).

Hunter satisfaction responses were generally positive reflecting very good hunter success, quality bulls and long seasons. At the herd unit scale, 63% of hunters responded positively about their hunting experience whereas 19% responded negatively and 18% provided a neutral response. The positive response was similar to the 65% reported in 2015. At the hunt area scale, satisfaction response varied significantly with only 38% of Hunt Area 47 hunters reporting positive responses to Hunt Areas 33 and 34 where 53% and 54% of hunters reported positive responses, respectively. Hunters in Hunt Areas 48, 49 and 120 reported 70%, 73% and 79% positive responses, respectively.

Hunter access is largely contingent on private land access. Ten Walk-in Areas provided access to more than 45,045 acres of private lands plus adjacent BLM and state lands, most of which are located in Area 120. In addition, five Hunter Management Areas provide hunter opportunity in Areas 47 and 48.

Population

This population has been modeled with the EXCEL spreadsheet model but produced suspect results due to a projected declining population. Based on harvest data and winter trend counts there is no evidence that this population is decreasing to that extent. Because of this, a management change was made during the objective review to adopt a mid-winter trend count management objective.

This population is now managed to a mid-winter trend count objective of 3,300 elk based on a three year running average. A ball park population estimate can be made using the mid-winter trend count total adjusted for 80% sightability resulting in a postseason estimate of 5,800 elk. The 2016 trend count (4,626 elk) and the 2015 trend count (5,221 elk) were two of the three highest totals observed since this herd unit was formed. All hunt areas, with the exception of Area 47, were above their respective sub-objectives. The counts suggest this population is not showing a significant decrease in numbers given the record harvest, high success and low hunter effort. The three year running trend count average shows a slight increasing trend with the most recent three year average at 4,631 elk. Obviously, this places the herd well above the new objective. Based on landowner and public input received during the objective review, the objective was established below the estimated population to emphasize the need to decrease elk numbers. At the herd unit level, 52% of responding landowners felt elk numbers were too high while 36% were satisfied with elk numbers and 12% desired more elk.

Management Summary

In Area 33, hunters experienced relatively good success averaging 45% for the three license types. Two additional weeks were added to the Type 4 and Type 6 seasons extending the closing date to the end of the calendar year. The long season provided additional opportunity as migratory elk moved into the area late due to the lack of early snows. The winter trend count totaled 1,354 elk and averages 1,487 elk so liberal seasons will continue to decrease this segment of the herd to its sub-objective of 1,100 elk. The Area 33 Type 4 August 15 season opening targets elk that are causing depredation problems on irrigated hay meadows, however, the TTT Ranch has not taken advantage of this season. Seasons are unchanged for 2017.

In Area 34, hunter success was very good at 47%. Typically about 50% of Type 6 licenses sell. This year, 94% sold with the increase attributed to the longer hunting season. The early Type 6 season for the northern portion of the hunt area was not very successful but did provide landowners along the North Fork Powder River an option to address elk depredation. The winter trend count resulted in 1,189 elk observed. The count was complicated by Area 35 elk moving into the area due to extreme December and January winter conditions. The three year average of 1,384 elk compares to the sub-objective of 1,000 elk. Hunting seasons are unchanged for 2017.

Nearly 1,150 elk were harvested in Areas 47, 48 and 49 with hunter success of 29% in Area 47, 59% in Area 48 and 64% in Area 49. All license types sold out with the exception of the Area 47 Type 6 licenses. Area 47 appears to have reached its winter count sub-objective of 200 elk, with a three year average of 213 elk after 118 elk were observed this year. The 2016 harvest resulted in a hunter success of only 21% for Type 1 hunters and 24% for Type 6 hunters. Because of this and the overall decline in elk, landowners involved in the Copper Mountain HMA in Area 47 have elected not to participate in the program for the 2017 hunting season. The Area 48 winter count was well above the sub-objective of 400 elk with 964 elk counted and a

three year average of 660 elk. Likewise, the Area 49 count of 659 elk and three year average of 607 elk easily exceeds the sub-objective of 300 elk. Hunting season adjustments include slight changes in the Areas 48 and 49 late season opening dates and minor adjustments to license quotas based on harvest statistics and winter trend counts.

The Area 120 season resulted in a harvest of 145 elk and a hunter success rate of 68%. License quotas currently result in hunter densities that are approaching a level unacceptable to hunters. The three year winter trend count is averaging 281 elk, just below the hunt area sub-objective of 300 elk. No changes were made for the 2017 hunting season.

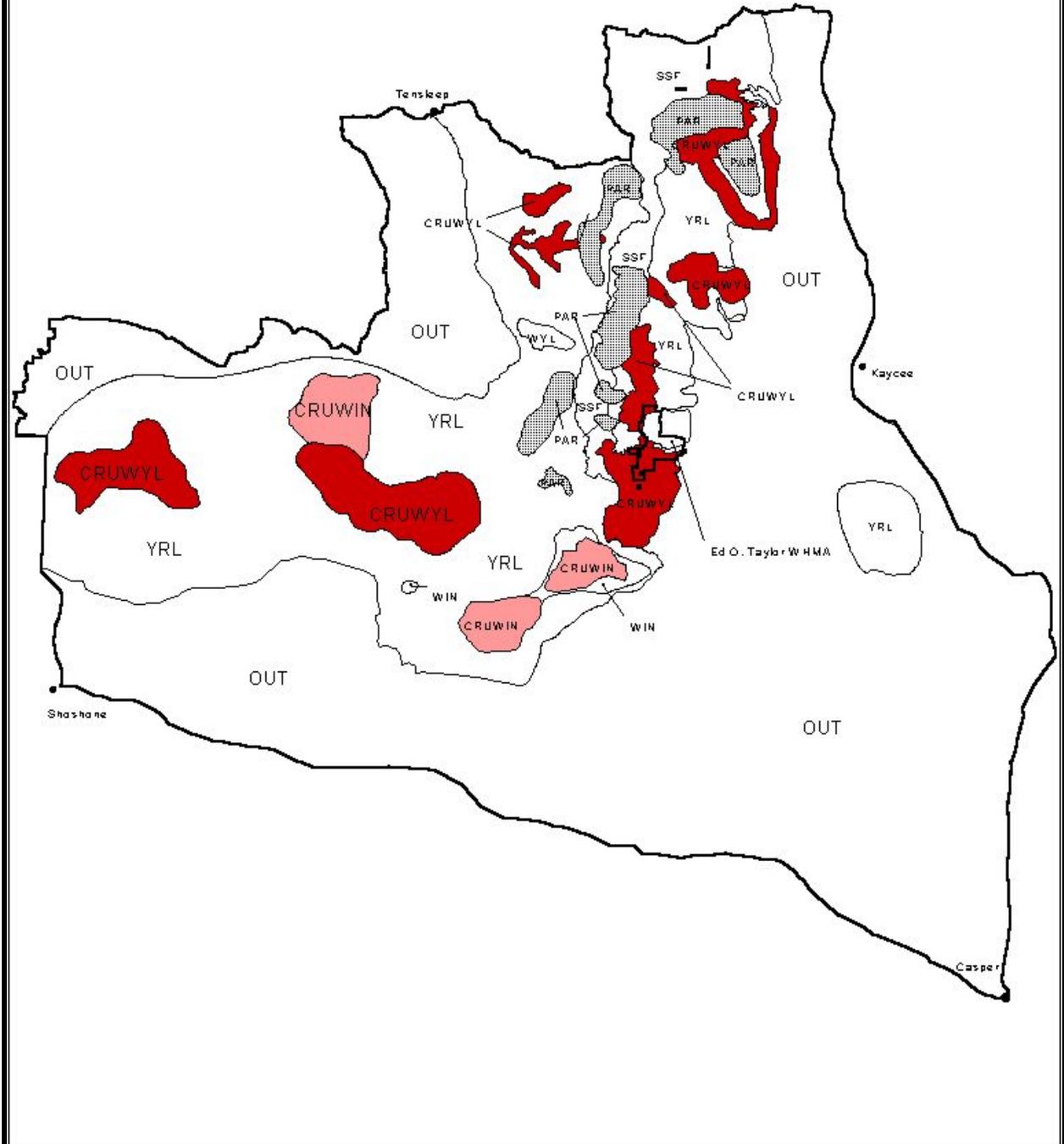
This population is over the current objective and seasons are designed to maintain hunting pressure on the female segment of the herd with liberal quotas and extended seasons. License quota changes for 2017 include an increase of 25 any elk licenses and a net increase of 100 cow/calf licenses. For 2017, license quotas totaling 2,100 any elk and 3,000 antlerless and cow/calf licenses will be available. History suggests that a number of antlerless and cow/calf licenses will not sell. Should available licenses sell, harvest may increase over the 2016 total resulting in a stable to slightly decreasing population.

Brucellosis

Brucellosis sero-positive elk were first found in Area 40 in the northwest Bighorn Mountains in 2012. In the fourth year of testing harvested elk, the first sero-positive elk was found in this herd unit in Hunt Area 49. The adult bull was harvested in the Big Trails area.

An elk movement study was initiated in the north Bighorn Mountains in 2016 to better understand the ecology of brucellosis and elk in and around the Bighorn Mountains. With the identification of the positive elk in Hunt Area 49, the study was expanded in February 2017 with 19 satellite collars deployed in the southern Bighorn Mountains, 6 in Area 33, 3 in Area 34, 2 in Area 48 and 8 in Area 49. All captured elk tested negative for brucellosis based on blood samples collected during collaring efforts. Elk will be monitored for the next three years.

Elk - South Bighorn (E322)
Areas 33, 34, 47, 48, 49, 120
Region 3
Revised - 2001



2016 - JCR Evaluation Form

SPECIES: Elk

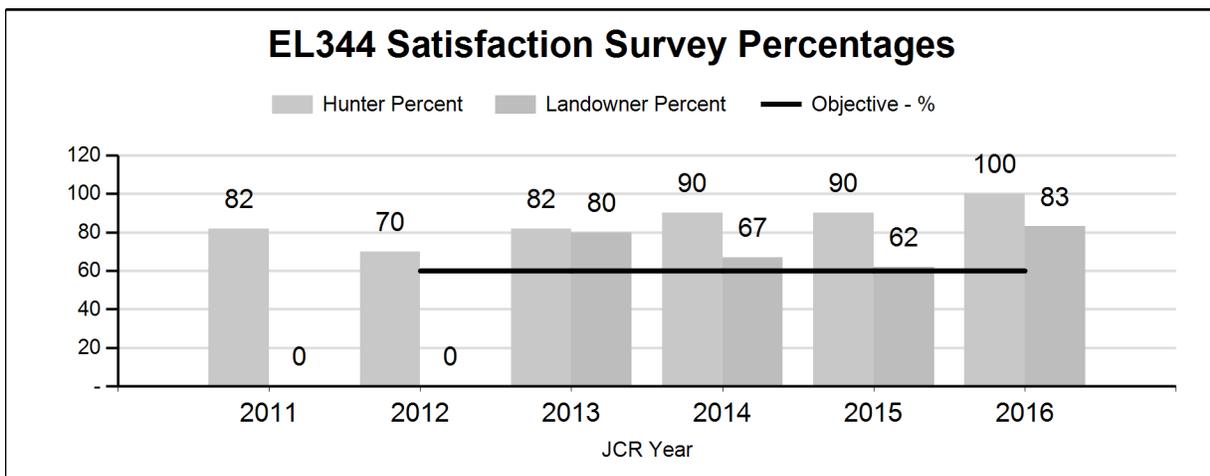
PERIOD: 6/1/2016 - 5/31/2017

HERD: EL344 - ROCHELLE HILLS

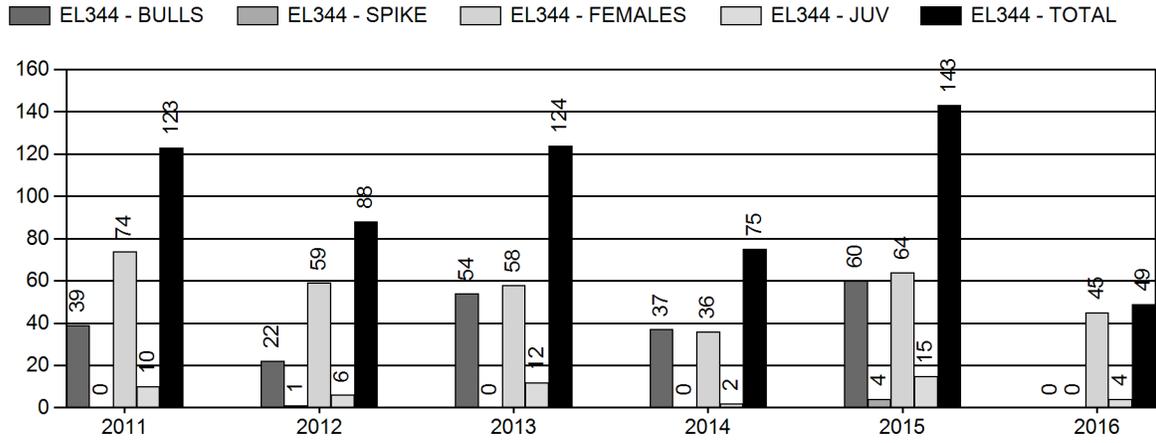
HUNT AREAS: 113, 123

PREPARED BY: ERIKA PECKHAM

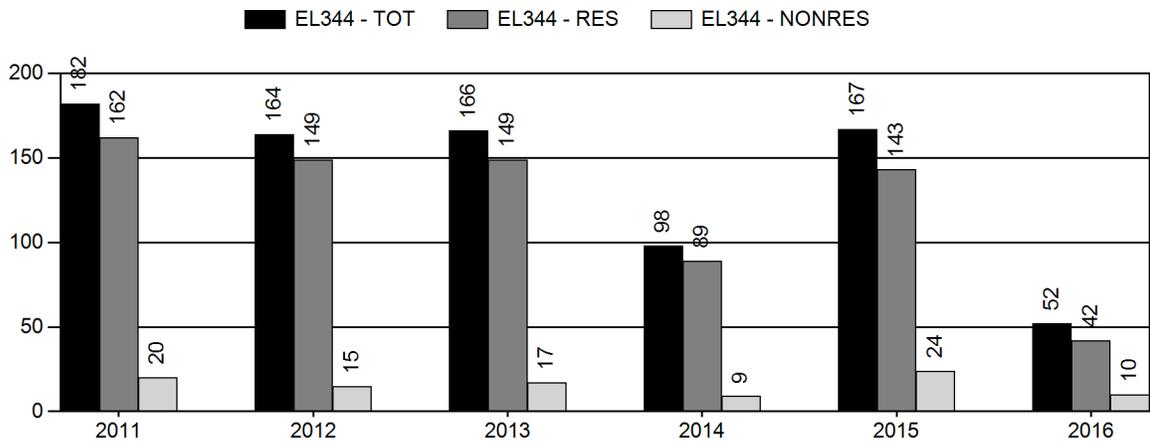
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Hunter Satisfaction Percent	82%	100%	90%
Landowner Satisfaction Percent	67%	83%	60%
Harvest:	111	49	170
Hunters:	155	52	200
Hunter Success:	72%	94%	85%
Active Licenses:	161	52	210
Active License Success:	69%	94%	81%
Recreation Days:	751	107	600
Days Per Animal:	6.8	2.2	3.5
Males per 100 Females:	52	93	
Juveniles per 100 Females	47	48	
Satisfaction Based Objective			60%
Management Strategy:			Private Land
Percent population is above (+) or (-) objective:			32%
Number of years population has been + or - objective in recent trend:			5



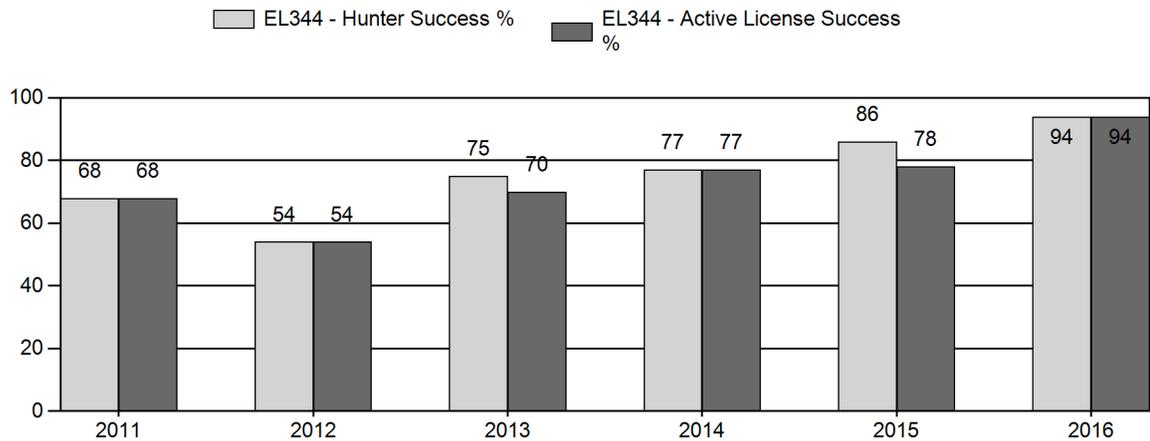
Harvest



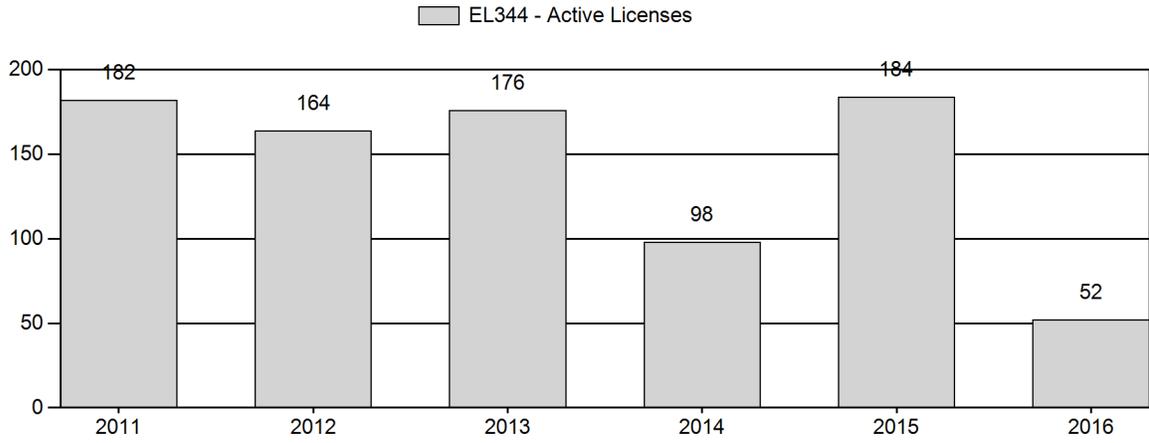
Number of Hunters



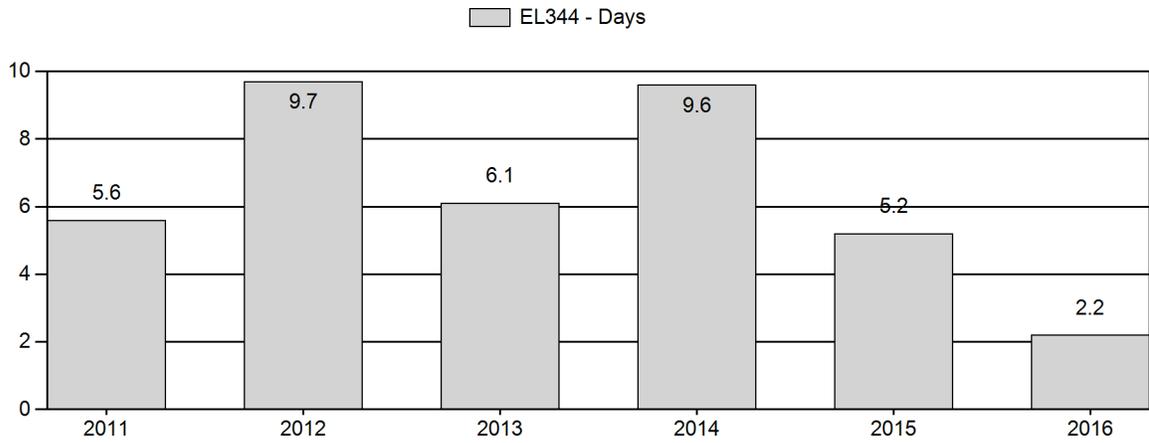
Harvest Success



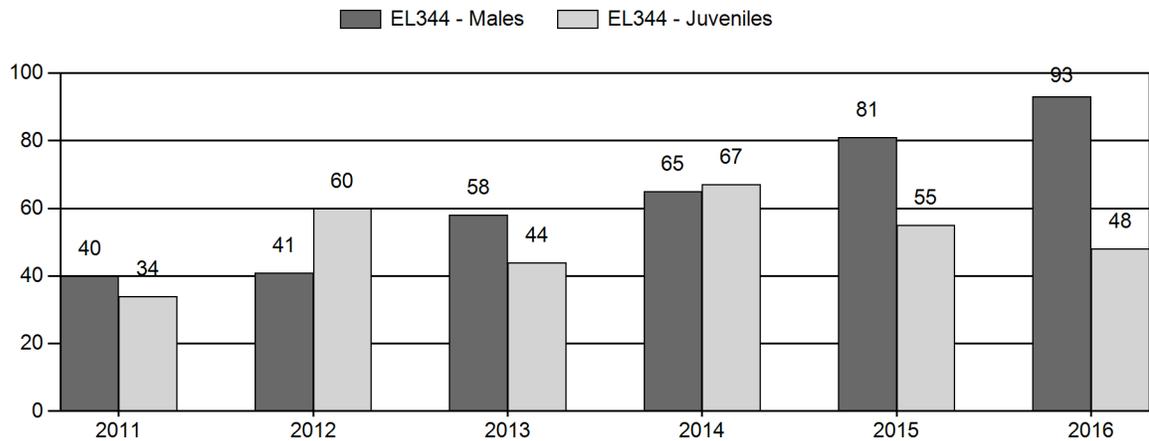
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2016 Postseason Classification Summary

for Elk Herd EL344 - ROCHELLE HILLS

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	741	68	57	125	23%	316	58%	106	19%	547	329	22	18	40	± 3	34	± 2	24
2012	0	32	20	52	20%	128	50%	77	30%	257	0	25	16	41	± 0	60	± 0	43
2013	0	26	30	56	29%	96	49%	42	22%	194	464	27	31	58	± 0	44	± 0	28
2014	0	22	29	51	28%	79	43%	53	29%	183	0	28	37	65	± 0	67	± 0	41
2015	0	61	47	108	34%	133	42%	73	23%	314	0	46	35	81	± 0	55	± 0	30
2016	0	43	72	115	38%	124	41%	60	20%	299	0	35	58	93	± 0	48	± 0	25

**2017 HUNTING SEASONS
ROCHELLE HILLS ELK HERD (EL344)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
113	1	Nov. 5	Nov. 30	40	Limited quota	Any elk
113	4	Nov. 5	Nov. 30	40	Limited quota	Antlerless elk
123	1	Sep. 10	Oct. 10	50	Limited quota	Any elk
123	4	Oct. 20	Nov. 30	50	Limited quota	Antlerless elk
123	6	Oct. 20	Nov. 30	50	Limited quota	Cow or calf

Hunt Special Archery Season Hunt	Opening Date	Limitations
113	Sep. 1-Sep. 9	
123	Sep. 1-Sep. 9	Refer to Section 2 of this Chapter

SUMMARY OF CHANGES IN LICENSE NUMBERS

Hunt Area	Type	Quota change from 2016
113	1	+40
113	4	+40
123	1	+50
123	4	No Change
123	6	+50
Herd Unit Total	1	+90
	4	+40
	6	+50

Management Evaluation

Current Landowner/Hunter Satisfaction Management Objective: 60%

Management Strategy: Private Land

2016 Landowner Satisfaction Estimate: 83%

2016 Hunter Satisfaction: 100% Satisfied, 0% Neutral, 0% Dissatisfied

Herd Unit Issues

The management objective for the Rochelle Hills Elk Herd Unit is based on landowner and hunter satisfaction. The management strategy is private land. The objective and management strategy were last revised in 2012. The objective and strategy will be reviewed in 2017.

A major difficulty with managing this herd is hunter access. The majority of the elk in Area 123 are found on private land and the opinions of landowners on the desired number of elk are not always the same. The elk tend to concentrate in certain areas at particular times of the year so perceptions differ on the number of licenses needed to manage harvest. Several landowners desire to keep large mature bulls on their property so they tightly control access trying to not have elk move to neighboring properties during the hunting season. Those landowners who want more harvest end up with elk using their lands outside of the hunting season.

Hunt Area 113 does have significant amounts of publically accessible lands especially on the Thunder Basin National Grasslands. However, when under pressure elk in this hunt area also move to private lands where access to hunt is limited. Balancing hunter numbers with the amount of elk available on public lands while attempting to get adequate harvest in the entire hunt area is challenging when designing hunting seasons.

Weather

Weather throughout 2016 and into 2017 was not ideal for optimal rangeland conditions. The growing season was fairly poor with drought conditions noted throughout the area. The winter of 2015-2016 was moderate with not much for snow accumulation, or prolonged snow cover. However, in contrast, the winter of 2016-17 was fairly severe at times. Although this area did not experience the heavy snows that some of the surrounding areas did, there were at times prolonged cold temperatures. The Palmer Drought Index indicates that overall moisture conditions were average (reported as mid-range) in the Cheyenne-Niobrara drainage, although anecdotal observations throughout the area indicated that certain portions were likely more affected by drought conditions. Looking at historic temperature information for December and January, records indicate that the 30-year mean low temperature for Gillette in December is 13.2F and 14.5F for January. In contrast, December of 2016 experienced a mean low temperature of 2.5 with January reported as 9.7. These are substantially lower than the 30-year average.

Habitat

There is currently no formal habitat monitoring occurring in this herd unit. Anecdotal observations indicate that drought conditions were experienced in 2016, which did not leave much residual forage going into the fall and winter of 2016 in some areas.

Field Data

During the aerial classification survey in November of 2016 there were ~500 elk observed in the herd unit. There was one large group observed in Hunt Area 123. Due to fences and the location

of these groups, these elk were unable to be classified and instead the number of elk was estimated based on photographs captured while flying. During the classification flight there were other smaller groups of elk scattered throughout Area 123 that were able to be classified (140 in total) and were included in the classification results for this herd. The distribution of elk seemed to be typical for that time of year in this area. The number of elk classified in Area 113 was 159, in small groups throughout the area. The classification results for Hunt Area 113 indicated 54 calves per 100 cows, essentially unchanged from the 2015 ratio of 56. The number of animals classified or counted has fluctuated over the past several years in Area 113.

One problem associated with the surveillance and management of this herd is achieving meaningful sample sizes during classification surveys. This is a large geographical area, with steep, forested terrain, which makes for difficulty in spotting elk in the budgeted flight time. Overall, this population has likely been increasing in Hunt Area 123 over the years, while harvest and range conditions in Area 113 have lowered the numbers.

As this herd is managed based upon landowner and hunter satisfaction, we are aiming for at least 60% of landowners and 60% of hunters to be satisfied. The harvest survey indicated that 100% of hunters were either “very satisfied” or “satisfied” with the 2016 season. The annual landowner meeting was held in January 2017 for Hunt Area 123. As this hunt area is predominantly private, it is crucial that a meeting is held to acquire feedback from the landowners. At this meeting the majorities were in favor of the season and were satisfied with the management of the herd. A common theme from landowners present at the meeting is that this area is known for trophy bulls and they are not seeing them in the way that they have in past years.

Harvest

Historically, this herd has been hunted conservatively, with Hunt Areas 113 and 123 being closed for up to two years at a time to allow for trophy bull growth. Additionally, when it is open, it is important to provide enough licenses so that it is not just a landowner hunt, but an opportunity for the hunting public. While this regimen of hunting seasons has had the potential to produce large mature bulls, it has also resulted in very high bull to cow ratios in the past. In 2016 there were 50 Type 4 licenses available in Hunt Area 123. The harvest survey indicates an overall success rate of 94% with an average of around 2 days spent to harvest an animal, indicating that animals were plentiful and accessible. There were no license types available in Hunt Area 113.

This herd has great potential for continued growth if access cannot be somewhat improved, particularly in Area 123. In portions of Hunt Area 113 there is a fair amount of public land, which allows for a reasonable harvest. Additionally, with the re-routing of county roads due to shifts in coal mining activity, some areas of public land are even more accessible than they have been in the past. The potential negative impact of the increased vehicle access is elk may be displaced from public lands in this portion of the hunt area. The overall harvest success was 94% for this herd unit, which is notably higher than the statewide harvest success rate of 45%.

Population

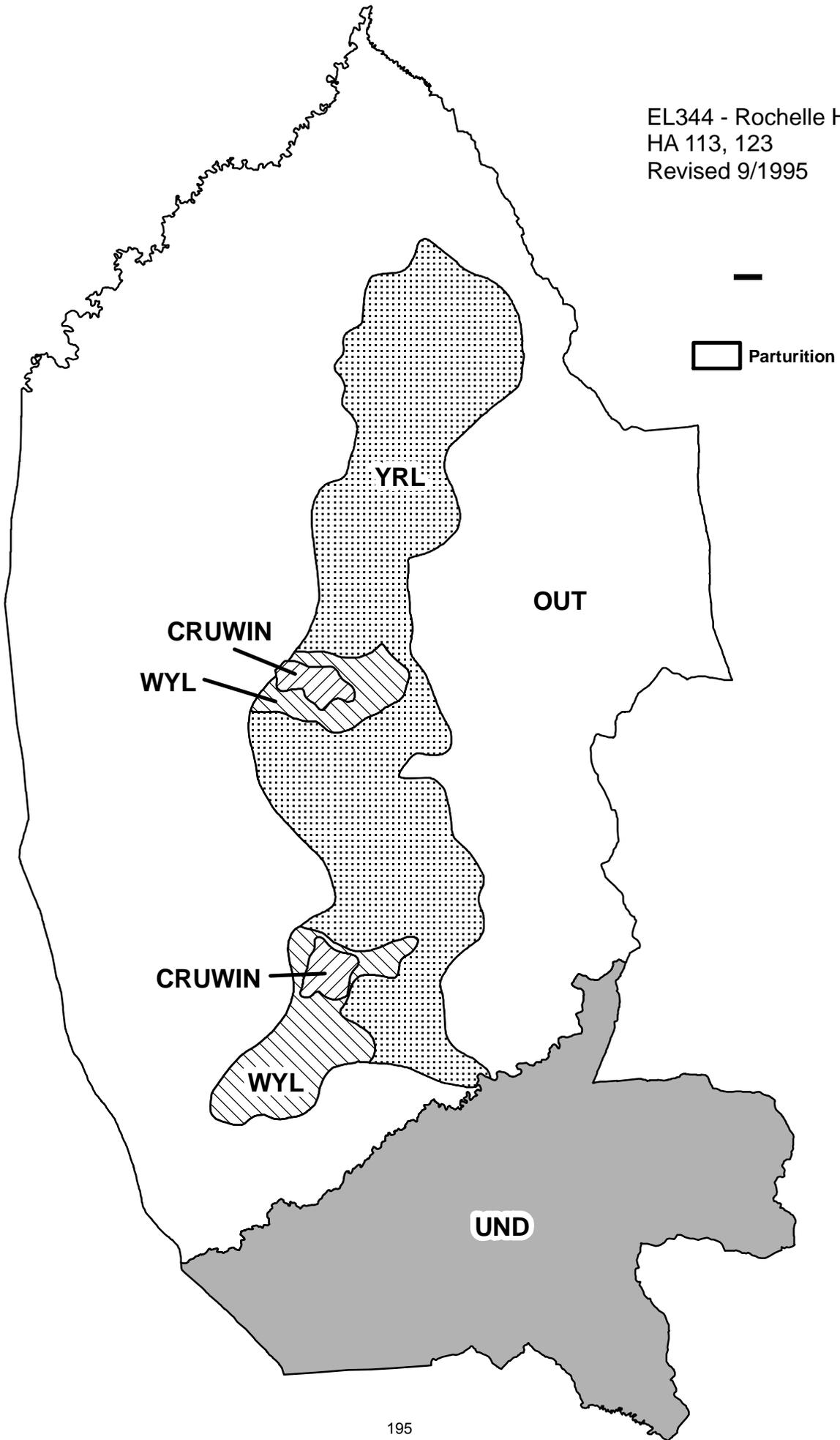
The 2016 field estimate is around 800 elk. The Rochelle Hills elk herd appears to have increased in recent years, particularly in Hunt Area 123. There is no working population model for this herd. Various factors contribute to not having a reliable model for this herd. First, there is known immigration and emigration to and from this herd. The elk are not geographically or otherwise constrained to the herd unit boundaries. Secondly, this is a small population, relatively speaking, which also contributes to inaccuracies within the model. Although it would be preferable to have a working model, as the objective for this herd is non-numerical, it is less critical. Landowner satisfaction is critical to managing this herd and some of the major landowners have indicated they are satisfied with the number of elk or want even more.

Although overall this population seems to be slowly increasing, it should be noted that the majority of the increase has been observed in Hunt Area 123. The groups of elk counted and classified in this portion of the herd have trended upward. It appears that the elk in Hunt Area 113 have declined and then recovered some in recent years. In 2008 the number of elk observed peaked at 286. In 2012 is when the decline became very apparent, with the number of observed elk dropping to 91. The number of elk observed during the 2016 classification flight was down to 159, as compared to 205 in 2015. The majority of elk were observed in the northern portion of 113.

Management Summary

In 2016 there were 50 Type 4 licenses issued in Hunt Area 123 and no licenses issued in Hunt Area 113. For 2017, license Type 1, Type 4 and Type 6 will be issued in Hunt Area 123. There will also be a season in Hunt Area 113, with Type 1 and Type 4 licenses being available. The number of Type 1 licenses issued in Hunt Area 123 will allow for an opportunity for a bull harvest, but the relatively low number of licenses will address some landowners concern with bull quality. The Type 4 and Type 6 licenses will address landowner concern about harboring a likely growing herd throughout the year. The Type 1 and Type 4 licenses that will be available for Hunt Area 113 will provide a quality hunt in this coveted public lands area. The number of Type 1 and Type 4 licenses is in line with what this hunt area can support.

EL344 - Rochelle Hills
HA 113, 123
Revised 9/1995



**ROCHELLE HILLS ELK HERD UNIT (EL344)
Hunt Areas 113 and 123**

**5 Year Evaluation of
Herd Unit Objective and Management Strategies**

Prepared by: Erika Peckham, Gillette Wildlife Biologist

Management Evaluation

Date of Last Herd Objective Review: 2012

Current Objective: 60% Landowner/Hunter Satisfaction

Current Sub-objectives: N/A

Current Management Strategy: Private Land

The Rochelle Hills Elk Herd Unit (EL 344) contains elk Hunt Areas 113 and 123, and is located in southeast Campbell County, southwest Weston County, and north central Converse County (See Fig. 1). The postseason population management objective was last reviewed in 2012, and was set to a satisfaction objective. The management strategy was for private land management.

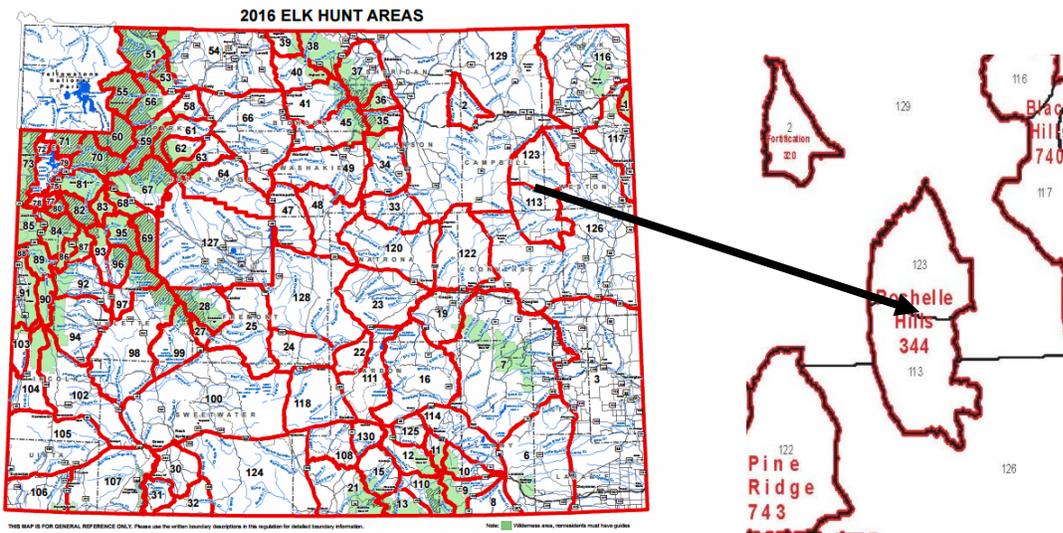


Figure 1. Map of elk hunt areas and herd units in Wyoming during 2016 with the Rochelle Hills Elk Herd Unit Highlighted.

OBJECTIVE AND MANAGEMENT STRATEGY EVALUATION

Objective –Both the landowner and hunter satisfaction levels have been at or above 60% satisfaction the last 5 years. Hunter satisfaction from 2011 through 2015 averaged 82% satisfied. In 2016, 100% of hunter respondents were satisfied. Landowner satisfaction throughout this timeframe has fluctuated anywhere from 62% to 83% satisfied.

Sub-objectives – N/A

Management Strategy – The Rochelle Hills Elk Herd has a Private Land Management Strategy. Private land access dictates bulls to cow ratios and several landowners have expressed interest in having more and bigger bulls. From 2012 through 2016 the average was 68 bulls:100 cows, well above the threshold for even the Special Management Strategy. Additionally, we hunt antlered elk on an every other or every third year basis which in these smaller herds inflates bull to cow ratios during non hunted years.

Table 1. Trend Count Results from 2012-2016

2012 - 2016 Postseason Trend Count
Elk Herd EL344 - ROCHELLE HILLS

Year	MALES			FEMALES	JUVENILES	Grand Total
	Ylg	Adult	Total	Total	Total	
2012	32	20	52	128	77	257
2013	26	30	56	96	42	194
2014	22	29	51	79	53	183
2015	61	47	108	133	73	314
2016	43	72	115	124	60	299

Elk Habitat Evaluation

Landowners – The majority landowners are “satisfied” and want the current number of elk or even more. Those who have some concerns about elk impacts on habitat and the current numbers of elk are a minority. Although the landowners that want less elk are in the minority, they do typically harbor many of the elk throughout the year and allow access to license holders. We try to design seasons to give those landowners some opportunity to harvest elk.

Federal or State Land Managers – Have not expressed specific concerns about the ability of the habitat to support current numbers of elk on public lands.

Currently there is no formal habitat monitoring within this herd unit by WGFD personnel.

Environmental Concerns

In portions of this Herd Unit, primarily in Hunt Area 113 on the USFS land, there has been management to encourage prairie dog growth. Over the past few years the prairie dog population has increased greatly. Concerns have been expressed by grazing permittees, adjacent private landowners and the public regarding the negative impacts of prairie dogs on the vegetation. The USFS, in the spring of 2017, lifted the prairie dog shooting ban that was in place. Although this is one tool to potentially keep prairie dog numbers suppressed, it is unlikely that the areas which contain high densities of prairie dogs will provide much in the way of elk habitat for several years. Drought has also been a concern in this Herd Unit in years past.

Constituent Concerns

WGFD personnel met with Hunt Area 123 landowners on an annual basis in January to discuss hunting seasons and other issues related to the elk herd. Landowners were surveyed regarding their satisfaction at these annual meetings. Key landowners from Hunt Area 113, or those that did not attend the Area 123 meeting, were surveyed by mail, phone or in person. Opinions vary; however, overall people are satisfied with the management of this herd. With the exception of a couple of landowners, most are content with the number of elk or would even like to see more. Several landowners have expressed interest in having larger bulls.

Federal land managers have not expressed concerns with the current population or management of this elk herd.

Hunters and other recreationalists prefer to have more elk and larger bulls. Any elk licenses in this Herd Unit are highly sought after and hunters typically have a fairly high success rate.

Table 2. Hunter and Landowner Satisfaction, 2012-2016.

Year	Landowner Satisfaction	Hunter Satisfaction
2012	No Data	80%
2013	80%	84%
2014	81%	95%
2015	88%	100%
2016	89%	100%

Attainability of the Current Objective and Management Strategy

The current landowner/hunter satisfaction objective is attainable and works well in this herd unit. We have an annual landowner meeting with Area 123 landowners/ranch managers and either talk with or send surveys to Area 113 landowners. Using landowner input to design seasons likely increases their satisfaction as they have the ability to provide input on what season will work best in a given year. Hunter satisfaction is very high for this herd as we have good harvest success. For those hunters fortunate enough to possess a Type 1 any elk license there is a good opportunity to harvest a larger mature bull. We recommend maintaining the current objective.

Sub-objectives – N/A

Currently the private land management strategy works well. With bulls being hunted on only an occasional basis we have an inflated bull to cow ratio in non hunt years. Landowners will not allow enough access to substantially reduce the bull to cow ratio. We recommend maintaining the private land management strategy for this herd.

Table 3. Postseason Classification summary, 2012-2016

2012 - 2016 Postseason Classification Summary																		
for Elk Herd EL344 - ROCHELLE HILLS																		
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
2012	0	32	20	52	20%	128	50%	77	30%	257	0	25	16	41	±0	60	±0	43
2013	0	26	30	56	29%	96	49%	42	22%	194	464	27	31	58	±0	44	±0	28
2014	0	22	29	51	28%	79	43%	53	29%	183	0	28	37	65	±0	67	±0	41
2015	0	61	47	108	34%	133	42%	73	23%	314	0	46	35	81	±0	55	±0	30
2016	0	43	72	115	38%	124	41%	60	20%	299	0	35	58	93	±0	48	±0	25

