

2018 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2018 - 5/31/2019

HERD: EL635 - WIGGINS FORK

HUNT AREAS: 67-69, 127

PREPARED BY: GREG ANDERSON

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Trend Count:	5,681	6,069	5,800
Harvest:	1,012	750	900
Hunters:	2,634	2,369	2,500
Hunter Success:	38%	32%	36%
Active Licenses:	2,744	2,462	2,600
Active License Success	37%	30%	35%
Recreation Days:	18,207	15,589	16,000
Days Per Animal:	18.0	20.8	17.8
Males per 100 Females:	18	12	
Juveniles per 100 Females	26	22	

Trend Based Objective (± 20%)

5,500 (4400 - 6600)

Management Strategy:

Recreational

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

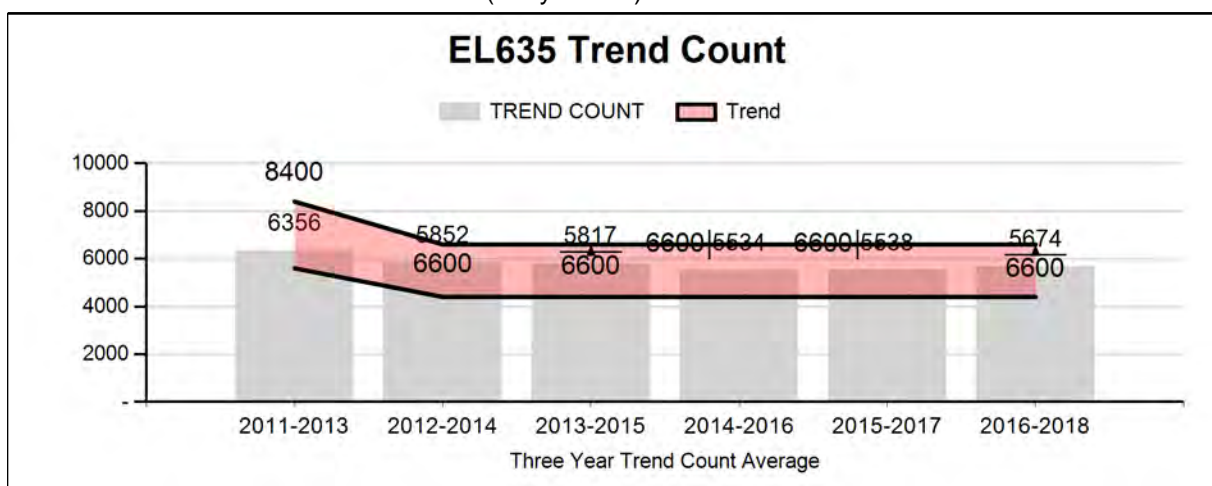
10%

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

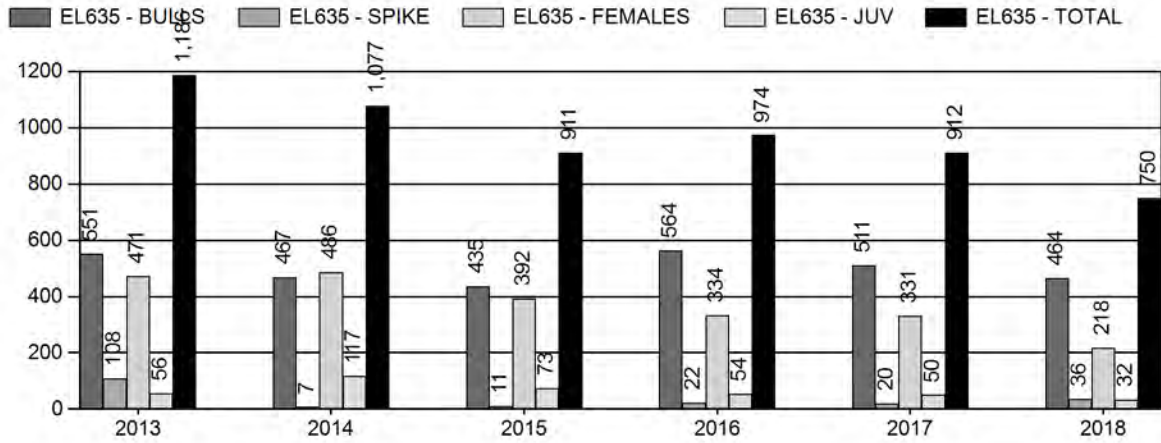
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Proposed harvest rates (percent of pre-season estimate for each sex/age group):

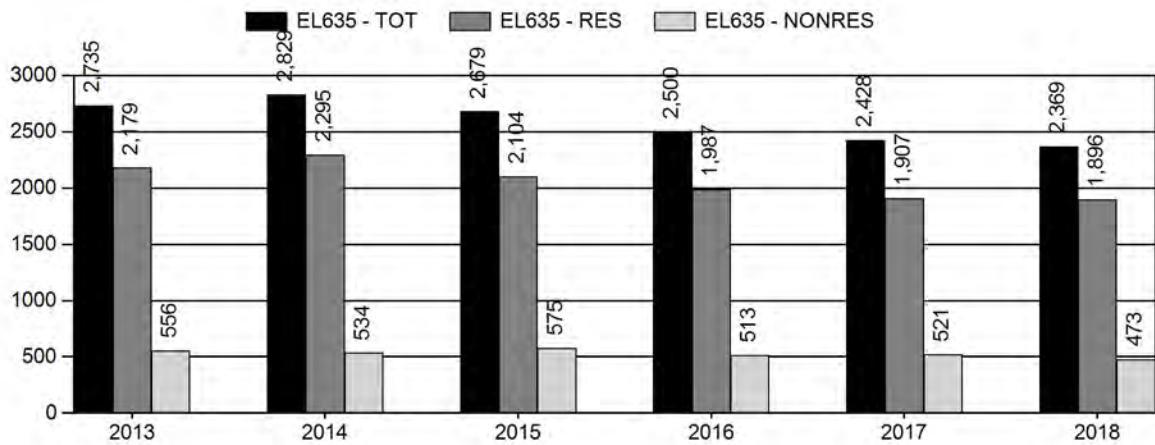
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



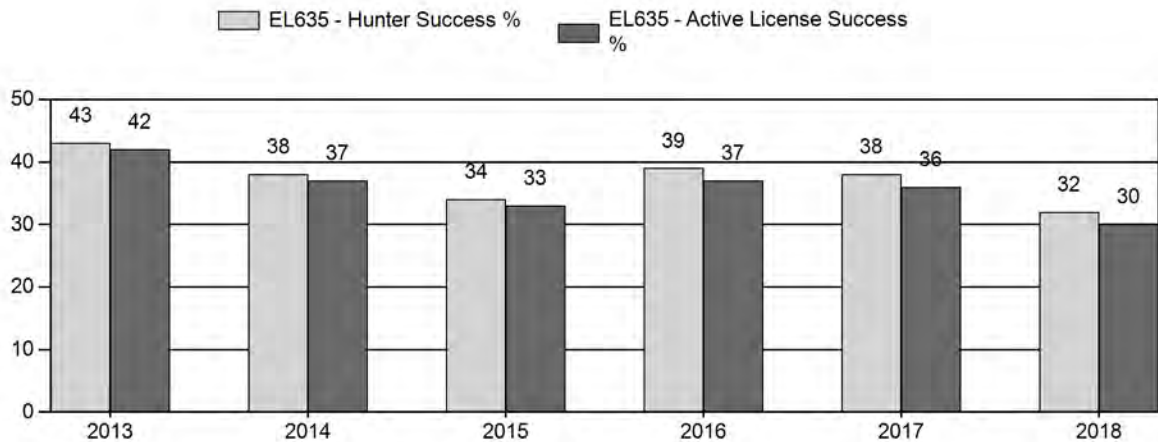
Harvest



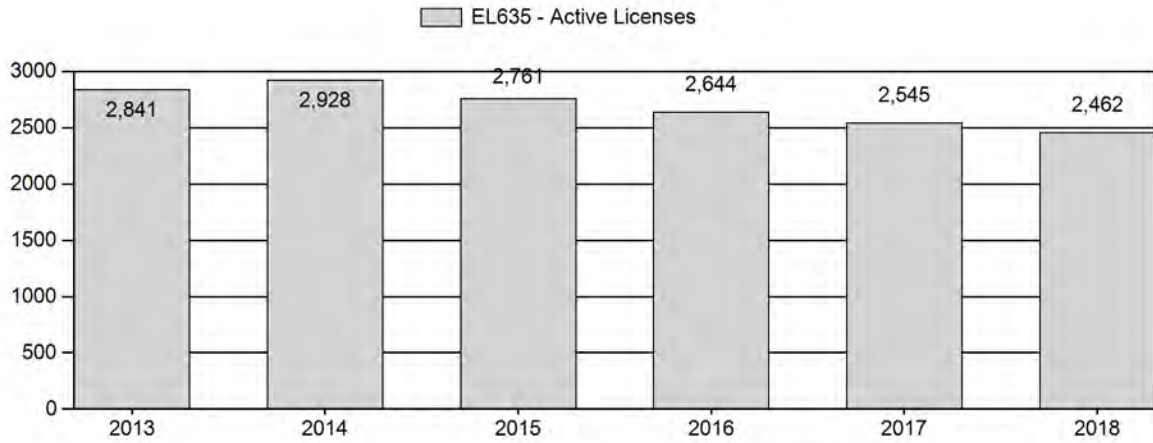
Number of Hunters



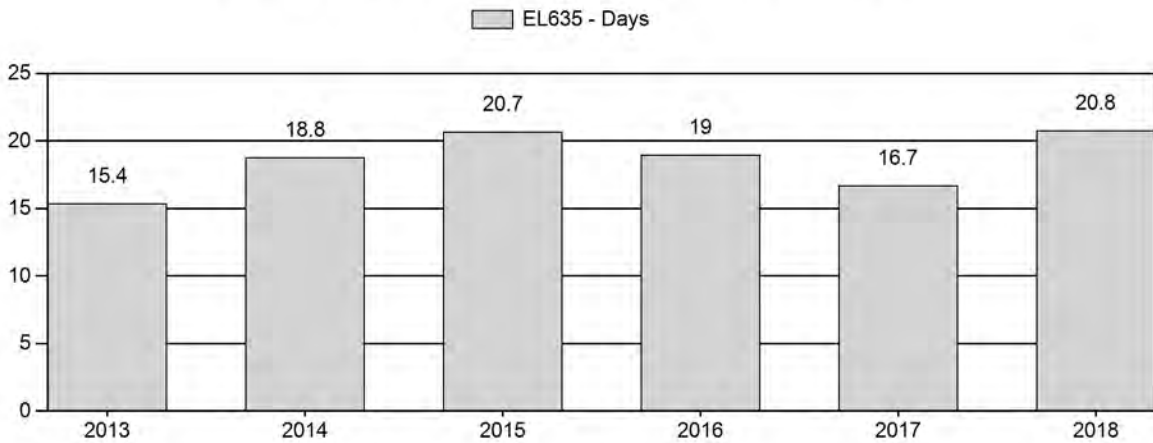
Harvest Success



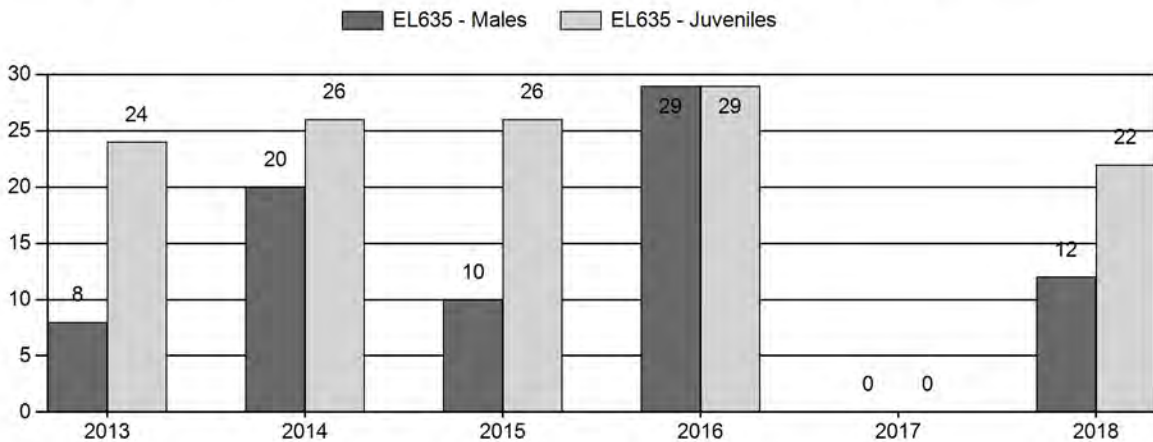
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL635 - WIGGINS FORK

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	0	135	23	158	6%	1,881	76%	451	18%	2,490	0	7	1	8	± 0	24	± 0	22
2014	0	304	256	560	14%	2,817	69%	720	18%	4,097	0	11	9	20	± 0	26	± 0	21
2015	0	120	166	286	8%	2,741	73%	705	19%	3,732	0	4	6	10	± 0	26	± 0	23
2016	0	311	480	791	18%	2,731	63%	804	19%	4,326	0	11	18	29	± 0	29	± 0	23
2017	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2018	0	136	176	312	9%	2,576	75%	564	16%	3,452	0	5	7	12	± 0	22	± 0	20

**2019 HUNTING SEASONS
WIGGINS FORK ELK (EL 635)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
Opens	Closes					
67		Oct. 1	Oct. 10		General	Antlered elk
67		Oct. 11	Oct. 31		General	Antlered elk, spikes excluded
67	4	Nov. 1	Dec. 15	150	Limited quota	Antlerless elk
67	6	Nov. 15	Dec. 15	400	Limited quota	Cow or calf valid west of the Wiggins Fork and west of the East Fork downstream from the confluence with the Wiggins Fork
67, 68, 69	9	Sep. 1	Sep. 30	125	Limited quota	Any elk, archery only
68		Oct. 1	Oct. 10		General	Antlered elk
68		Oct. 11	Oct. 31		General	Antlered elk, spikes excluded
68	6	Nov. 1	Nov. 30	100	Limited quota	Cow or calf
69		Oct. 1	Oct. 31		General	Any elk
69	6	Oct. 1	Nov. 30	50	Limited quota	Cow or calf
127		Oct. 1	Oct. 31		General	Any elk
127		Nov. 1	Jan. 31		General	Antlerless elk
Archery 67, 68, 69	All	Sep. 15	Sep. 30			Valid in the entire area(s)
127	All	Sep. 1	Sep. 30			Valid in the entire area(s)

Hunt Area	Type	Quota change from 2018
67	4	+50
Total		+50

Management Evaluation

Current mid-winter trend count management objective: 5,500

Management strategy: Recreational

2018 trend count: 6,069

Most recent 3-Year running average trend count: 5,674

Management Issues

The Wiggins Fork elk herd is managed based on a winter trend count. The trend count management objective has been in place since 2002. The original objective was reviewed in 2014 and modified. The new objective set in 2014 is to maintain a mid-winter count of 5,500 elk in the herd unit with a recreational management strategy. Annual trend counts are conducted each January to assess the population.

The Wiggins Fork elk herd occupies the upper Wind River drainage west of the Wind River Reservation (WRR). There is good documentation elk wintering in the herd unit migrate into a number of other northwest Wyoming elk herd units in the summer and early fall. An elk migration study that concluded in 1995 found approximately 60% of collared elk in the herd unit migrated into neighboring herd units in the summer. More recently, 15 elk were outfitted with GPS collars in 2015. Similar to the previous elk study, data from the GPS collared elk reveals they migrate into the neighboring Jackson and Cody herd units in the summer time. Given the amount of interchange with these herd units, the number of elk present can vary significantly throughout the hunting season. Seasons structured to reduce the elk population generally need to include antlerless elk harvest later in the fall to allow elk to migrate into the herd unit from neighboring areas.

The 2018 season structure maintained a split prohibiting spike elk harvest after October 10. This split was implemented at the public's request in 2017 to reduce harvest on yearling elk re-entering the herd unit from areas in the Jackson herd where it is thought bull numbers are declining. The restriction was implemented in hunt areas 67 and 68. In 2017 only 11 spikes were harvested during the first 10 days of the general hunting season. The spike harvest in the two areas remained quite low at 19 in 2018.

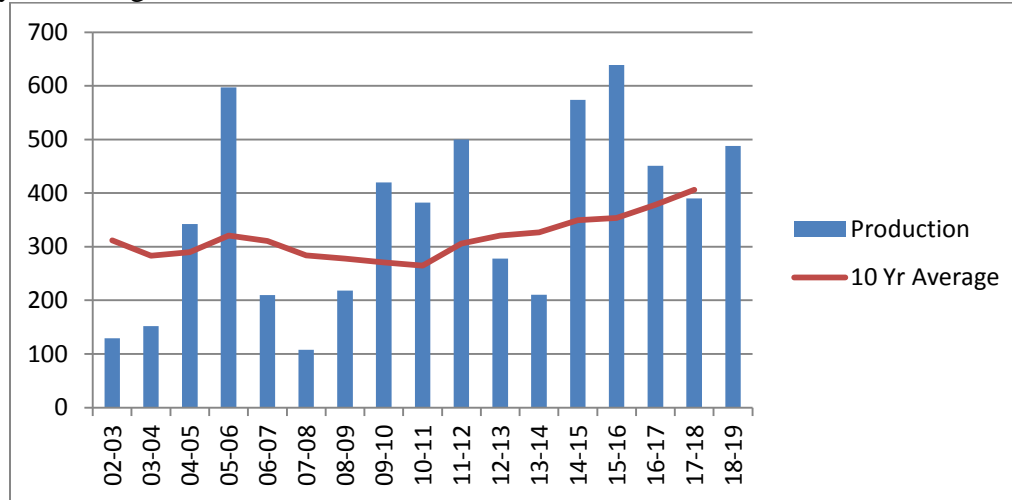
In 2019 personnel conducted an internal audit of the objective for this herd that was last reviewed in 2014. It was determined the trend count objective for this herd is an effective, obtainable management target and should be maintained as is. In addition, the objectives for the sub-groups in the population are an important part of the management strategy. From radio collar data we know elk from these different sub-groups have different migratory patterns, utilize different summer range and are exposed to different demographic influences. Each of the sub-groups also tend to utilize different winter range so it continues to be important to monitor the size of these sub-groups and maintain the sub-objectives. Finally, the recreational management strategy is appropriate in this herd unit. That said, it is unlikely the Department will have good data on the bull/cow ratio in the area due to the wintering behavior of bulls throughout much of the area.

For the past 2 years, several landowners along the Wind River in Hunt Area 127 have had damage issue with elk along the river corridor. Elk in this area provide almost no recreational opportunity to the public due to interspersed with the Wind River Reservation (WRR). The landowner requested an elk season open through January to see if a small amount of hunting pressure will disperse elk. In response, the 2019 season will extend general license antlerless elk harvest in HA 127 through the end of January. The season extension is not expected to increase harvest significantly or provide a substantial amount of recreational opportunity.

Habitat/Weather

Herbaceous vegetation production was quite high throughout the herd unit from 2014 through 2018. Following 2 years of extreme drought, vegetation production increased significantly in 2014 and remained quite good 2015 through 2017. Production in 2018 was higher than 2017 production averaging 488 lbs/acre across all monitoring sites. The 2018 production was well above the 10 year average of 406 lbs/acre (Fig. 1). Although no vegetation monitoring is conducted at high elevation summer range, it appeared vegetation growth was good on summer and transitional ranges as well. Snowfall was below average throughout the fall ensuring feed was available to elk. Conditions continued to be moderate throughout winter allowing elk to be well dispersed through the area. During the winter trend count flight in January, 2019, personnel noted an abundance of elk sign at higher elevations due to the lack of snow cover. The open conditions throughout fall and early winter likely contributed to decreased elk harvest in the herd unit as cow elk were more difficult for hunters to find on low elevation winter ranges. Given abundant feed throughout the summer it is likely elk entered winter in good shape.

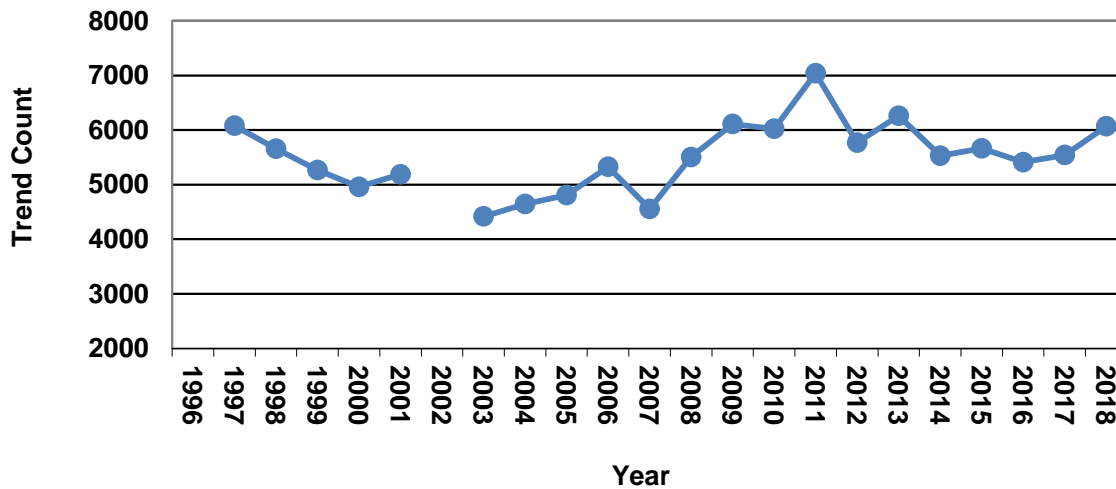
Figure 1. Annual, herbaceous production on winter range in the Wiggins Fork Elk Herd and 10 year average.



Field/Harvest Data/Population

Trend counts to estimate the wintering population are conducted each January. Trend count numbers declined from 1997 through 2003. From 2004 through 2007, the population appeared to stabilize. Winter count numbers fluctuated year-to-year but did not indicate any consistent population trends. In 2008, personnel counted a significantly higher number of elk (5,504). This was the highest count since 1998. In 2009 and 2010, personnel again counted a significantly greater number of elk; 6,110 and 6,023 respectively (Fig. 2). In 2011 the trend count increased significantly again to 7,039. Following a liberal season in 2012, the trend count declined to 5,768. The count increased again in 2013 by 500 elk to 6,260 followed by a decline to 5,528 in 2014 (Fig. 2). The 2018 count of 6,069 was about 500 elk higher than counts from 2014 through 2017. The increase in elk numbers was all associated with the East Fork sub-group which had been below objective for the past 2 years. Overall, counts from the past 7 years indicate the population has been very stable with only 15% variation between any of the last 7 years.

Figure 2. Wiggins Fork Elk trend count



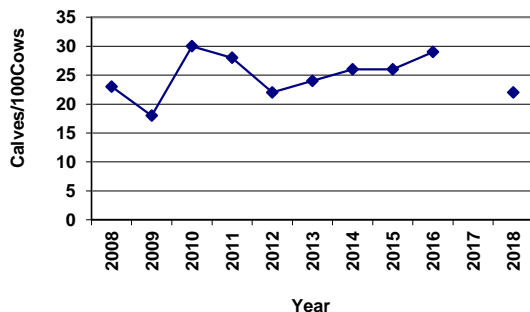
The trend count objective includes sub-objectives for 3 areas in the herd unit. The sub-objectives were set to recognize reasonably well-defined, spatially segregated elk groups wintering in the area. The sub-groups include the East Fork, Dunoir/Spring Mountain, and South Dubois groups. While there is a significant amount of interchange, elk from the three groups tend to segregate themselves on winter range and utilize different spring/fall migration routes. Recent GPS collar distribution data has reinforced the distinction of the 3 sub-groups. Since elk in the three sub-groups are subjected to different demographic influences, sub-objectives were set for each of the three groups (Table 1). One of the sub-groups (East Fork) has been below objective for much of the past decade. However, counts from 2 of the past 4 years were at objective for this sub-group. The 2018 count for this group was the highest in over 15 years. In contrast, the Dunoir/Spring Mtn sub-group has consistently been above objective for the past decade. Liberal cow harvest in November and December has been structured to target this sub-group. Counts in the sub-group have been very similar for the past 3 years indicating the current harvest levels are preventing growth in this segment. The South Dubois segment has historically been above objective. However, personnel counted significantly fewer elk in this sub-group each of the past 3 years. While the sub-herd is currently at objective it may be declining and future harvest levels may need to be re-evaluated.

Table 1. Trend count numbers from sub-groups in the Wiggins Fork Elk Herd Unit.

	East Fork Objective: 2,200	Dunoir/Spring Mountain Objective: 2,200	South Dubois Objective: 1,100	Wiggins Fork Herd Unit Objective: 5,500	
Year	Count	Count	Count	Count	3 Year Average
1998	2154	2457	1046	5657	
1999	2180	2109	977	5266	
2000	1883	2014	1061	4958	5294
2001	2100	1818	1269	5187	5137
2002	nc	nc	nc	nc	5073
2003	1857	1666	895	4418	4803
2004	1832	1601	1211	4644	4531
2005	1669	1807	1331	4807	4623
2006	1623	2297	1406	5326	4926
2007	1478	1634	1441	4553	4895
2008	1294	2620	1590	5504	5128
2009	1457	3186	1467	6110	5389
2010	1930	2704	1389	6023	5879
2011	1765	3680	1594	7039	6391
2012	1834	2580	1354	5768	6277
2013	1713	3022	1525	6260	6356
2014	1620	2551	1357	5528	5852
2015	2118	2497	1048	5663	5817
2016	1591	2715	1104	5410	5534
2017	1474	2928	1140	5542	5538
2018	2348	2893	828	6069	5674

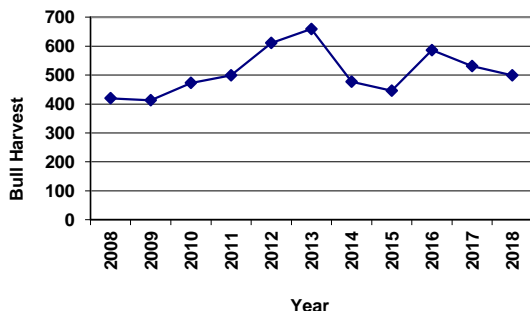
Prior to 2018 the calf/cow ratio increased steadily for several years (Fig. 3). Ratios the past 4 years have ranged from 24/100 to 29/100. In 2018, the calf/cow ratio declined to 22/100. This recruitment level is not particularly high for an elk population and in part explains the population stability seen in the trend counts over the same time period. Over the past 6 years personnel have used trend count video to classify elk in an attempt to standardize classification methodology and get a more representative sample of bulls. In 2017 flight conditions for the trend count were marginal with heavy winds. While the video was good for trend count purposes, acceptable video classification was not possible. As such, no classification data is available for 2017. Video quality was better in 2018 and allowed personnel to classify 3,452 elk.

Figure 3. Ten year recruitment history in the Wiggins Fork Elk Herd.



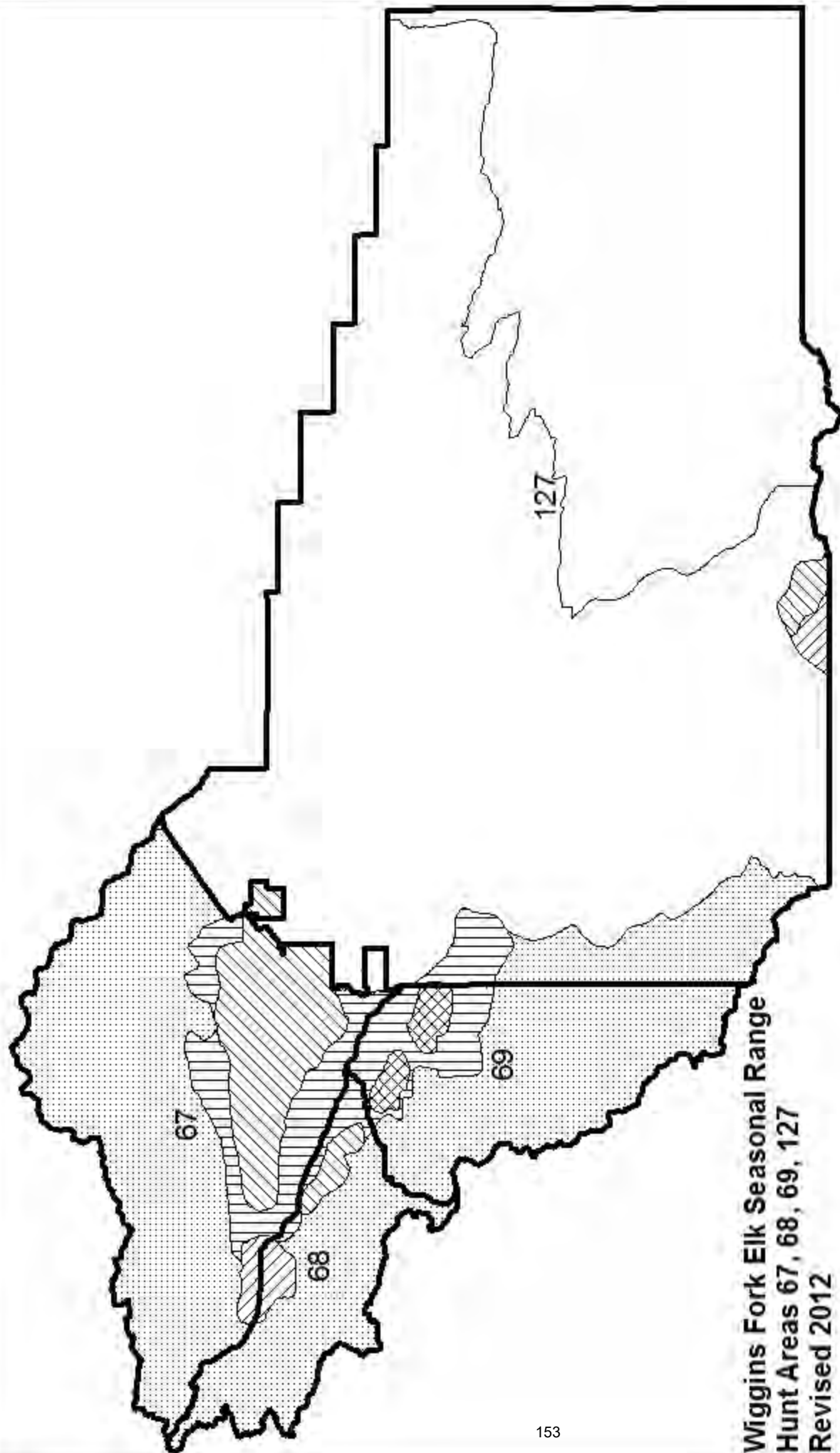
Although bull/cow ratio data for the herd unit tend to be unreliable and is unavailable for 2017, bull harvest was fairly high in 2016 and 2017 (Fig. 4). Antlered elk harvest did decline in 2018. Personnel noted the lack of success during the season while talking to hunters. Much of the decline can be associated with mild fall conditions and high elk dispersion throughout the herd unit. It is unlikely the decreased bull harvest is attributable to any demographic trends.

Figure 4. Antlered elk harvest in the Wiggins Fork Elk Herd.



Management Summary

The 2018 trend count indicates the Wiggins Fork elk population is at objective. The population appears to have been fairly stable over the past 4 years. Elk numbers in the East Fork sub-group did increase in 2018. In response, Type 4 licenses will be increased by 50 in 2019. If personnel continue to count the same number of elk in the sub-group next year, harvest pressure will need to be increased more. Elk numbers in the South Dubois sub-group declined for another year and if this trend continues, harvest strategies will need to re-evaluated. To provide recreational opportunity and satisfy a large group of publics requesting continuation of the ‘spikes excluded’ restriction, the 2019 season in hunt areas 67 and 68 will continue to include 10 days of unrestricted antlered elk harvest followed by a ‘spikes excluded’ restriction for the remainder of the season. The general season in HA 127 will be extended through the end of January to address local damage problems along the Wind River. With a small increase in cow harvest, the population should remain stable and at objective in 2019.



**Wiggins Fork Elk Seasonal Range
Hunt Areas 67, 68, 69, 127
Revised 2012**

- CRUWIN
- CRUWYL
- OUT
- SSF
- WIN
- WYL

2018 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2018 - 5/31/2019

HERD: EL637 - SOUTH WIND RIVER

HUNT AREAS: 25, 27-28, 99

PREPARED BY: STAN HARTER

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Trend Count:	2,630	2,992	2,800
Harvest:	652	655	700
Hunters:	2,105	1,731	1,800
Hunter Success:	31%	38%	39%
Active Licenses:	2,148	1,768	1,850
Active License Success	30%	37%	38%
Recreation Days:	15,748	12,586	13,000
Days Per Animal:	24.2	19.2	18.6
Males per 100 Females:	28	26	
Juveniles per 100 Females	31	34	

Trend Based Objective ($\pm 20\%$)

2,600 (2080 - 3120)

Management Strategy:

Recreational

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

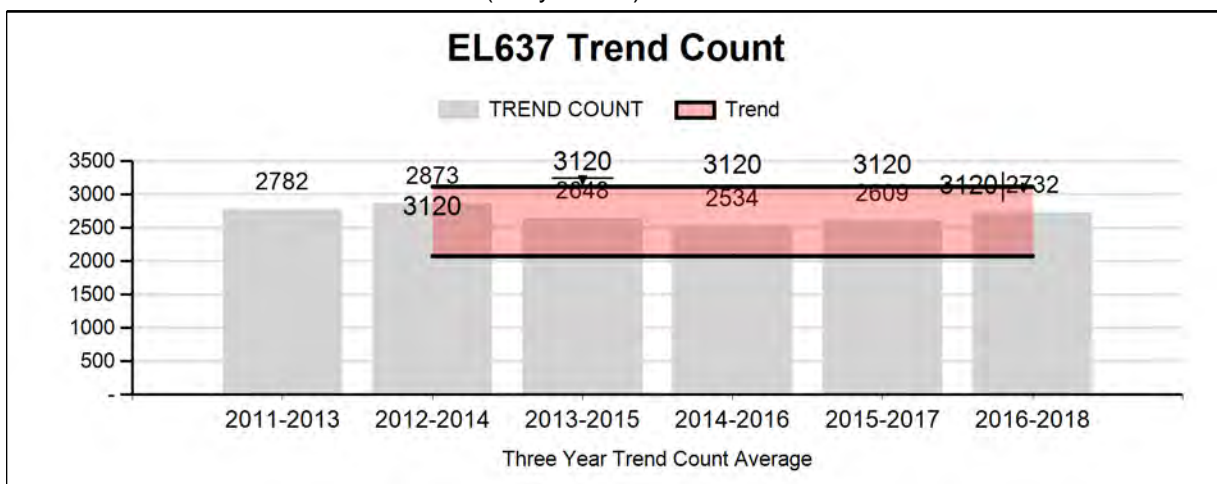
15%

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

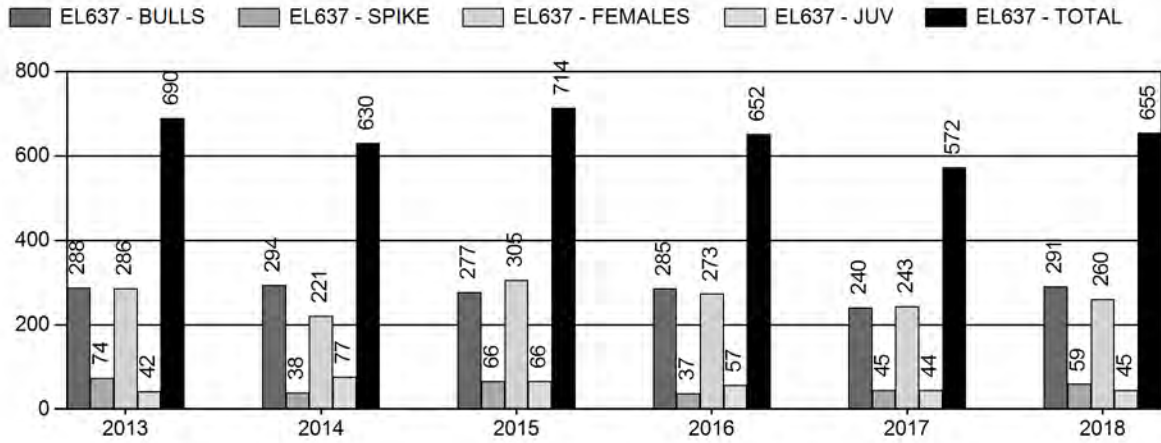
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Proposed harvest rates (percent of pre-season estimate for each sex/age group):

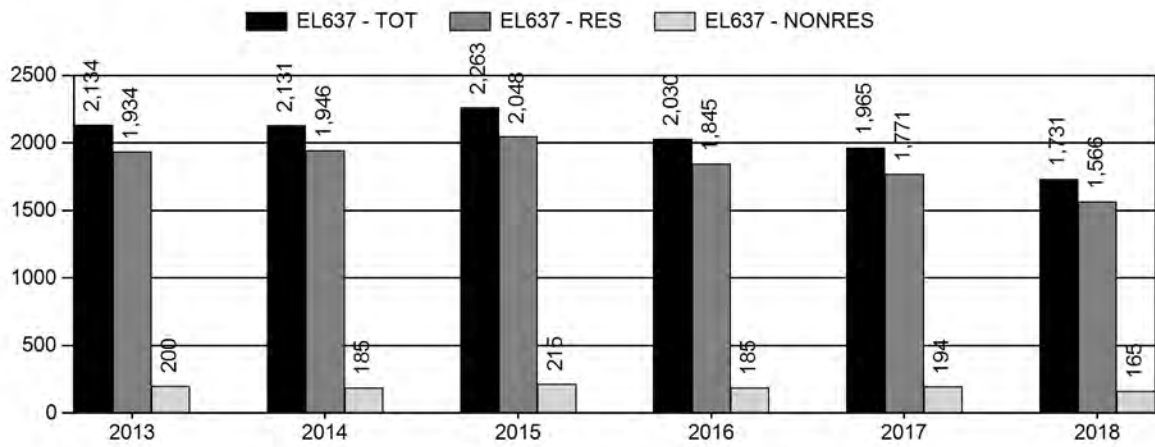
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



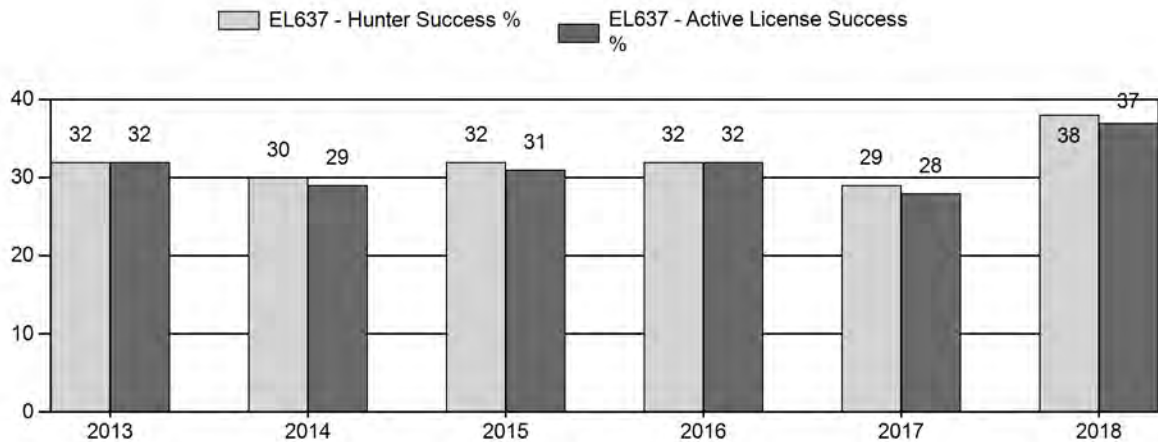
Harvest



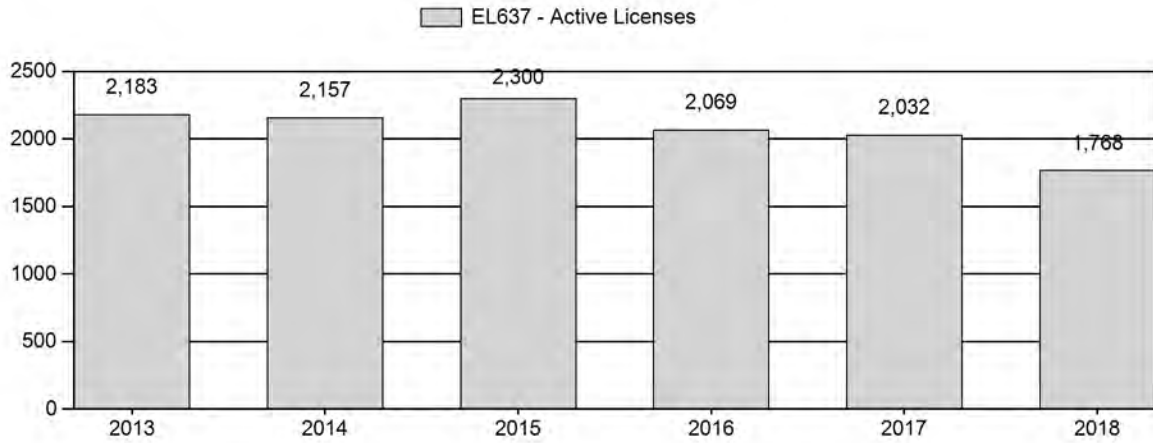
Number of Hunters



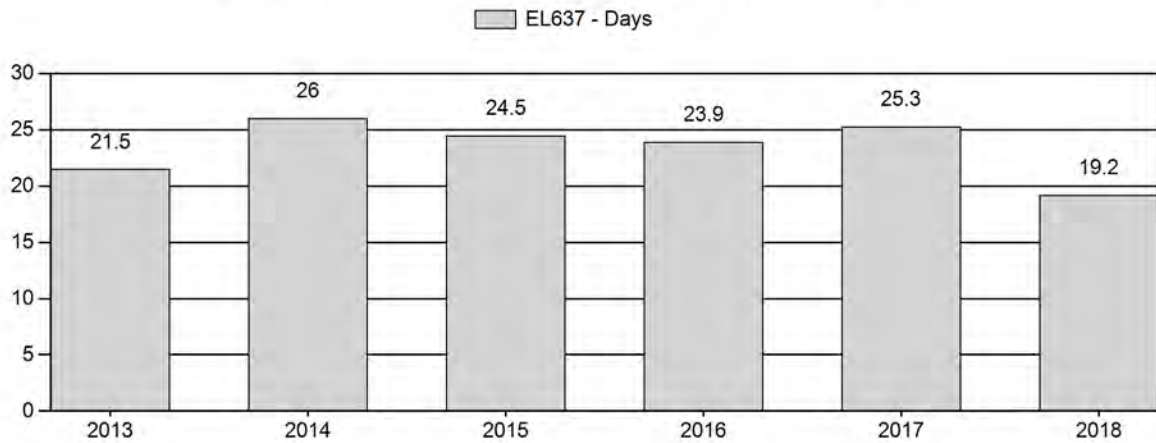
Harvest Success



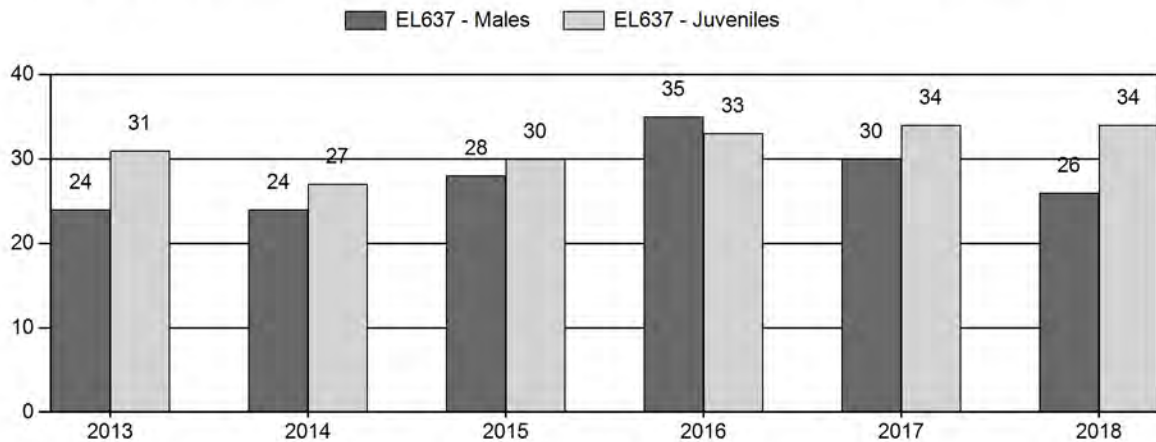
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL637 - SOUTH WIND RIVER

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	0	165	228	393	16%	1,623	65%	499	20%	2,515	0	10	14	24	± 0	31	± 0	25
2014	0	149	226	375	16%	1,550	66%	420	18%	2,345	0	10	15	24	± 0	27	± 0	22
2015	0	181	288	469	18%	1,650	63%	502	19%	2,621	0	11	17	28	± 0	30	± 0	24
2016	0	158	352	510	21%	1,472	60%	487	20%	2,469	0	11	24	35	± 0	33	± 0	25
2017	0	94	248	342	18%	1,143	61%	385	21%	1,870	0	8	22	30	± 0	34	± 0	26
2018	0	159	283	442	16%	1,725	63%	586	21%	2,753	0	9	16	26	± 0	34	± 0	27

2019 HUNTING SEASONS
South Wind River Elk Herd Unit (EL 637)

Hunt Area	Type	Season Dates		Quota	License	Limitations
Opens	Closes					
25, 27	1	Oct. 1	Oct. 31	200	Limited Quota	Any elk
25, 27	1	Nov. 1	Nov. 20			Antlerless elk
25	4	Oct. 15	Nov. 20	100	Limited Quota	Antlerless elk
25	6	Nov. 1	Nov. 20	100	Limited Quota	Cow or calf
27	4	Oct. 1	Nov. 20	50	Limited Quota	Antlerless elk
28		Oct. 1	Oct. 6		General	Any elk
28		Oct. 7	Oct. 22		General	Antlered elk
28	4	Nov. 1	Nov. 20	125	Limited Quota	Antlerless elk
28	6	Dec. 1	Jan. 31	25	Limited Quota	Cow or calf, valid between the Middle Fork and North Fork of the Popo Agie River east of R101W, also valid in Area 127 south of the Boulder Flats Road west of U.S. Highway 287.
99	1	Oct. 1	Oct. 31	150	Limited Quota	Any elk
99	1	Nov. 1	Nov. 20			Antlerless elk
99	4	Oct. 1	Nov. 20	175	Limited Quota	Antlerless elk
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

Hunt Area	License Type	Quota Change from 2018
25	6	+25
28	4	+25
Herd Unit Total	4	+25
	6	+25

MANAGEMENT EVALUATION

Current Mid-Winter Trend Count Management Objective: 2,600

Management Strategy: Recreation (15 – 29 bulls/100 cows)

2018 Mid-winter Trend Count: 2,992

Most Recent 3-year Running Average Trend Count: 2,732

Herd Unit Issues/Population

The management objective for the South Wind River Elk Herd Unit was changed in 2014 to a mid-winter trend count of 2,600 elk, based on a running 3-year average. Trend count data vary due to annual changes in snow depth, light and wind conditions during flights, and condition of habitats each winter. A key factor in our ability to detect elk in winter is the variability and extent of winter habitats, which range from mixed aspen/conifer/sagebrush habitats to open sagebrush/grassland habitats. The 2018 trend count/classification survey was conducted in January and February 2019, with 2,992 elk observed. Aerial survey conditions were favorable, with good snow cover in most areas and few issues with wind; as such we believe this to be a good trend count.

Increased wolf activity, heavy foothills snowpack in 2016-17, reported landowner hazing of elk near livestock and stored hay, and hunter pressure during late-season cow hunts have led to several groups of elk, totaling from 300-400, moving into rural housing developments and agricultural lands near Lander in Area 28 in recent years. Concerns over damage to fences and stored or growing hay, along with potential for brucellosis transmission have prompted recent efforts to haze elk away from the at-risk private lands and to develop alternative hunting season strategies to reduce the safe-haven “refugia” these elk have become habituated to. Another group of 150-170 elk were recently observed along the North Fork Popo Agie River, and merit attention as they could easily cross into the same areas the other habituated elk are currently occupying.

Management Objective 5-year Review

In February 2019, Lander Region personnel reviewed the mid-winter trend count objective set in 2014. Discussions were held internally between the Lander and Pinedale wildlife biologists, Lander terrestrial habitat biologist, and the Lander and South Pinedale game wardens, as well as externally with two wildlife biologists with the Lander BLM Field Office and the wildlife biologist for the Shoshone National Forest.

These consultations included reviewing current and past hunting seasons, as well as hunter and landowner concerns voiced over the last 5 years or longer. We also gave careful consideration of impacts from elk on habitat resources for themselves and other wildlife species such as mule deer and moose, impacts on forage availability between elk and domestic livestock, and impacts on the entire landscape from the combination of wild, domestic, and feral ungulates.

When the management objective for South Wind River elk was changed to the mid-winter trend count of 2,600, it was generally accepted that all parties were comfortable with that number of elk based on classification samples of the previous 10 years after a switch from the Hiller piston-driven helicopter to more efficient Bell turbine-driven helicopters. The overall number of elk seems to remain relatively stable to slightly increasing, with deviations in trend counts being largely due to annual disparity in observation conditions that lead to varying ability of detection.

All of us agreed we should pay close attention to how elk numbers influence habitat condition, particularly in aspen regeneration projects and other habitat treatments. The internal and external discussions of all factors involved in management of the South Wind River elk herd resulted in consensus that no change is currently needed to the mid-winter trend count of 2,600 elk based on 3-year running averages, given that current management strategies are intended to maintain elk numbers at that level.

Weather

The weather station at the Lander airport reported calendar year 2018 was the 37th warmest year (above normal) of the 127 years of record (1892-2018), 59th wettest year on record with 106% of normal precipitation, 22nd least snowiest year on record with 57.3 inches (63 percent of normal). In addition, 2018 had the 4th least snowiest Spring (March, April, May) on record with only 11.2 inches and 10th driest September on record (0.05" of precipitation). Most of the growing season (April-June) precipitation fell during April and May, which was followed by a dry, hot summer and a mild fall.

Winter 2018-19 began with below average snowfall, but higher elevations have reached or exceeded average snowpack since mid-January. Lander has had warmer than average temperatures, with November-February having only a few sub-zero temperature readings.

Habitat

Lander Region personnel conducted several rapid habitat assessments (RHA) in 2018, in shrub, riparian, and aspen habitats. We are targeting mule deer habitats in the South Wind River and Sweetwater herd units with these assessments, but most of the aspen and riparian, and many of the rangeland/shrub assessments are in locations occupied by elk. We have more RHAs scheduled for the next 2 years, for at least 10 each in shrub, aspen, and riparian habitats for each mule deer herd unit. We will pay particular attention to elk utilization of aspen in RHAs conducted in treatment areas, but also in untreated stands. Results of the RHAs completed in 2018 show good species diversity overall, but indicate most habitats are generally in mid to late-seral states, with moderate to severe herbivory. However, the state and condition of all habitat types are concerning, and will likely limit population growth and stability, especially in periods of drought.

Field Data

Elk winter range trend count/classification surveys were conducted January and February 2019, in combination with moose classification and trend count surveys, using Bell 206-B3 Jet Ranger (Lander Region) and Bell 47 Soloy (Pinedale Region) helicopters to survey traditional winter habitats throughout the herd unit. Combined with ground counts of several groups near Lander, a total of 2,992 elk were counted. We have not completed ground classifications of several groups of elk and once done, those data will be updated prior to submission of the final 2018 South Wind River elk JCR. We have not seen any large groups wintering in the portion Area 25 south of the Sweetwater River in a several years, despite awareness of expanding elk numbers there during other seasons.

Harvest Data

The South Wind River hunting season resulted in a harvest of 655 elk in 2018, even with a net reduction of 175 licenses. Total harvest in 2018 was only 5 elk above the long-term average. Total bull harvest was up 25% in 2018, with 291 adult bulls and 59 spikes harvested. Antlerless harvest increased by 9% to 305 cows and calves, 3% below the previous 5-year average. Hunter success rates also improved, with the 2018 rate of 38% being the best since 1999. Hunter effort data also indicate hunters were better able to find elk compared with the previous 5 years (19.2 days/harvest in 2018 vs. an average of 24.2 days per harvest between 2013 and 2017).

Management Summary

With the 2018 mid-winter and 3-year running average trend counts being within the objective, but increasing, the 2018 seasons are designed to increase female harvest to keep this population from growing. Elk hunters will again be allowed to harvest “any elk” for the first part of the general license season in hunt area 28 (October 1–6), shifting to antlered only for the remainder of the season (October 7–22). The 2018 harvest survey indicates 1,015 hunters utilized general licenses in Area 28, which is 3.4% below the average since 2004. Allowing general license hunters to hunt any elk for all or a portion of the season seems to have resulted in less pressure

on adult bulls, which should lead to improved bull/cow ratios and bull quality over time. With relatively good snow conditions, several groups of good, mature bulls were observed in Area 28, at least partly supporting these beliefs.

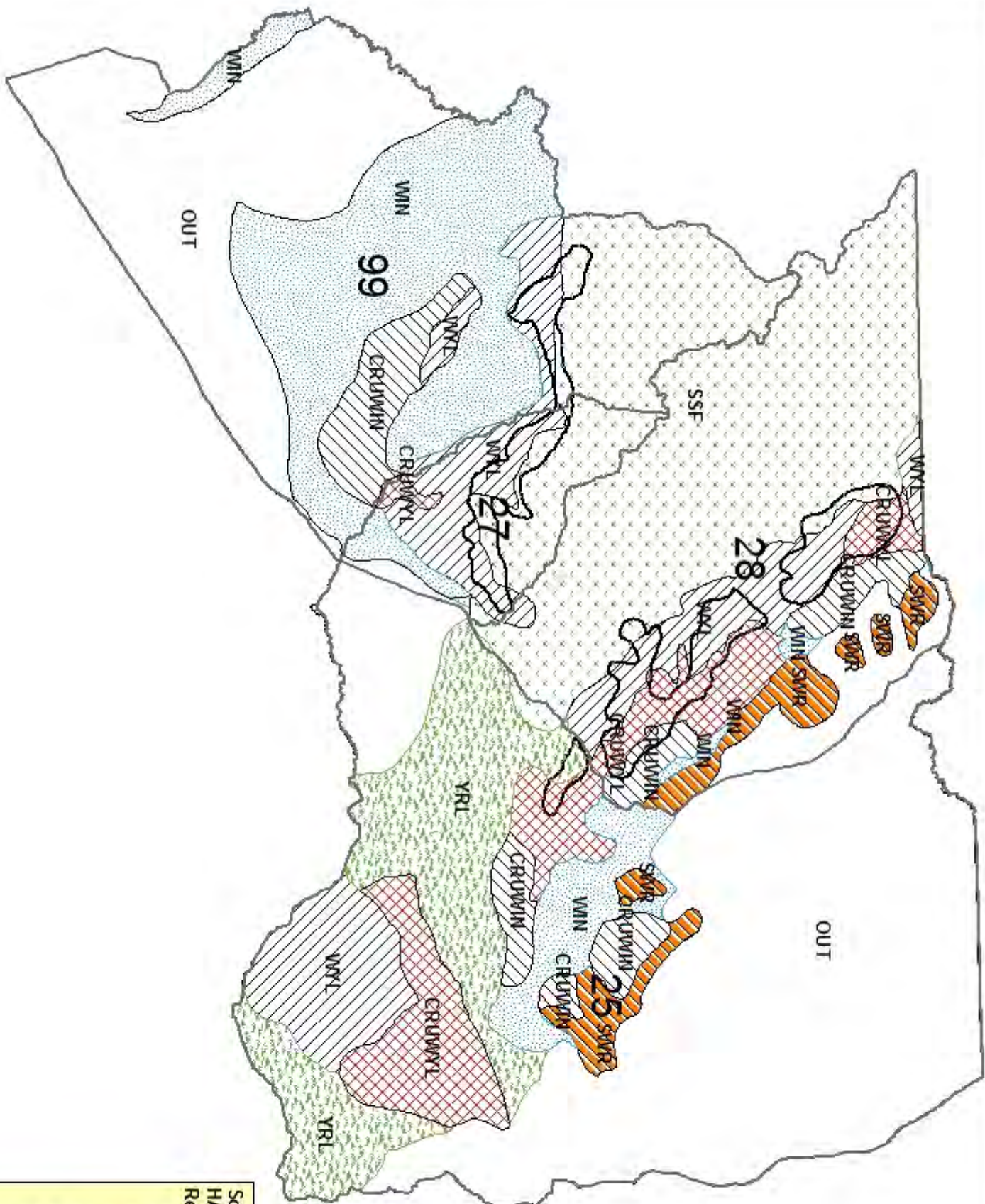
With the South Wind River elk trend count increasing slightly, we are adding a total of 50 antlerless and cow/calf licenses in Areas 25 and 28 to balance harvest with maintenance of the population at objective. At least 400 elk crossed north of U.S. Highway 287 in Hunt Area 25 in winter 2019, and utilized forage on a sizable parcel of private land that is ungrazed in summer and held for winter cattle grazing. This movement began in winter 2016-17 partly due to heavy snows at higher elevations and partly due to pressure from wolves. Changes in elk distribution in the northern half of Hunt Area 28 have also been documented over the last few winters due a variety of reasons. As such, a few groups have become acclimated to spending substantial time in and around rural subdivisions and agricultural lands. Calves were again reported being born within one mile of Lander city limits in 2018. Having elk close to town has become very popular with many people; yet concerns have also been raised over increasing damage to fences, agricultural interests – particularly risk of brucellosis transmission from elk commingling with cattle, and potential for elk/vehicle collisions. Discussions and landowner meetings have been held regarding the potential for additional hunting opportunities and access, and other counter measures to reduce elk conflicts. Two cow elk were darted and outfitted with GPS tracking collars in late January 2018 to monitor movements, and 6 more collars were deployed on February 22, 2019 on elk in these conflict prone areas. Both elk collared in 2018 tested negative for brucellosis, and results are not yet available for those captured in 2019.

With increased concerns about the risk of this disease, landowners and Department personnel have been aggressively hazing elk away from cattle feedlines and hay. The 2019 season again includes 25 Type 6 cow/calf licenses valid only in the area where these problem elk are lingering with multiple goals, including enhanced brucellosis testing, eliminating elk commingling with cattle, and hopefully discourage them from spending time in the damage prone areas. The inaugural Type 6 season was deemed successful in that it seems to have greatly reduced elk interactions with cattle, especially south of the Squaw Creek Road. We were able to send hunters with Area 28 General and Type 4 licenses to some of these areas in addition to the Type 6 hunters, and will continue to work with landowners and hunters to increase pressure on these low elevation elk during all hunting seasons. While the elk seem to be less prone to mixing with cattle, they have begun exploring other foraging areas in subdivisions where hunting access is limited and damage to landscaping, fences, and tolerance issues are increasing.

The South Wind River elk hunt areas were included as part of the Department's brucellosis surveillance program for the 2018 hunting season. Preliminary results show 129 testable samples submitted from Hunt Areas 25, 27, 28, and neighboring Area 127 all tested negative for brucellosis. Of these samples, 22 were from captures for GPS collar deployment (2 in Hunt Area 28 in January 2018 and 20 in Hunt Area 127 in March 2018). Only 3 untestable samples were submitted in 2018. There were 43 samples submitted from Hunt Area 28 with about 63% of the samples with known locations coming from the area where the greatest concentrations of elk have been wintering near cattle between the Middle Fork and North Fork of the Popo Agie River.

Beginning in 2015, the hunt area 25 boundary was extended southerly to encompass the Cyclone Rim area south to the Rocky Crossing Road. This has been very popular with many hunters and initially met with few complaints. However, several incidents have occurred with multiple hunters engaging in vehicular pursuit of bull elk, and will warrant additional enforcement presence to prevent similar incidents in the future. We will continue to monitor elk numbers and distribution to determine if this boundary move is successful or if elk begin to avoid this area and move across the boundary where hunting pressure is often lower in that portion of Hunt Area 100.

We expect the 2019 seasons outlined above should result in a harvest of about 700 elk with adequate cow harvest to maintain the population within the objective range.



South Wind River Elk (EL637)
HA 25, 27, 28, 99
Revised September 2011

Elk Hunt Area Boundaries

Elk Seasonal Range

RANGE

CRUWIN

CRUWYL

OUT

SSF

SWR

WIN

WYL

YRL

Partition

2018 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2018 - 5/31/2019

HERD: EL638 - GREEN MOUNTAIN

HUNT AREAS: 24, 128

PREPARED BY: STAN HARTER

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Trend Count:	605	742	700
Harvest:	218	223	250
Hunters:	586	592	600
Hunter Success:	37%	38%	42%
Active Licenses:	594	601	600
Active License Success	37%	37%	42%
Recreation Days:	3,533	3,471	3,500
Days Per Animal:	16.2	15.6	14
Males per 100 Females:	30	51	
Juveniles per 100 Females	35	41	

Trend Based Objective ($\pm 20\%$)

500 (400 - 600)

Management Strategy:

Recreational

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

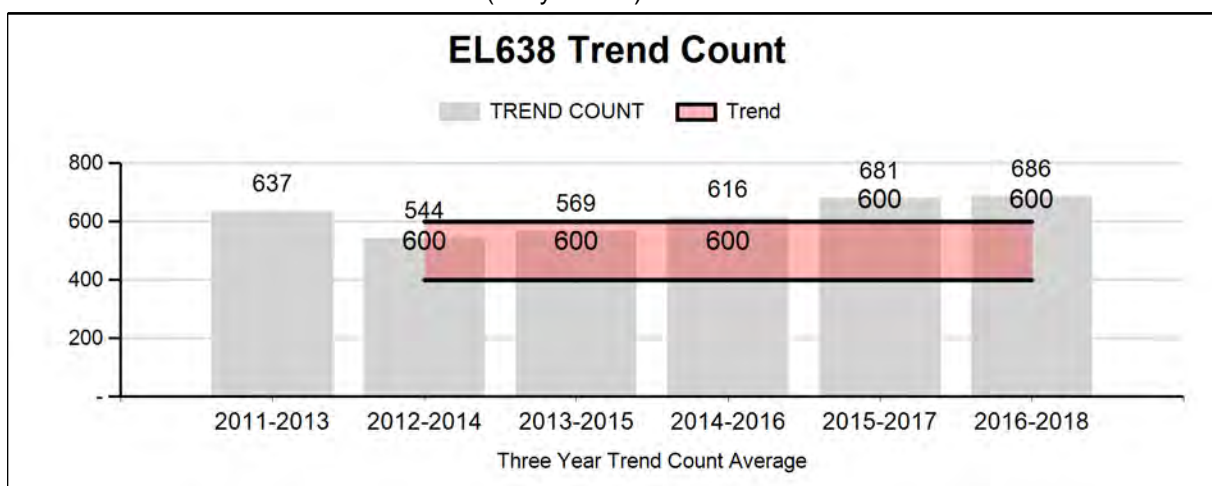
48%

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

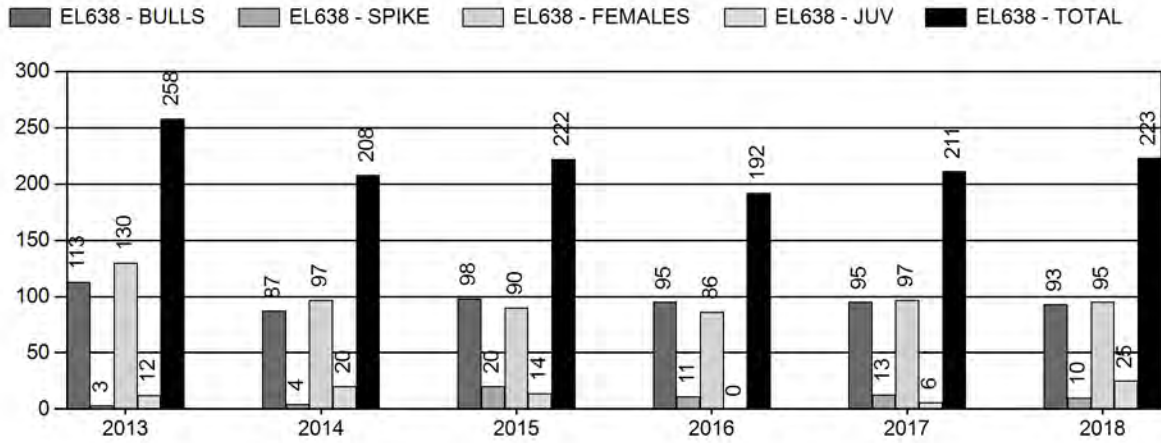
5

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

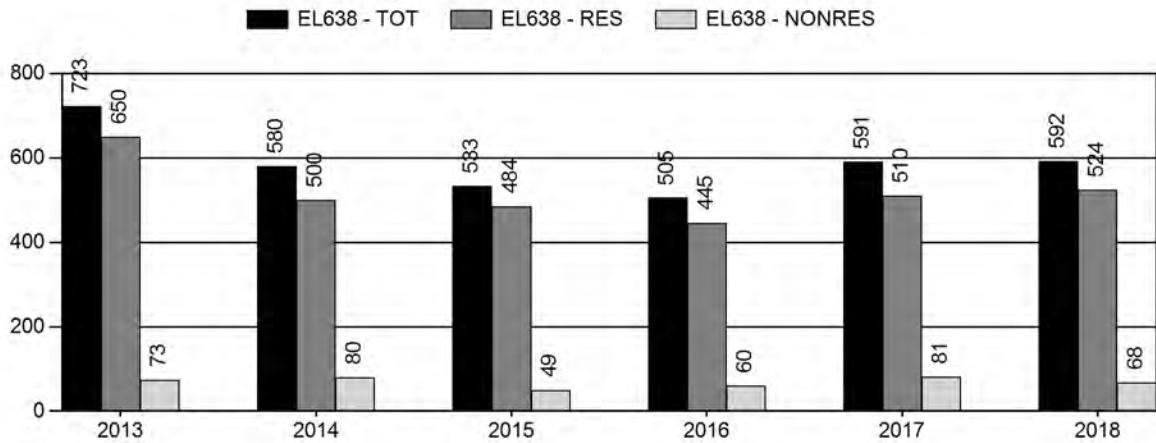
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



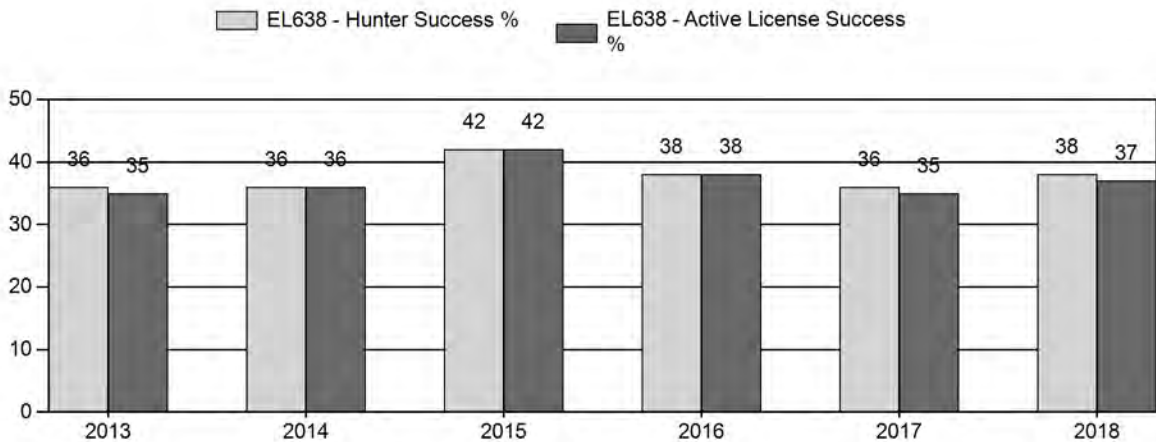
Harvest



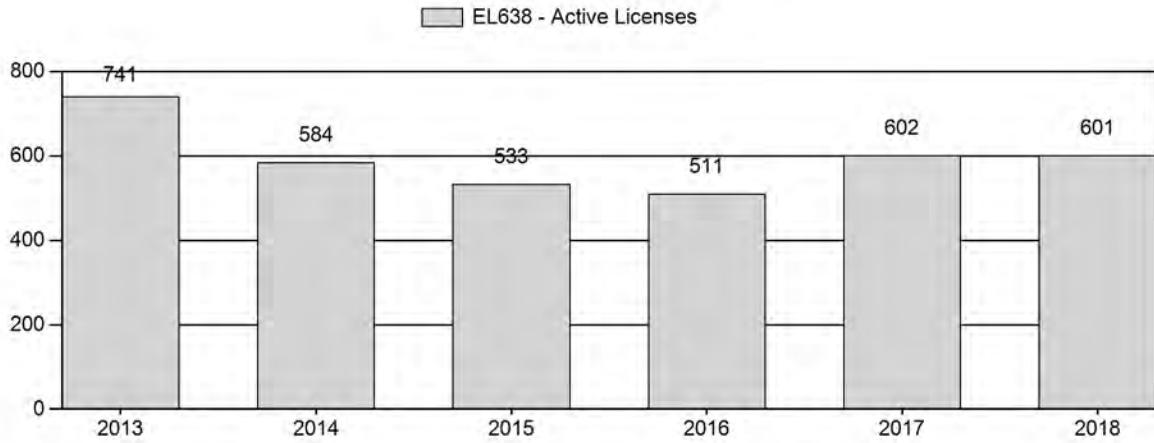
Number of Hunters



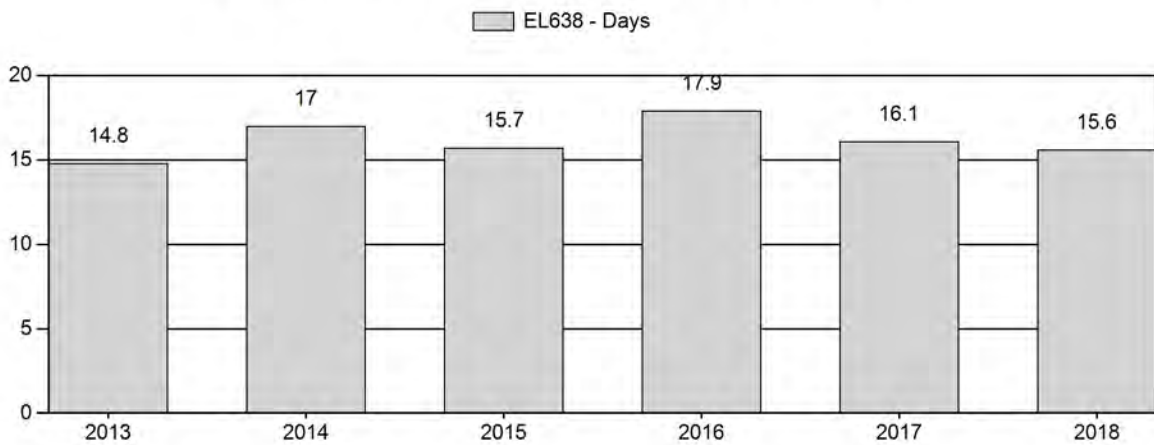
Harvest Success



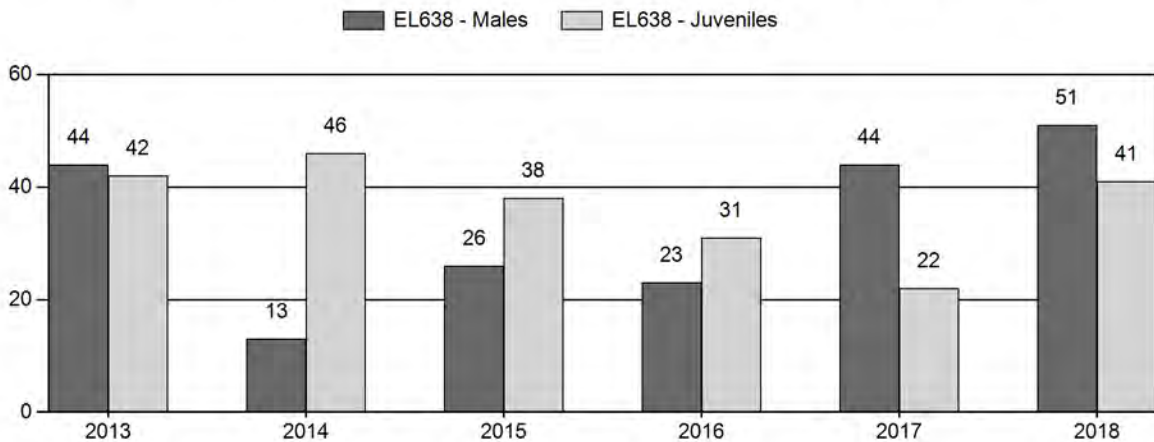
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL638 - GREEN MOUNTAIN

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
2013	0	41	99	140	24%	319	54%	135	23%	594	0	13	31	44	± 0	42	± 0	29
2014	0	19	12	31	8%	243	63%	111	29%	385	0	8	5	13	± 0	46	± 0	41
2015	0	73	44	117	16%	444	61%	167	23%	728	0	16	10	26	± 0	38	± 0	30
2016	0	64	45	109	15%	478	65%	147	20%	734	0	13	9	23	± 0	31	± 0	25
2017	0	35	118	153	26%	351	60%	78	13%	582	0	10	34	44	± 0	22	± 0	15
2018	0	61	135	196	26%	386	52%	160	22%	742	0	16	35	51	± 0	41	± 0	27

2019 HUNTING SEASONS
Green Mountain Elk Herd Unit (EL 638)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
24	1	Oct. 1	Oct. 14	175	Limited Quota	Any elk
24	1	Nov. 1	Nov. 30			Antlerless elk
24	4	Oct. 1	Oct. 14	75	Limited Quota	Antlerless elk
24	4	Nov. 1	Nov. 30			Antlerless elk, also valid in Area 128
24	5	Nov. 1	Nov. 30	150	Limited Quota	Antlerless elk
128		Oct. 1	Oct. 7		General	Any elk
128		Oct. 8	Oct. 14		General	Antlered elk
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

Hunt Area	License Type	Quota Changes from 2018
24	ALL	0
Herd Unit Total		0

MANAGEMENT EVALUATION

Current Mid-Winter Trend Count Management Objective: 500

Management Strategy: Recreation (15 – 29 bulls/100 cows)

2018 Mid-Winter Trend Count: 742

Most Recent 3-year Running Average Trend Count: 686

Herd Unit Issues/Population

The management objective for the Green Mountain Elk Herd Unit was changed in 2014 to a mid-winter trend count of 500 elk, based on a running 3-year average. Trend count data vary due to annual changes in snow depth, light and wind conditions during flights, and condition of habitats each winter. A key factor in our ability to detect elk in winter is the extreme variability and extent of winter habitats, which range from mixed aspen/conifer/sagebrush habitats to open sagebrush/grassland habitats. The 2018 trend count/classification survey was completed in February 2019, with 742 elk observed.

Management Objective 5-year Review

In February 2019, Lander Region personnel reviewed the mid-winter trend count objective set in 2014. Discussions were held internally between the district wildlife biologist, terrestrial habitat biologist, and the West Rawlins and South Riverton game wardens, as well as externally with two wildlife biologists with the Lander BLM Field Office. These consultations included reviewing current and past hunting seasons, as well as hunter and landowner concerns voiced over the last 5 years or longer. We also gave careful consideration of impacts from elk on habitat resources for themselves and other wildlife species such as mule deer and moose, impacts on forage availability between elk and domestic livestock, and impacts on the entire landscape from the combination of wild, domestic, and feral ungulates.

Despite the Green Mountain elk herd being above objective for at least 15 years, attempts to reduce the population to objective have largely been unsuccessful. Yet the overall number of elk seems to be relatively stable, with deviations in trend counts being largely due to annual disparity in observation conditions that lead to varying ability of detection. Some ingress or egress may occur, yet there exists a relative predictability in locating the largest elk groups each winter that belies the notion that such ingress or egress is a regular occurrence or on a grand scale.

All of us agreed we should pay close attention to how elk numbers influence habitat condition, particularly in aspen regeneration projects and other habitat treatments such as the Hadsell prescribed burns. Of equal importance will be monitoring how the removal of 1,200 feral horses from the Green Mountain area in 2018 influences elk distribution, habitat use, and whether the elk population hinders improvements in range/habitat condition following such a substantial reduction in horse numbers. The internal and external discussions of all factors involved in management of the Green Mountain elk herd resulted in consensus that no change is currently needed to the mid-winter trend count of 500 elk based on 3-year running averages, given that current management strategies are intended to reduce the current number of elk toward that level.

Weather

Data from the weather station at the Jeffrey City indicate April 2018 was much drier than normal, but with slightly above average precipitation from May through July, followed by almost no rain in August or September. At the end of calendar year 2018, Jeffrey City was about 1 inch below the 30-year precipitation average.

Winter 2018-19 began with below average snowfall, but higher elevations have reached or exceeded average snowpack since mid-January, especially south of Green and Crooks Mountains where no elk were seen in mid-February due to deep snow. Jeffrey City has had near average temperatures this winter, with November-February having fewer than average sub-zero temperature readings.

Habitat

Lander Region personnel conducted several rapid habitat assessments (RHA) in 2018, in shrub, riparian, and aspen habitats. We are targeting mule deer habitats in the Sweetwater herd unit with these assessments, but most of the assessments are in locations mutually occupied by elk. We have more RHAs scheduled for 2019, for at least 10 each in shrub, aspen, and riparian habitats. Results of the RHAs completed in 2018 show good species diversity overall, but indicate most habitats are generally in mid to late-seral states, with moderate to severe herbivory. However, the state and condition of all habitat types are concerning, and will likely limit population growth and stability, especially in periods of drought.

Field Data

The 2018 trend count/classification survey was conducted in February 2019 using a Bell 206-B3 Jet Ranger helicopter, with good snow cover in most areas, especially south of Green and Crooks Mountains where no elk were observed due to deeper snow than has been observed in many years. We observed 742 elk in Hunt Area 24, with almost all elk found in the lower elevations north of Green Mountain and Crooks Mountain, placing the annual trend count 48% over the mid-winter trend count objective of 500 elk. We did not find elk in Hunt Area 128 this year,

although some tracks were detected near the north end of Tin Cup Mountain. The 3-year trend count average of 686 is 37% above objective. With good snow cover and improved bull detection, 61 spikes and 135 branch-antlered bulls were observed this year, the highest total bull count since 1994. The resulting post-season calf/cow ratio of 41J/100F was just below the long-term average since 1994. The observed bull/cow ratio of 51M/100F is the second highest and 70% above the average since 1994.

Harvest Data

The Green Mountain hunting season in 2018 resulted in a harvest of 223 elk. Warm weather with minimal snowfall throughout the hunting season seems the likely culprit for low harvest levels. Cow hunter success dropped in Area 24 this year, 33% and 43% respectively for Type 4 and Type 5 antlerless elk hunters. Adult bull harvest (93) in the herd unit was the 2nd lowest in the last 10 years, with 57% success for the Type 1 any elk season being 11% below the long-term average (see discussions in the Management Summary below for details about harvest levels and success rates vs. license availability in Area 24).

Fall 2018 was once again abnormally warm with little snow during most of the elk hunting season, creating difficulty for hunters to locate elk and resulting in mixed changes in success rates compared with the previous year. We added 25 Type 1 licenses in 2018 to provide additional opportunity for hunters seeking bulls in Area 24. In Area 24, along with the increased number of hunters Type 1 hunter success increased along with slight increases in bull and antlerless harvest. Area 24 Type 4 success declined from 53% to 33%, and Type 5 success remained unchanged from 2017. Elk numbers in Area 128 have been relatively stable over the past several years, lessening the need to focus additional harvest there. Hunters with Type 7 in neighboring Rattlesnake Hills Area 23 were also allowed to hunt in Area 128 late in the 2018 season, but only 3 cow elk were harvested by 6 hunters taking advantage of that opportunity. Hunters with Area 24 Type 1 and 4 licenses were allowed to hunt for antlerless elk in November, if unsuccessful in October, but this resulted in minimal additional harvest according to the “date of harvest” data provided by the harvest survey and field checks. Complaints about hunter crowding were minimal during the 2018 seasons, partly due to open weather not forcing all hunters into similar areas at the same time. Concurrent with a modest increase in overall hunter success, the number of days/animal harvested decreased in 2018 to 15.6 days/elk killed, about 1 day per animal less than the previous 5-year average.

Management Summary

Over the last decade or so, various management strategies have been implemented to attempt population reduction in the Green Mountain herd unit with varying results. Increases in licenses available in Area 24 did not achieve desired increases in harvest (Figure 1), but certainly led to many complaints about crowded hunter densities, prompting reductions in licenses beginning in 2014. Although the trend count remains above objective, we are recommending no changes in license numbers in Area 24 in 2019, since we believe the current season structure can lead to increased harvest under favorable hunting conditions.

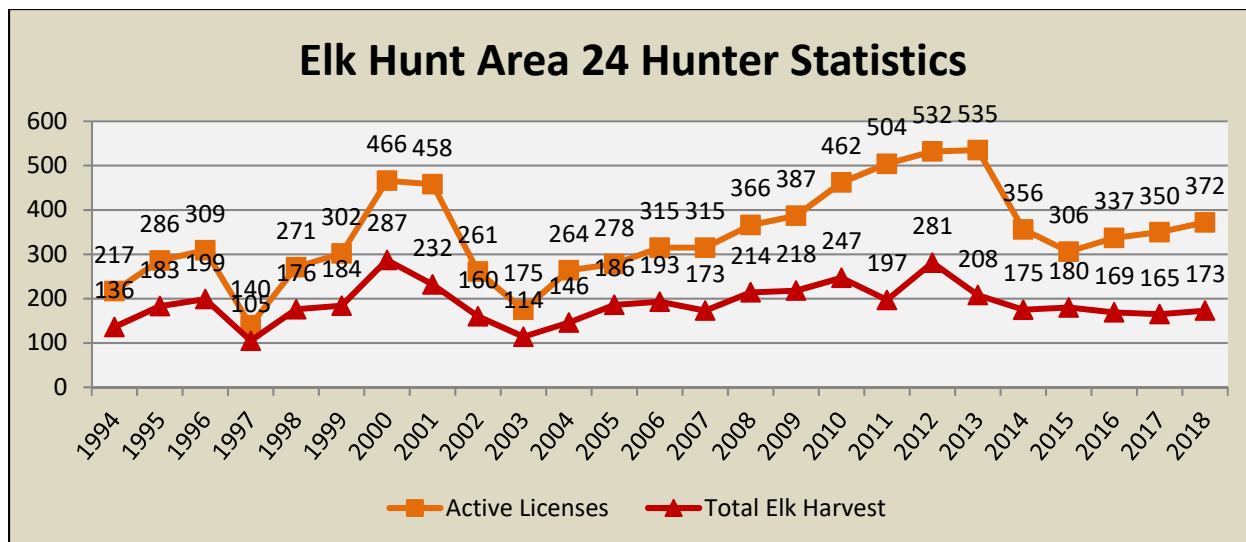


Figure 1. Comparison of elk license numbers and elk harvest trends in Elk Hunt Area 24, 1994-2018.

All of the elk observed during the February 2019 trend count were in Hunt Area 24. Elk Hunt Area 24 has been a very popular hunt area over the last 20+ years since access is quite good, and with traditionally high success rates on Type 1 licenses (Antlered Elk only between 1994 and 2008 - Any Elk since 2009). However, with increased number of Type 1 licenses since 2009, hunter success has dropped from historic levels - even with the change to Any Elk in 2009 (Figure 2). We believe we have saturated the hunt area with hunters when compared with the number of bull elk available, leading to many unhappy hunters at the end of each season. Therefore, we are not increasing Type 1 license numbers in 2019, even though we saw a record number of bulls in our count.

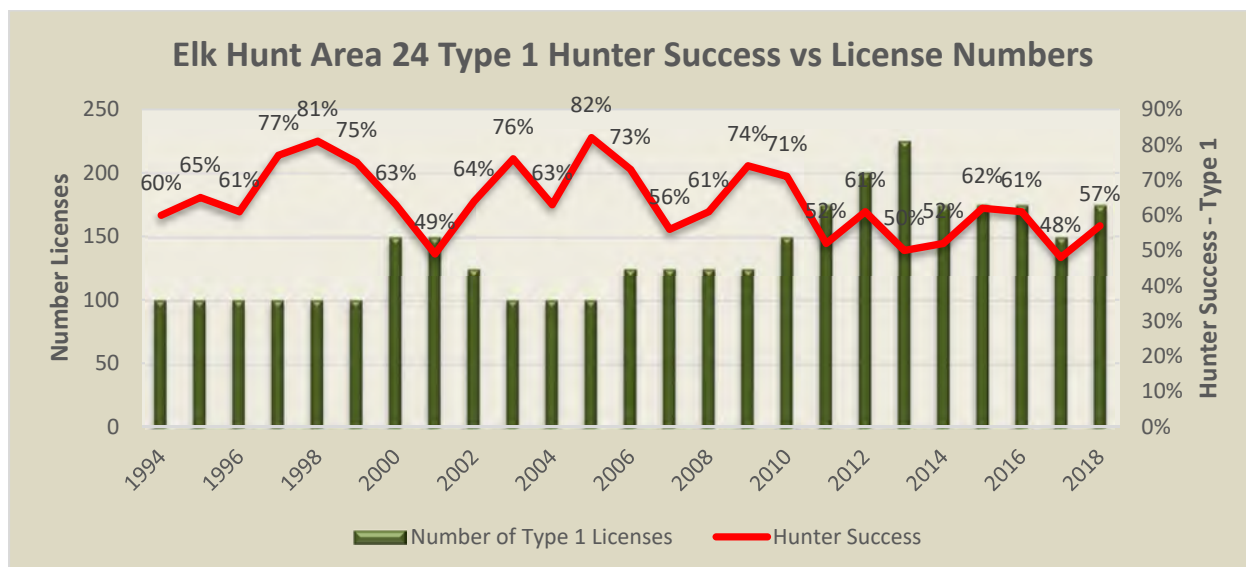


Figure 2. A comparison of Hunt Area 24 Type 1 license availability and corresponding hunter success rates from 1994 – 2018.

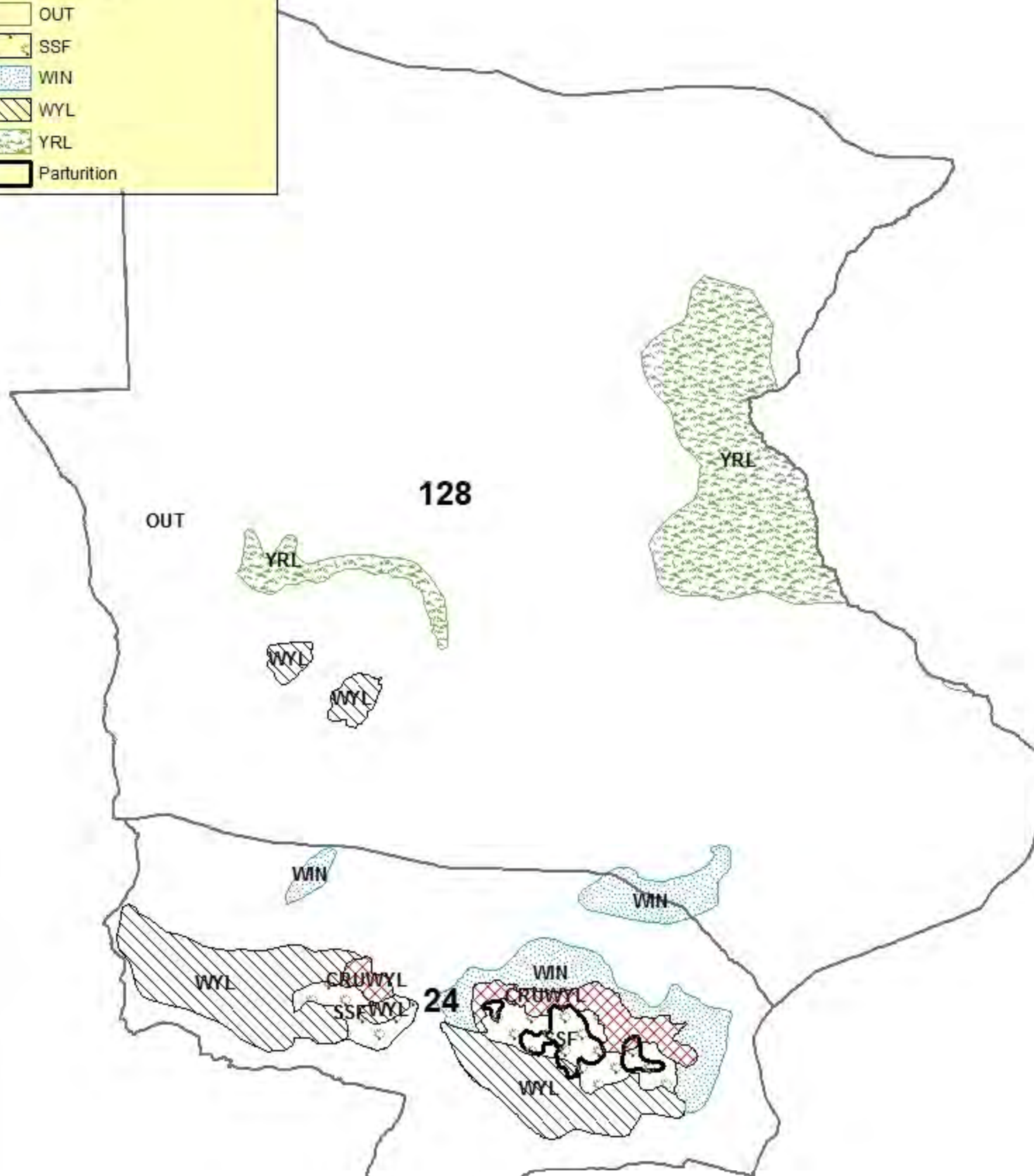
We are continuing our emphasis on harvesting female elk in Area 24 with moderate numbers of antlerless elk licenses, and allowing Area 24 Type 1 and 4 hunters who are not successful in

October to hunt for antlerless elk in November in only Hunt Area 24. November harvest from Type 1 and 4 hunters seemed minimal in 2018, with only 3 Type 1 or 4 hunters reporting a November date of harvest via harvest surveys.

Casper Region is not recommending any of their Area 23 licenses be valid in Area 128 at any time in the 2019 season. Therefore, to continue to target female harvest in Area 128, the 14-day General License season in Hunt Area 128 will again be split, with the first 7 days as an “any elk” season, then switching to “antlered elk” on October 8. In addition, Area 24 Type 4 hunters will be able to hunt both Areas 24 and 128 in November, if unsuccessful in October. The expected 2019 harvest should consist of about 250 elk, mostly from Area 24, and move the herd closer to objective.

Green Mountain Elk (EL638)
HA 24, 128
Revised January 2012

- ELK Hunt Area Boundaries
- Elk Seasonal Range**
- RANGE**
- CRUWYL
- OUT
- SSF
- WIN
- WYL
- YRL
- Parturition



2018 - JCR Evaluation Form

SPECIES: Elk
 HERD: EL639 - FERRIS
 HUNT AREAS: 22, 111

PERIOD: 6/1/2018 - 5/31/2019
 PREPARED BY: GREG HIATT

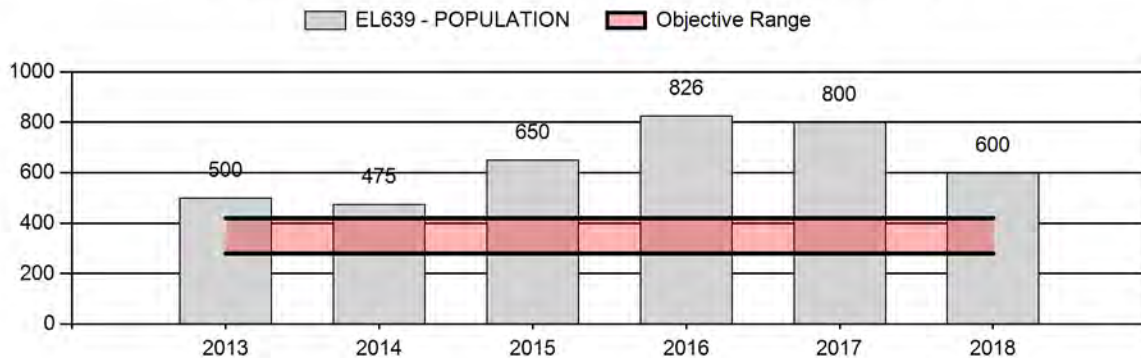
	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	650	600	510
Harvest:	124	154	170
Hunters:	233	335	310
Hunter Success:	53%	46%	55 %
Active Licenses:	240	342	310
Active License Success:	52%	45%	55 %
Recreation Days:	1,415	2,024	2,260
Days Per Animal:	11.4	13.1	13.3
Males per 100 Females	59	362	
Juveniles per 100 Females	36	47	

Population Objective ($\pm 20\%$) : 350 (280 - 420)
 Management Strategy: Special
 Percent population is above (+) or below (-) objective: 71%
 Number of years population has been + or - objective in recent trend: 32
 Model Date: None

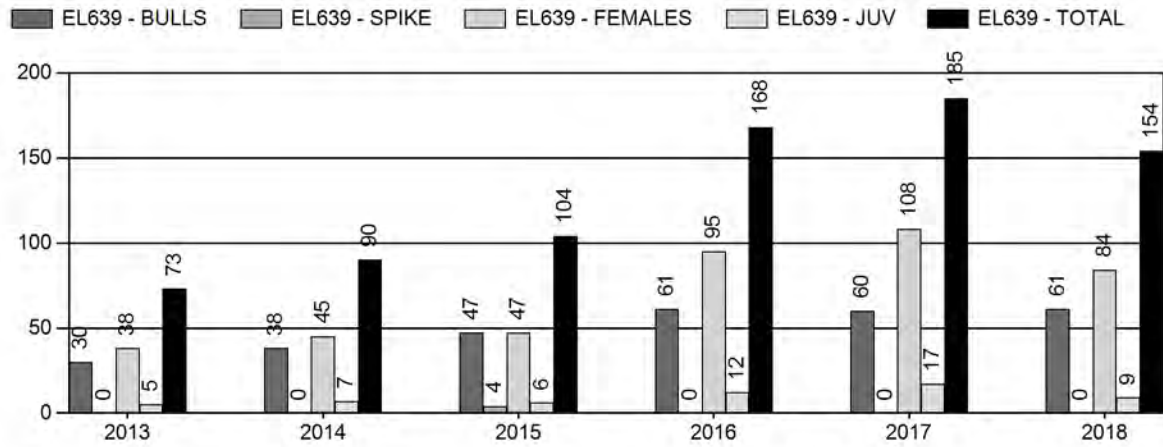
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Total:	0%	0%
Proposed change in post-season population:	-25%	-15%

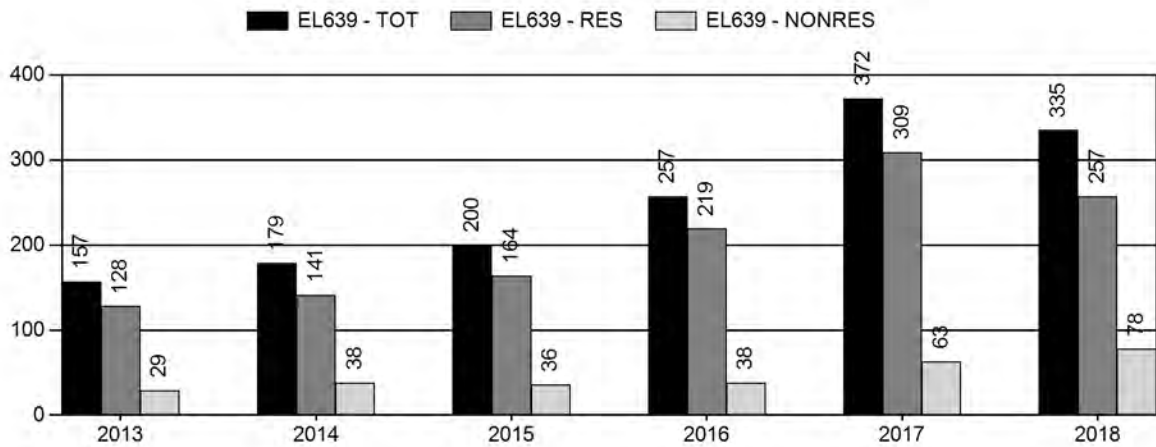
Population Size - Postseason



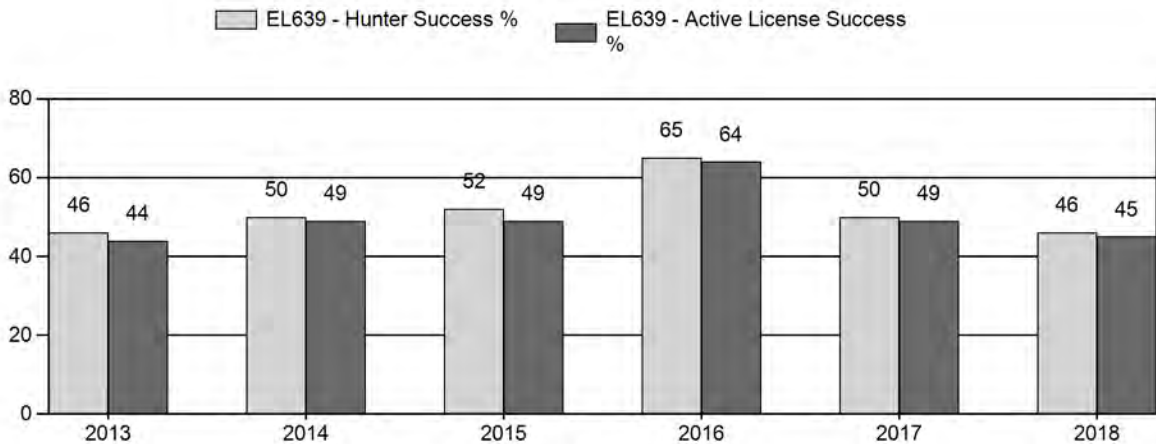
Harvest



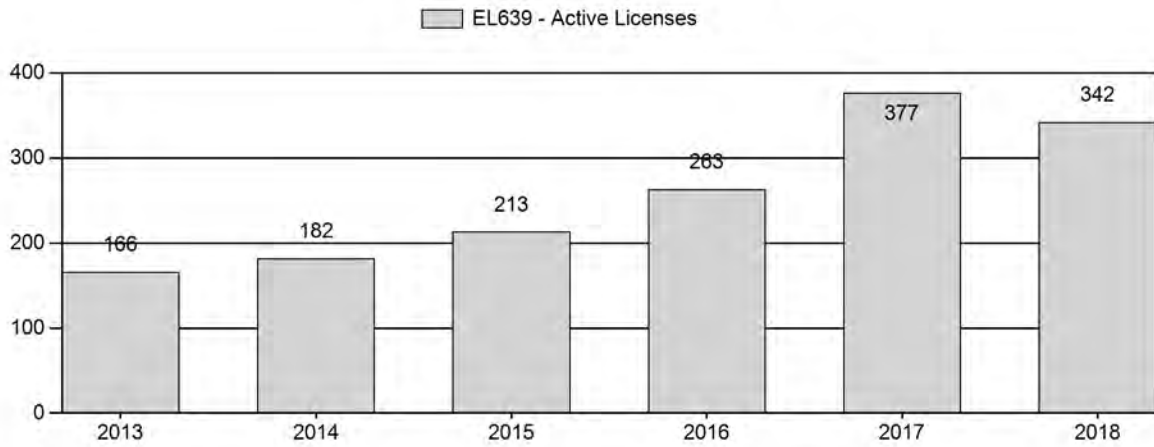
Number of Hunters



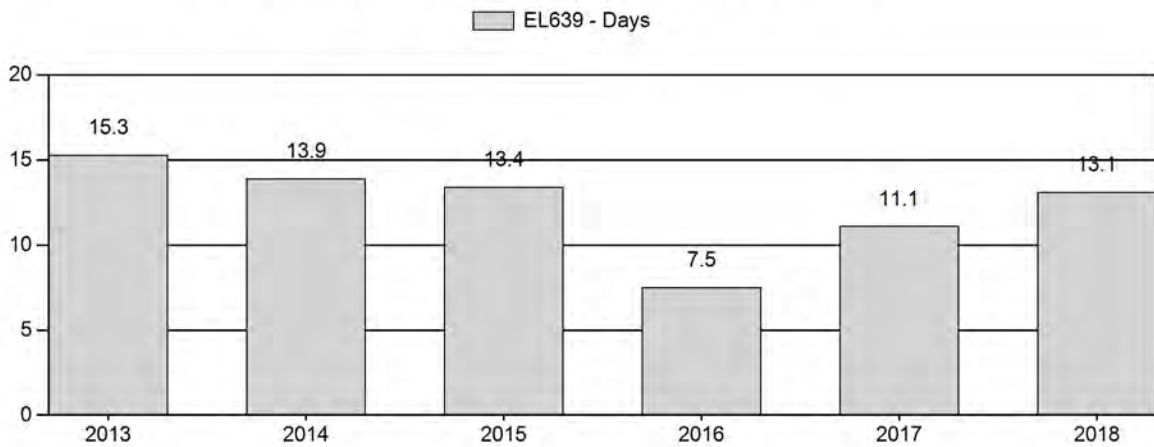
Harvest Success



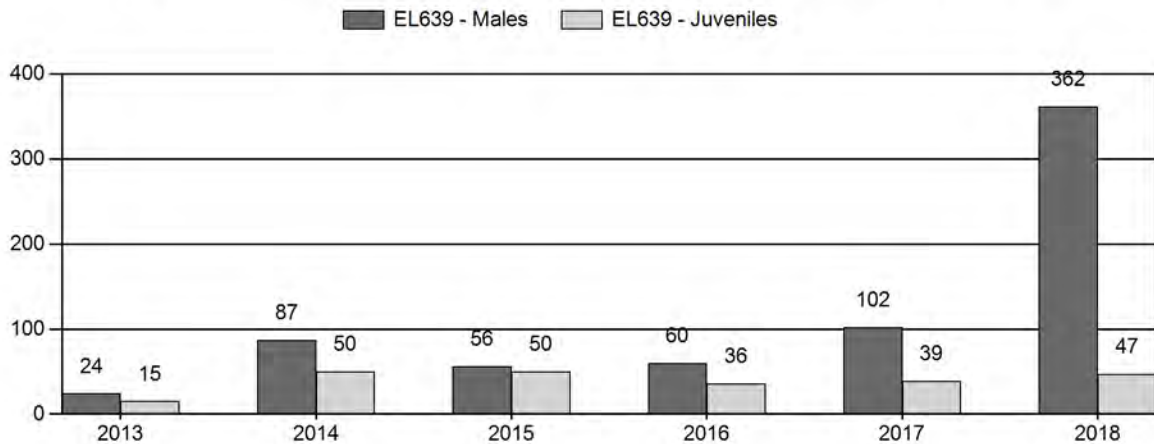
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL639 - FERRIS

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	500	34	49	83	17%	353	72%	54	11%	490	176	10	14	24	± 1	15	± 0	12
2014	475	39	112	151	37%	174	42%	87	21%	412	400	22	64	87	± 5	50	± 3	27
2015	650	55	108	163	27%	291	49%	145	24%	599	420	19	37	56	± 2	50	± 2	32
2016	826	70	184	254	31%	420	51%	152	18%	826	496	17	44	60	± 0	36	± 0	23
2017	800	26	147	173	42%	170	41%	67	16%	410	496	15	86	102	± 10	39	± 5	20
2018	600	30	209	239	71%	66	20%	31	9%	336	596	45	317	362	± 43	47	± 9	10

**2019 HUNTING SEASONS
FERRIS ELK HERD (EL639)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
Opens	Closes					
22	1	Oct. 8	Oct. 31	40	Limited quota	Any elk
	1	Nov. 15	Dec. 15			Any elk; also valid in Area 111
	1	Dec. 16	Jan. 31	50	Limited quota	Antlerless elk
	6	Oct. 8	Oct. 31			Cow or calf valid in the Muddy Creek drainage
	6	Nov. 1	Jan. 31			Cow or calf valid in the entire area
111	1	Oct. 10	Oct. 31	50	Limited quota	Any elk
	1	Nov. 15	Dec. 15			Any elk; also valid in Area 22
	1	Dec. 16	Jan. 31	50	Limited quota	Antlerless elk
	4	Oct. 10	Jan. 31			Antlerless elk
	6	Nov. 1	Jan. 31	100	Limited quota	Cow or calf
	7	Nov. 10	Jan. 31	100	Limited quota	Cow or calf
<hr/>						
Archery 22, 111		Sep. 1	Sep. 30			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2018
22	1	0
	6	0
111	1	0
	4	0
	6	-50
	7	-50
Herd Unit Total	1	0
	4	0
	6	-50
	7	-50

Management Evaluation

Current Postseason Population Management Objective: 350

Management Strategy: Special

2018 Postseason Population Estimate: ~600

2019 Proposed Postseason Population Estimate: ~510

Herd Unit Issues

The management objective for the Ferris Elk Herd Unit is a post-season population objective of 350 elk. The management strategy is “special” management, with bull:cow ratios allowed to exceed 30:100 and the proportion of branch-antlered bulls expected to exceed 66 percent of the antlered harvest. The population objective and management strategy were last publicly reviewed in 2012. All affected major landowners strongly endorsed keeping the population objective of 350 elk. A Department review in early 2019 recommended retaining the 350 posthunt population objective, based largely upon those landowner concerns. Hunter demand for licenses and public interest in this herd is high and would probably support a higher objective. No population model is available for this herd, nor is one likely given the fluctuating herd ratios due to small sample sizes. Changing to a winter trend count objective was considered, but also rejected due to landowner concerns.

Access is a major issue with this herd unit. While there are large blocks of accessible public land, refuges created by several large ranches that are either closed to hunting or greatly limit hunter numbers have prevented adequate harvest from most of the elk in this herd unit, particularly in Area 111. As license quotas are increased to reduce elk numbers to objective, the lack of hunter access to these animals leads to over-harvest of public land areas while still preventing the harvest necessary to reach the population objective.

Weather

Record precipitation was received in 2015 and early 2016, producing exceptional vegetative growth and high calf production. The summer of 2018, however, was hot and dry, lowering quantity and quality of forage production and reducing calf production. Condition of elk going into the 2018-19 winter is expected to have been less than ideal as a result of the hot, dry summer. The 2018-19 winter had numerous extended periods of bitter cold, continuing through March. Much of the winter range was open and available until heavier snowfalls in February and March. Most groups of elk seen during February were in crucial winter ranges well off the mountain ranges, indicative of more severe winter conditions. Based upon late winter weather, winter losses are expected to be near or slightly above average.

Habitat

While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be below average due to decreased precipitation and high temperatures. Two shrub transects have been established within this herd unit, primarily to monitor mule deer winter forage. One of these, on the Morgan Creek WHMA, was burned in the 2012 fires and the second was not read in 2018.

Over the past several years the Rawlins BLM has implemented prescribed burns in the Seminole and Ferris Mountains, partly to address conifer encroachment while also rejuvenating decadent aspen, mountain mahogany and bitterbrush stands. In the summer of 2012, two large wildfires in the Seminole Mountains and the eastern Ferris Mountains burned thousands of acres. These

prescribed burns and the recent wildfires have benefited elk as herbaceous forage reclaims burned areas.

The Seminole Fire burned over 3,800 acres in the Seminole Mountains including areas within Morgan Creek WHMA. As in other years following the fire, the Rawlins BLM coordinated and funded aerial application of Plateau® to inhibit cheatgrass spread on BLM and WGFD managed areas within the fire perimeter. The wildfire enveloped several previously planned prescribed burns, although not with the desired prescriptions.

Plans for additional prescribed fires in the Ferris and Seminole Mountains, particularly on the Morgan Creek WHMA, have been accelerated to take advantage of the secure fire breaks provided by the 2012 wildfire.

Field Data

Obtaining reliable classification samples from small populations is difficult because, statistically, the majority of the population must be included in the sample to have any confidence in the resulting ratios. Ratios collected for this herd can be further skewed because elk in this herd are not distributed randomly among the winter bands. Missing any of a handful of bachelor bull herds will significantly under-estimate bull:cow ratios. Failure to classify even one of the large cow/calf bands will greatly over-estimate bull:cow ratios, as happened in 2011, 2014 and again this year. Without reliable, consistent herd ratios, spreadsheet modeling for this small herd does not work.

Conditions during a helicopter trend and classification helicopter survey in February 2019 were near ideal, with good snow cover and most elk being found far from timber. All 336 elk counted were also classified. Winter elk numbers are typically skewed between the two hunt areas, with the vast majority being usually found in Area 111. Totals between the two areas were similar, with 172 elk found in Area 22 and 164 in Area 111. However, almost all the elk found in Area 22 were antlered, and antlered elk made up more than 70 percent of the entire sample for both areas, yielding an incredible bull:cow ratio of 362:100. As in 2011 and 2014, the highly skewed bull:cow ratio indicates a large portion of the antlerless elk in the herd were missed during the survey. Conversations with local landowners suggest the helicopter survey missed two large cow/calf groups, one in Area 22 and the other in Area 111, totaling roughly 200-250 elk. Of the 164 elk found in Area 111, 83 were in the checkerboard in the southern portion, where there is almost no hunter access.

Calf production rose to 47:100, near levels seen in 2014 and 2015. Part of this increase was certainly due to increased cow harvests. The essentially unhunted segment of the population in the Haystack Mountains in southern Area 111 had calf production at 42:100.

Since most bull groups appear to have been located but at least two major cow/calf groups far from the mountains were not, the bull:cow ratio is highly skewed. The more complete winter survey of 2016 is probably a more realistic estimate of herd composition, and yielded a bull:cow ratio of 60:100, exceeding the special management criterion. Distribution of branch antlered elk was again highly skewed, with almost 80 percent in Area 22. Many bull groups in this herd unit are known to winter along the border between Areas 22 and 111, and it appears most were on

ridges in Area 22 when this count was flown. The spike:cow ratio was also skewed by the missing cow/calf groups, but more than 80 percent of these were found in Area 111.

Harvest Data

Hunter success for Type 1 licenses remained high for both areas, but was within ranges seen in recent years. Success was lower for bull hunters in Area 22, suggesting many of the bulls counted there in February were not available during the hunting season. Only 7 percent of the successful Type 1 hunters in Area 22 harvested antlerless elk, while none of the Type 1 hunters in Area 111 chose to do so.

Beginning in 2010, Type 6 licenses in Area 22 were restricted to the Muddy Creek drainage for the first portion of the 5-week season to address damage concerns on irrigated hayfields. Success for hunters with these licenses has fluctuated from a low of 19 percent in 2015 to a high of 77 percent in 2017. Success for these licenses was more moderate in 2018, at 43 percent.

To address a problem of inadequate harvests resulting from poor license sales, most of the antlerless licenses in Area 111 were converted into reduced price cow/calf licenses beginning in 2009. To address crowding issues on public lands in the Seminole Mountains and to direct harvest to the segments of the herd protected by ranches with limited access during the fall hunt, those cow/calf licenses were not valid on the Morgan Creek WHMA. While successful in addressing crowding issues, this strategy has failed to entice elk to remain on public lands and this restriction is removed in 2019. Seasons were also extended through January beginning in 2009 to offer hunters opportunity to harvest antlerless elk in early winter when they are often found in winter ranges on accessible public lands. Success for hunters with these licenses has fluctuated, largely due to winter conditions, but was quite low in 2018 at 23 percent success for the Type 7 licenses and only 10% for the Type 4 licenses.

Population

Past efforts to model this herd using spreadsheet modeling failed, largely due to widely fluctuating bull:cow ratios. As a result, population estimates and harvest recommendations have been based on winter trend counts. In years when counting conditions were not favorable, estimates of herd size are made using the most recent reliable trend count, adding annual calf production and subtracting harvest for each intervening year. Ideal conditions during the 2016 count yielded a count of 826 elk, well above objective and numbers seen in prior years. This year's count of 336 elk was the lowest in six years and less than half the count two years prior, despite similar conditions during the flight. Adding in the reported 200+ elk in two cow/calf herds well off the mountains not found during the survey yields a more realistic population estimate of ~600 elk. Most of the surplus elk are still in Area 111 where access is limited. A total of 83 elk were found in the Haystack Mountains in the checkerboard in the southern portion of Area 111 where landowners do not allow public access. In Area 22 where most lands are accessible to hunters, elk numbers have been successfully reduced and remain low.

Management Evaluation

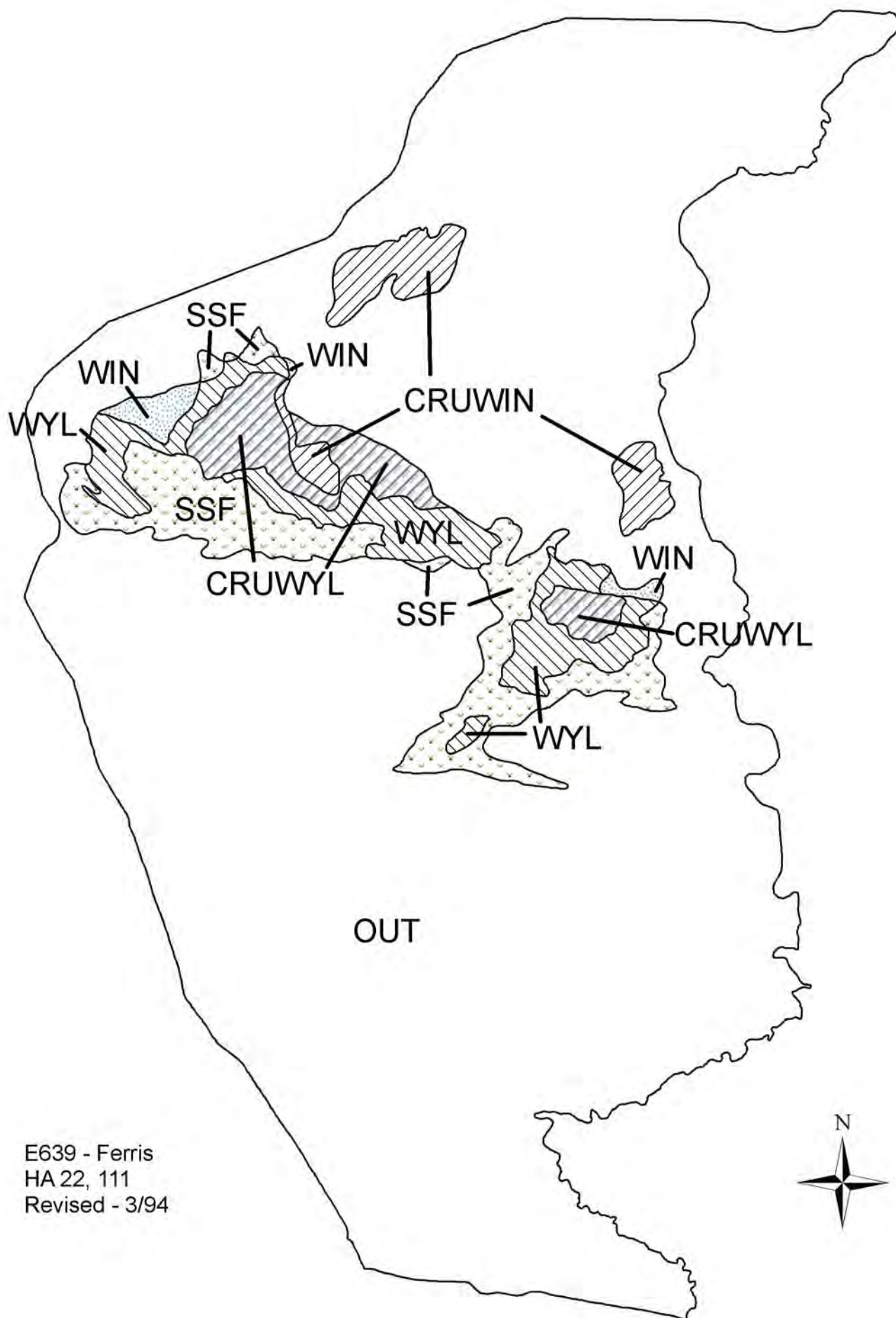
While this herd is still above objective, trend counts indicate recent cow harvests have successfully reduced herd size and, more importantly, reduced the reproductive portion of the

herd. The population estimate of ~600 elk this past winter is still high, but classifications confirm at least 240 of these elk are antlered. Antlerless harvests need to continue, but can be slowed now that the herd is no longer in excess of 800 animals. As a result, Type 6 and Type 7 quotas in Area 111 are reduced by 50 for each type. Harvest of antlered elk should be increased to take advantage of the high bull:cow ratio and prevent even more skewed ratios in the future. Early winter hunts have successfully allowed for harvest of antlerless elk that are on private land and unavailable during October, and a similar strategy is proposed for the second “any elk” seasons for the Type 1 licenses. Since many bull groups frequently cross over the boundary between Areas 22 and 111 during the winter, the Type 1 hunters would be allowed to hunt both areas during this late “any elk” hunt and adjust their hunts accordingly.

Expected harvest from the 2019 seasons would be about 170 elk, with roughly 53 percent being antlerless. About 70 percent of the harvest should come from Area 111. Assuming normal calf production and improved hunter success, the herd should be reduced to less than 600 elk in 2019.

Comments from several major landowners indicated they want elk harvested from this herd, but do not want public hunters on their lands. This herd offers an unusual opportunity where large portions of summer/fall habitats are on private lands with limited or no public access, but many winter ranges are on accessible public lands. Hence a strategy was initiated in 2012 and continued in subsequent years to allow hunters to pursue antlerless elk as late as January, where most of the elk are expected to be on public land. The intent was to achieve harvest of the reproductive segment of most of the elk herd, not just the segments which are publicly available in the fall. This same strategy is repeated in the 2019 seasons, and expanded to include the second “any elk” season for Type 1 license holders in November and December. Barring changes in access across private lands, elk occupying the Haystack Mountains in checker-boarded lands in Area 111 will continue to be unavailable to most hunters, and will thwart efforts to reduce this herd towards objective.

All 2019 license types are consistent with the application booklets. Initial opening dates for Area 22 and Area 111 license types are consistent with the application booklets. Closing dates are the same as in the 2018 season. Archery seasons coincide with local deer archery seasons and archery seasons in neighboring elk areas.



E639 - Ferris
HA 22, 111
Revised - 3/94

2018 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2018 - 5/31/2019

HERD: EL643 - SHAMROCK

HUNT AREAS: 118

PREPARED BY: GREG HIATT

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Trend Count:	8	0	0
Harvest:	52	35	35
Hunters:	79	74	75
Hunter Success:	66%	47%	47 %
Active Licenses:	84	92	92
Active License Success	62%	38%	38 %
Recreation Days:	372	481	480
Days Per Animal:	7.2	13.7	13.7
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	

Trend Based Objective ($\pm 20\%$)

75 (60 - 90)

Management Strategy:

Recreational

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

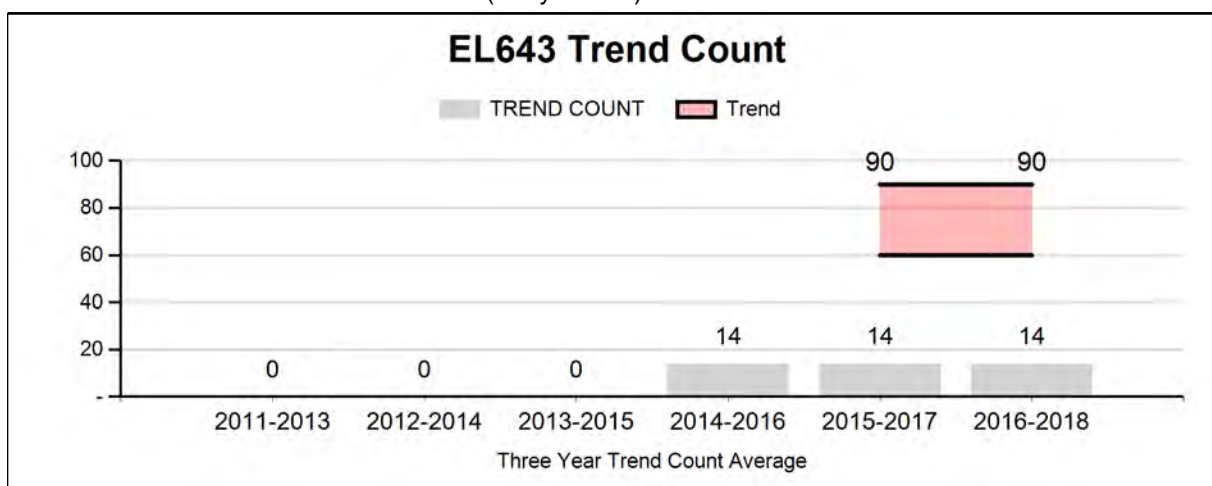
N/A%

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

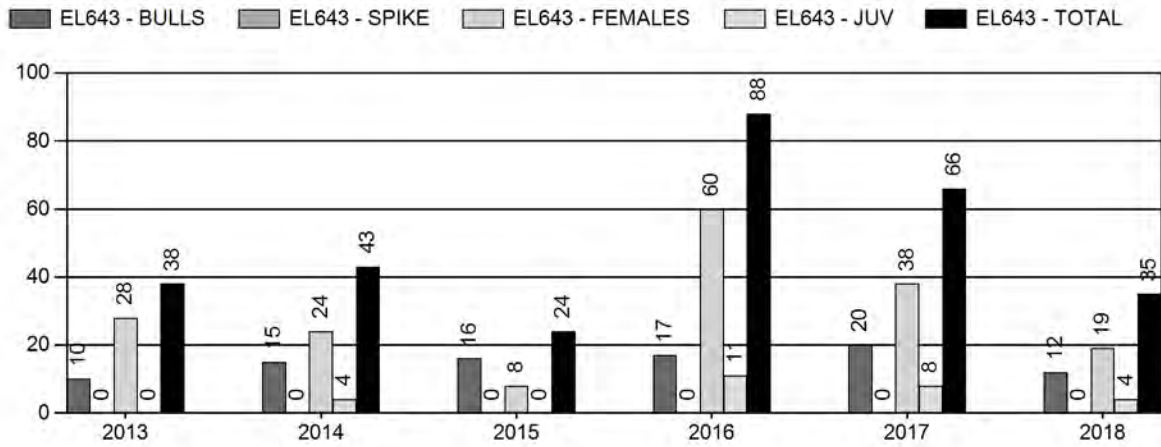
2

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

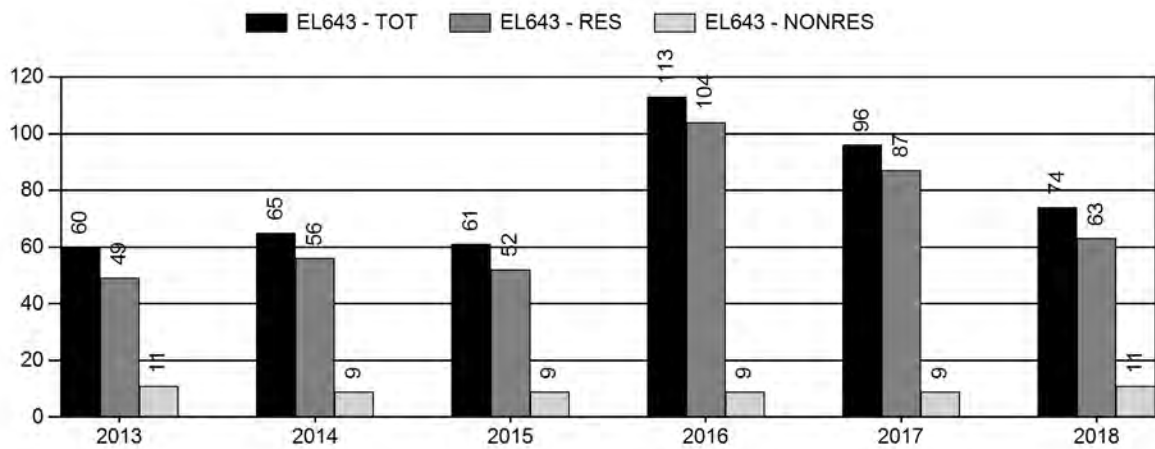
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



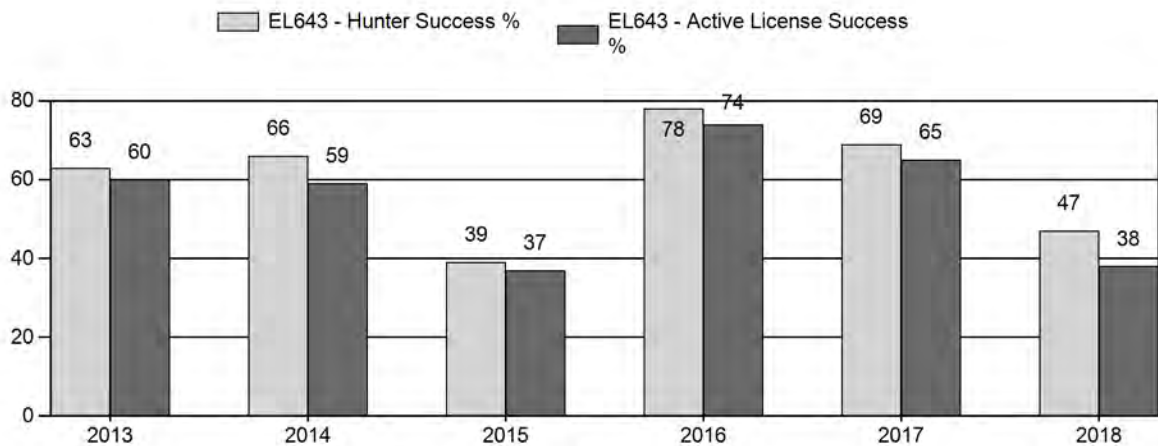
Harvest



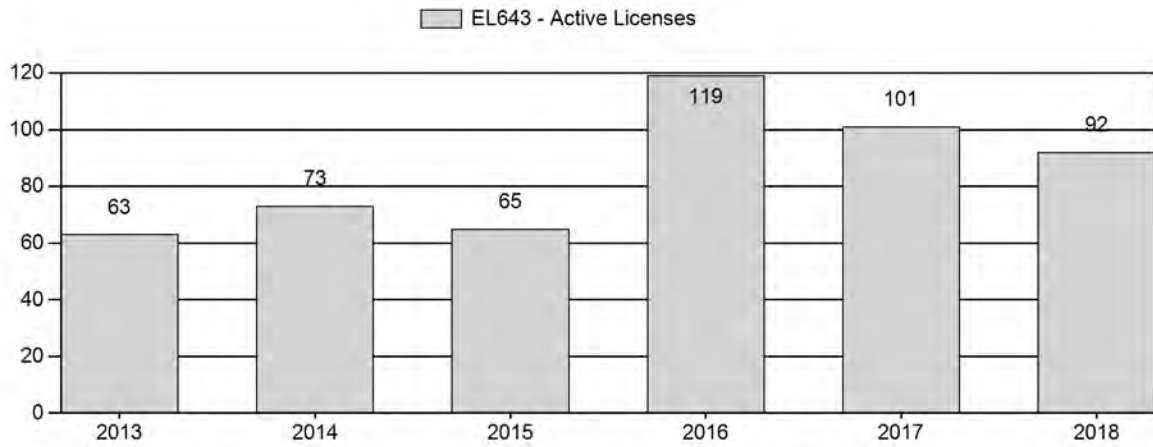
Number of Hunters



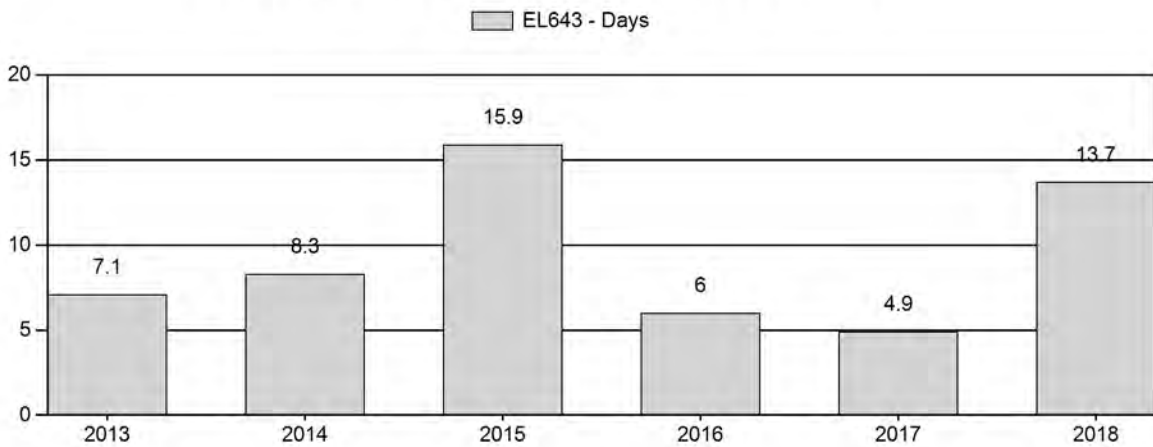
Harvest Success



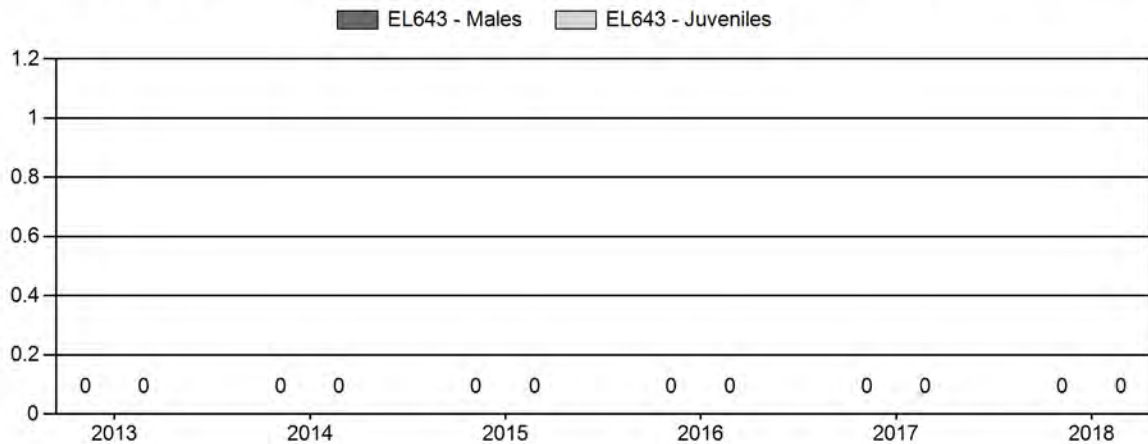
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL643 - SHAMROCK

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2014	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2015	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2016	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2017	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2018	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

**2019 HUNTING SEASONS
SHAMROCK ELK HERD (EL643)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
118	1	Oct. 22	Nov. 12	25	Limited quota	Antlered elk
	4	Oct. 22	Nov. 30	25	Limited quota	Antlerless elk
	6	Oct. 1	Nov. 30	50	Limited quota	Cow or calf valid south of the Mineral X Road (Sweetwater County Road 63 and BLM Road 3206)
Archery 22, 111		Sep. 1	Sep. 30			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2018
118	1	0
	4	0
	6	0
Herd Unit Total	1	0
	4	0
	6	0

Management Evaluation

Current End-of-Year Population Trend Count Objective: 75

Management Strategy: Recreation

2016 End-of-Year Trend Count: 42

2017 End-of-Year Trend Count: not available

2018 End-of-Year Trend Count: not available

2019 Proposed Postseason Population Estimate: N/A

Herd Unit Issues

The management objective for the Shamrock Elk Herd Unit is an end-of-year trend count of 75 elk. The management strategy is recreational management. A posthunt objective of 75 elk was first established in 1984, when elk were found almost exclusively in the southeastern quarter of the herd unit. Dispersal of these elk in small bands across hundreds of square miles of open sagebrush prevented collecting the classification data necessary for modeling this herd, and precluded the use of a winter trend count objective. Change to a landowner and hunter satisfaction objective was proposed in 2015 and was met with resistance by landowners who prefer management be committed to a fixed number of elk. A new spring trend count management objective was adopted, using standardized flight transects with a target of 75 elk.

In the past, elk in this herd were found in three main areas of concentration, in the southeast, southwest and the northeast corners of the herd unit. Observations documented movement of bands of elk between these three concentration areas, as well as into Area 100 to the west, producing uncertainty on the actual numbers of elk in the population. Elk have recently expanded into the western portion of the herd unit, taking advantage of water and disturbed vegetation provided by uranium exploration and extraction.

Aerial trend counts have been attempted, but often failed to find elk in all three areas simultaneously. Snow cover is rarely adequate for good visibility of elk from an aircraft. Classification samples have been too small and inconsistent to allow for a reliable herd population model to guide management. As a result, license quotas were historically based upon harvest statistics and simple assumptions of annular herd growth and harvest statistics.

These bands of elk are highly mobile, and observations before and during the 2012 hunt suggested a significant number of elk from the southwestern portion of the herd may have moved west into more mesic habitats in the eastern portion of Area 100. This shift into Area 100 was noted again in 2014 and 2015, but may have been due to hunting pressure from cow/calf hunters rather than weather or drought.

A cow elk died of lichen toxicity just a few miles into Area 100 in September of 2012, presumably induced into consuming lichen as a result of extremely poor forage conditions that year. At least eight elk died of lichen toxicity in the eastern portion of Area 100 during the 2015-16 winter. No incidences of lichen toxicity in elk were noted in this herd that winter, however roughly 150- 200 elk wintering along the border between Areas 118 and 100 were reported to have left orange and red urine stains, indicative of lichen consumption, during both the 2014-15 and 2015-16 winters. A bull died of apparent lichen toxicity in this herd during the summer of 2018, and red elk urine stains were again noted during the 2018 hunting season.

Access is a major issue with this herd unit. While there are large blocks of accessible public land, refuges created by several large ranches that are either closed to hunting or greatly limit hunter numbers have prevented adequate harvest from many of the elk in this herd unit. As license quotas are increased to reduce elk numbers to objective, the lack of hunter access to these animals can lead to over-harvest of public land areas and may prevent the harvest necessary to reach the population objective.

Weather

Record precipitation was received in 2015, producing exceptional vegetative growth and good calf production. This was followed by good precipitation again in the springs of 2016 and 2017, allowing some recovery of winter ranges from the severe drought of 2012 and 2013. The summer of 2018 was hot and dry, lowering quantity and quality of forage production and presumably reducing calf production. Condition of elk going into the 2018-19 winter is expected to have been average or below average. The 2018-19 winter had numerous extended periods of bitter cold, continuing through February. Much of the winter range was open and available until heavier snowfalls in February and March, which blanketed the western and northern portions of the herd unit with deep snow. Due to late winter weather, winter losses are expected to be near or slightly above average.

Habitat

While no herbaceous habitat transects are established within this herd unit, herbaceous forage production appeared exceptional in 2015 and above average in 2016. Only one shrub transect has been established near this herd unit, on the Chain Lakes WHMA, but was not read in 2018.

Habitat losses to uranium development increased with the opening of the Lost Creek *in situ* uranium mine near the center of the herd unit, but the disturbance is not in or near crucial elk ranges. Habitat disturbance by this mine is expected to double in the near future with planned expansion to the northeast. Habitat losses to gas development have slowed in portions of the herd unit due to low oil and gas prices, but recently surged on the west end of the Chain Lakes WHMA.

Field Data

All classification samples for this herd have been statistically inadequate and no posthunt classification data were collected again this year. Dispersal of these elk in small bands across hundreds of square miles of sagebrush makes both aerial and ground classifications prohibitively expensive. Decreased precipitation during 2018 may have reduced calf production.

Harvest Data

Hunter success is typically high in this herd unit due to the open terrain and limited cover, but fell to only 38 percent in 2018, compared to a 5-year average of 59 percent. Success fell for all three license types, but was lowest for hunters with Type 4 licenses who were able to hunt the entire area. As would be expected with lower hunter success, the average number of days hunted per elk harvested increased in 2018, again for all three license types. The effort required to harvest an elk was again significantly higher for the Type 4 hunters, averaging 27 days per elk. The early opening date for hunters with Type 6 licenses apparently more than compensates for their being restricted to the southern half of the area. Not surprisingly, hunter satisfaction dropped to 54 percent, and strong dissatisfaction rose to 17 percent.

With lower hunter success, harvest in 2018 was almost half that taken in 2017 and 2016, and the second smallest harvest in the past ten years. Low success in previous years was often attributed to many elk leaving the herd unit into Area 100, but that was not reported this year. The lower success was probably a result of lower elk numbers. Even with fewer elk to hunt, none of the Type 1 holders reported having to harvest a spike.

Population

While initially found only in the southeastern portion of the herd unit, over the past 20 years elk have expanded into most portions of Area 118, at least for some seasons of the year. Numbers increased as well, with Department personnel being able to confirm at least 270 elk in this area prior to the 2010 hunting season. Harvests were increased, and the herd was reduced to about 200 elk following the 2011 hunt. Harvest from Type 6 licenses was most effective at reducing elk numbers in the southeast corner where elk use of private lands had been a concern.

Localized movement of elk westward into Area 100 from the southwest portion of Area 118 cannot explain all of the difficulty hunters had finding elk to harvest in the entire area in 2018.

Harvest statistics indicate increased harvests in recent years have reduced elk numbers across the herd unit.

The first End-of-Year trend count for this herd was flown in May of 2017, with 42 elk counted. The count was flown with a fixed wing aircraft and a single observer, flying north-south transects. South of the 42 degree latitude line, transects were flown at 2-minute intervals, while the northern half was flown at 4-minute intervals. Two incomplete transects, at the eastern and western extremes of the south half, were not flown, and may have missed some elk known to use those habitats. The trend count of 42 elk was below the 20 percent range around the 75 elk objective midpoint.

Management Evaluation

Expected harvest from the 2019 season is about 35 elk, with roughly 65 percent being antlerless. Type 6 license holders would again be restricted to the southern, checker-boarded portion of the herd, but would have an earlier opening date. This early date was first employed when these licenses were restricted to a smaller portion of the herd unit to address complaints on private lands. With those issues addressed, it may be appropriate to return the Type 6 hunt to opening on the same date as the Type 1 and Type 4 licenses in 2020.

Opening date for the Type 1 and Type 4 seasons is traditional and avoids overlap with the general license deer hunt in the same area. Closing dates are the same as in 2018. The archery season uses standardized dates and is comparable to those in neighboring areas.

Movements of elk across the Area 100 boundary still occurs and is an issue for population monitoring as well as hunter access to these animals. Realigning herd unit and hunt area boundaries with Area 100 to the west may improve management of elk in this portion of the Red Desert.

E643 - Shamrock
HA 118
Revised - 5/88

