2013 - JCR Evaluation Form

Species: Elk
Herd: EL423 - UINTA
Hunt Areas: 106-107

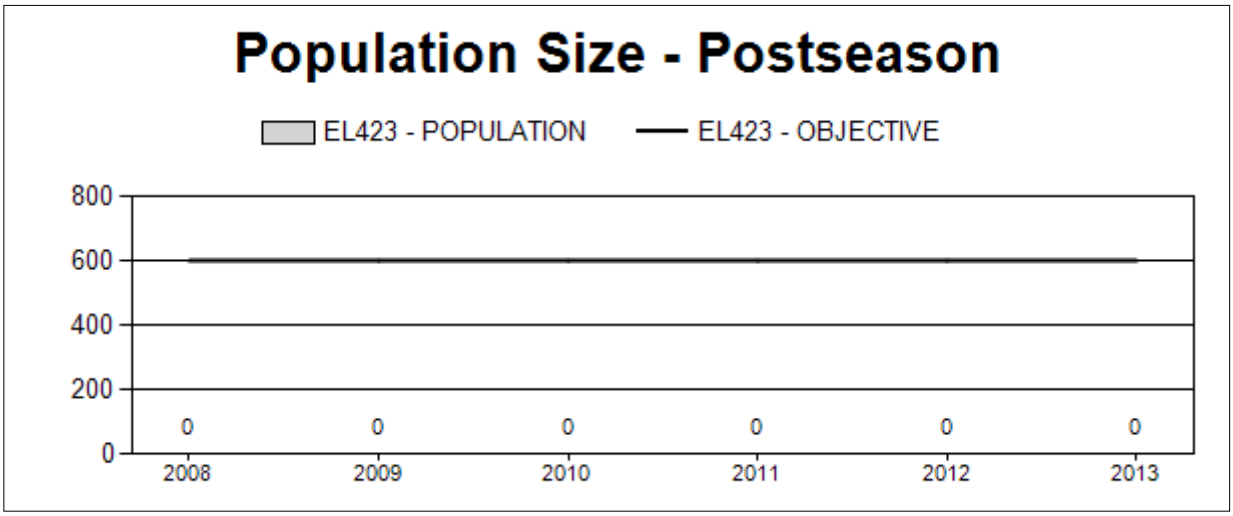
Period: 6/1/2013 - 5/31/2014
Prepared By: JEFF SHORT

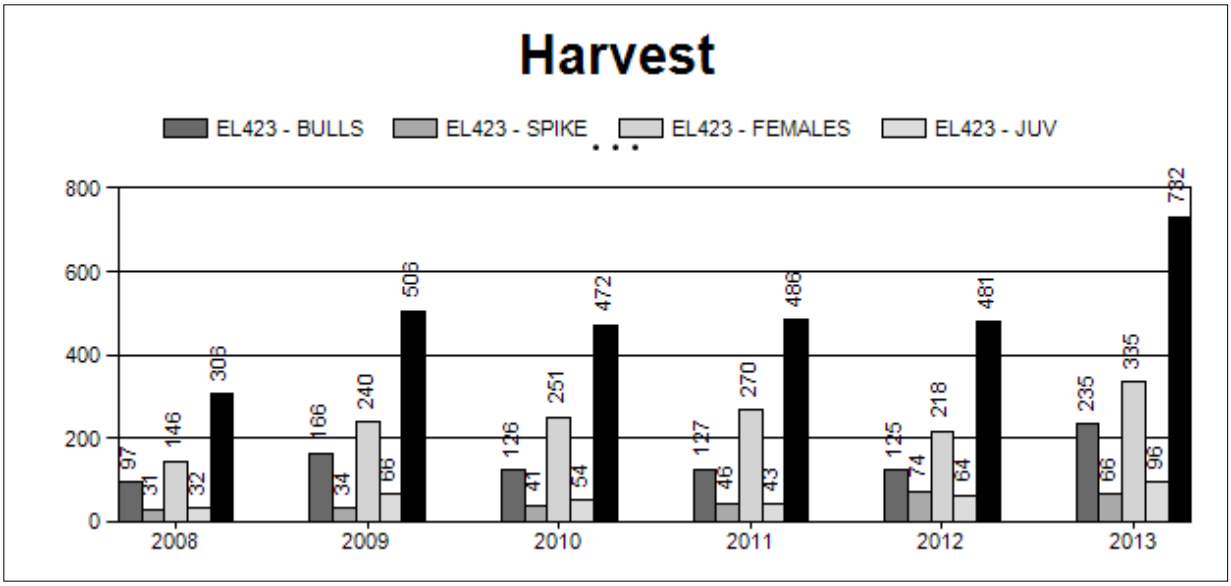
	2008 - 2012 Average	2013	2014 Proposed
Population:	NA	NA	NA
Harvest:	450	732	700
Hunters:	1,269	1,643	1,600
Hunter Success:	35%	45%	44 %
Active Licenses:	1,290	1,684	1,700
Active License Percent:	35%	43%	41 %
Recreation Days:	7,355	8,794	8,800
Days Per Animal:	16.3	12.0	12.6
Males per 100 Females	0	0	
Juveniles per 100 Females	0	0	

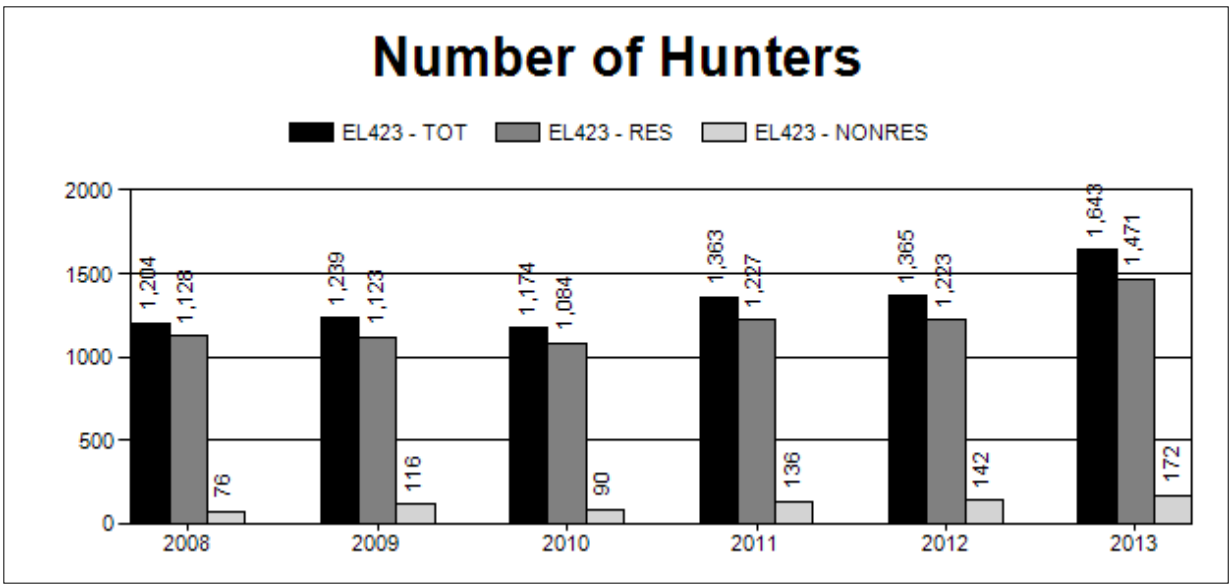
Population Objective:	600
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	NA
Number of years population has been + or - objective in recent trend:	NA
Model Date:	None

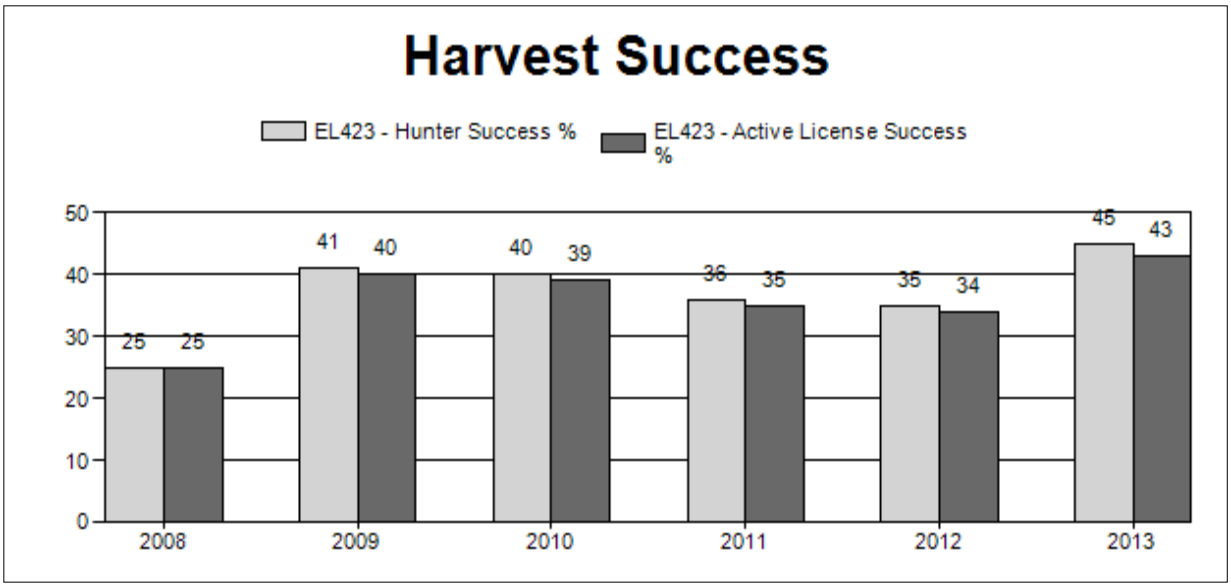
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

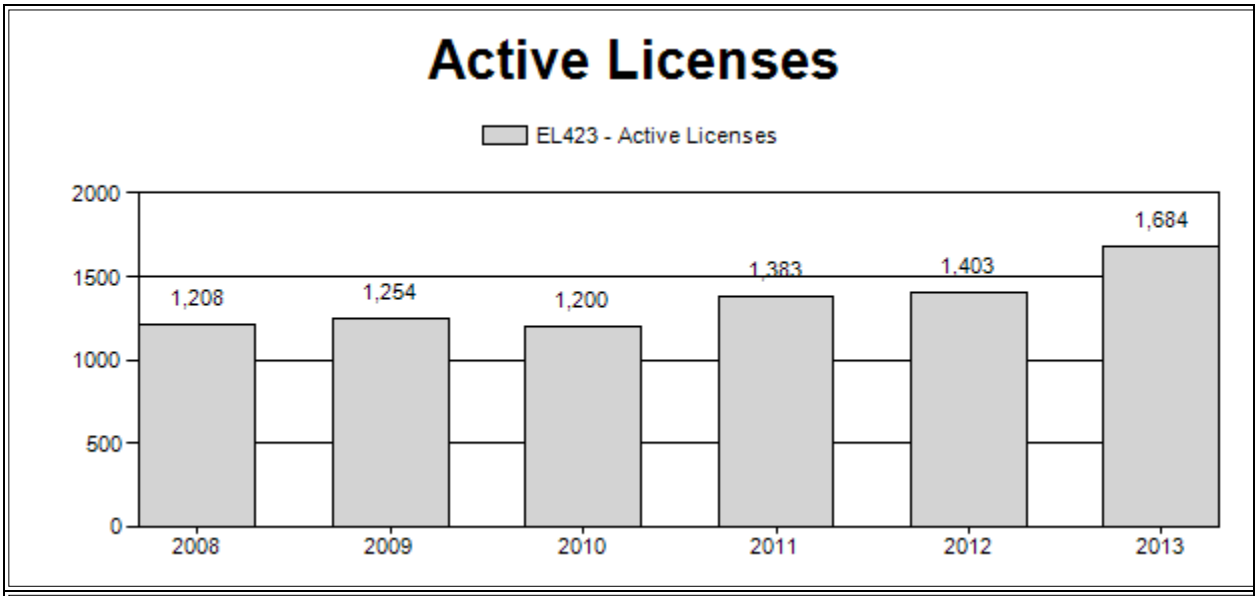
	JCR Year	Proposed
Females ≥ 1 year old:	NA	NA
Males ≥ 1 year old:	NA	NA
Juveniles (< 1 year old):	NA	NA
Total:	NA	NA
Proposed change in post-season population:	NA	NA

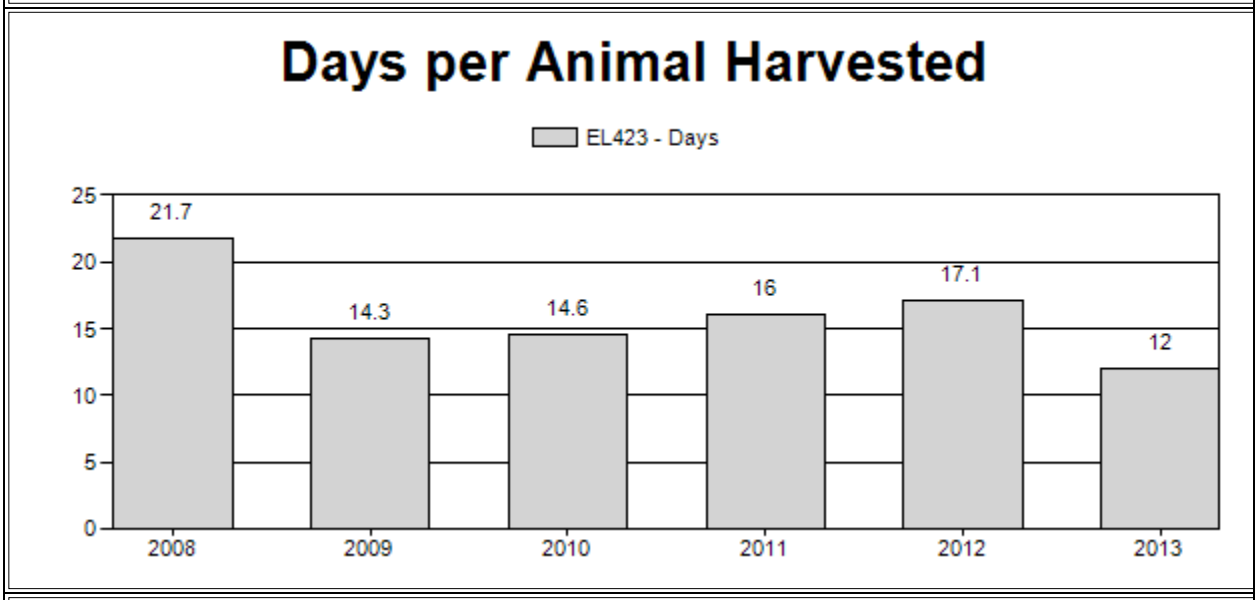


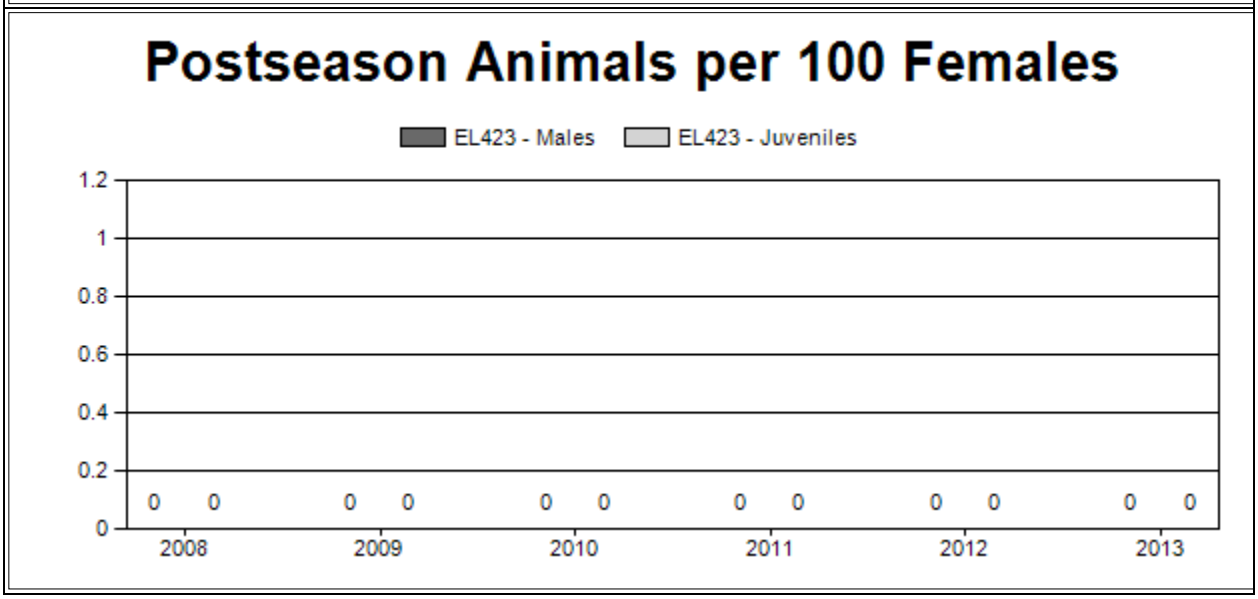

Harvest
EL423 - BULLS
EL423 - SPIKE
EL423 - FEMALES
EL423 - JUV
800
600
400
200
0
2008
2009
2010
2011
2012
2013
97
31
146
32
306
166
34
240
66
506
126
41
251
54
472
127
46
270
43
486
125
74
218
64
481
235
66
385
96
732


Number of Hunters
EL423 - TOT
EL423 - RES
EL423 - NONRES
2000
1500
1000
500
0
2008
2009
2010
2011
2012
2013
1,204
1,128
76
1,239
1,123
116
1,174
1,084
90
1,363
1,227
136
1,365
1,223
142
1,643
1,471
172


Harvest Success
EL423 - Hunter Success %
EL423 - Active License Success %
50
40
30
20
10
0
2008
2009
2010
2011
2012
2013
25
25
41
40
40
39
36
35
35
34
45
43


Active Licenses
EL423 - Active Licenses
2000
1500
1000
500
0
1,208
1,254
1,200
1,383
1,403
1,684
2008
2009
2010
2011
2012
2013


Days per Animal Harvested
EL423 - Days
25
20
15
10
5
0
21.7
14.3
14.6
16
17.1
12
2008
2009
2010
2011
2012
2013


Postseason Animals per 100 Females
EL423 - Males
EL423 - Juveniles
1.2
1
0.8
0.6
0.4
0.2
0
0 0
0 0
0 0
0 0
0 0
0 0
2008
2009
2010
2011
2012
2013

No classification data exists for this herd unit. JCR program will not generate the report.

2014 HUNTING SEASON

SPECIES : **Elk** HERD UNIT : **Uinta (423)**
HUNT AREAS: **106, 107**

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	Limitations
106		Oct. 15	Oct. 31		General license; any elk
		Nov. 1	Nov. 14		General license; antlerless elk
	1	Nov. 15	Dec. 31	50	Limited quota licenses; any elk valid west of the Blacks Fork River or north of Wyoming Highway 410
	4	Nov. 15	Dec. 31	100	Limited quota licenses; antlerless elk
		Jan. 1	Jan. 31		Unused Area 106 Type 4 licenses; valid on private land **or** west of the Blacks Fork River or north of Wyoming Highway 410
	7	Aug. 15	Jan. 31	300	Limited quota licenses; cow or calf valid on private land **or** west of the Blacks Fork River or north of Wyoming Highway 410
107		Oct. 15	Oct. 31		General license; any elk
		Nov. 1	Nov. 14		General license; antlerless elk
	4	Nov. 15	Dec. 31	150	Limited quota licenses; antlerless elk
		Jan. 1	Jan. 31		Unused Area 107 Type 4 licenses; valid off national forest and within the Henrys Fork River drainage
	7	Dec. 15	Jan. 31	50	Limited quota licenses; cow or calf valid off national forest and within the Henrys Fork River drainage
106, 107	Archery	Sept. 1	Sept. 30		Refer to Section 3 of this chapter

Hunt Area	License Type	Quota change from 2013
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: 600
Management Strategy: Recreational
2013 Postseason Population Estimate: ~1500
2014 Proposed Postseason Population Estimate: ~1300

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

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

The HA 107 antlerless licenses are used to maintain pressure on elk on the Wyoming side of the state boundary during a hunt on the Utah side. Damage complaints on the HA 107 side of the herd unit are typically low even during the severe winter of 2010/11. However, ranchers are complaining about elk numbers and the herd is over objective. The late portions of antlerless hunts are designed to target elk that have potential to cause depredation problems while protecting elk in those areas where they can winter with low probability of problems. Unfortunately, there is no good land feature to define this hunt boundary. It has gone through several boundary revisions over the years. Hunters would like to see more elk in accessible public land areas in HA 107. These areas and a small portion of public land in HA 106 are the main areas for elk hunter access in the herd unit.

The objective in this herd unit is to ultimately minimize elk damage problems. However, it is difficult to manage a herd for limiting damage based solely on a number. Elk damage changes relative to many other factors. Currently we are over objective based on a recent survey. The objective and management strategy were last revised in 1990. They are scheduled to undergo review in 2014.

Weather
Weather during 2013 and into 2014 was highly variable. In the early part of 2013 the winter was very mild and dry. A dry spring and summer followed. In late August and into September heavy precipitation came and ended the dry conditions. The winter of 2013-2014 has been reasonably mild to this point. The winters of 2011-2012 and 2012-2013 were very mild with low snowpack resulting in good over winter survival. However, the dry springs and summers of 2012 and 2013 negatively impacted summer and winter range forage production.

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

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

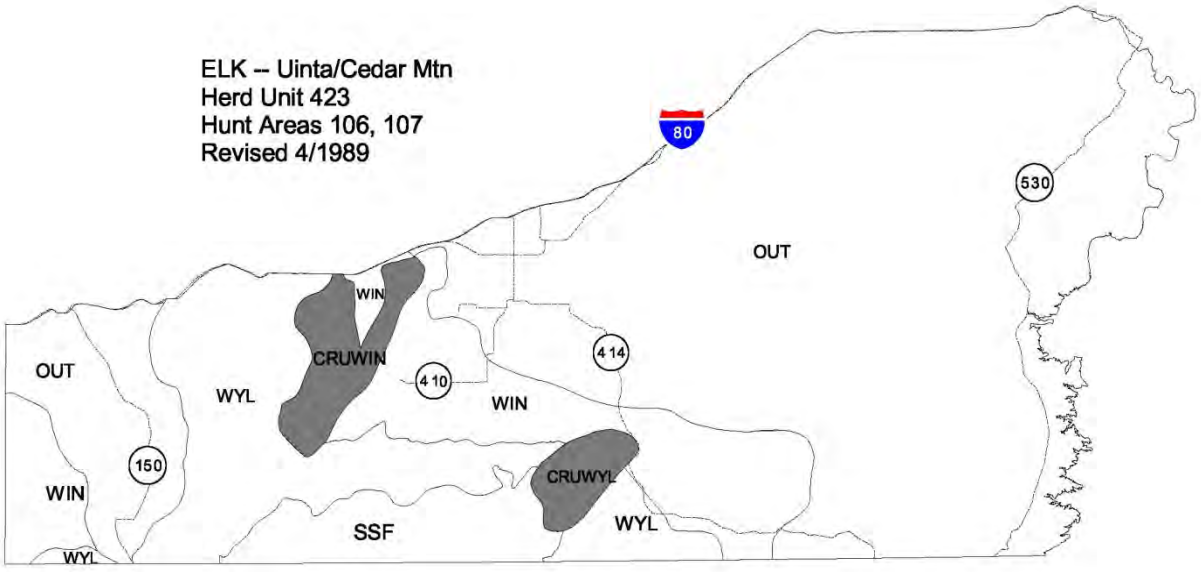
	YEAR								
	1992	**1994**	**1996**	**1998**	**2001**	**2004**	**2007**	**2011**	**2013**
Utah West Daggett	920	970	1408	919	923	716	863	No data	1055
Utah Summit	332	131	200	80	101	215	228	268	1006
Wyoming	298	238	635	299	512	446	746	1723	1810
Total	**1550**	**1339**	**2243**	**1298**	**1536**	**1377**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

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

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

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

Management Summary
In 2013 we greatly increased hunter opportunity for antlerless elk. Comments from landowners in areas around Lonetree and in the north and western portions of area 106 are that elk numbers are still an issue. We will continue with hunt timing and license management to maximize elk harvest opportunities throughout the season to target elk causing problems in those areas. It appears that these new season structures will reduce this elk herd. The objective and management strategy were last revised in 1990. They are scheduled to undergo review in 2014.


ELK -- Uinta/Cedar Mtn
Herd Unit 423
Hunt Areas 106, 107
Revised 4/1989
80
530
OUT
WIN
CRUWIN
414
410
OUT
WYL
WIN
150
WIN
CRUWYL
SSF
WYL
WYL

2013 - JCR Evaluation Form

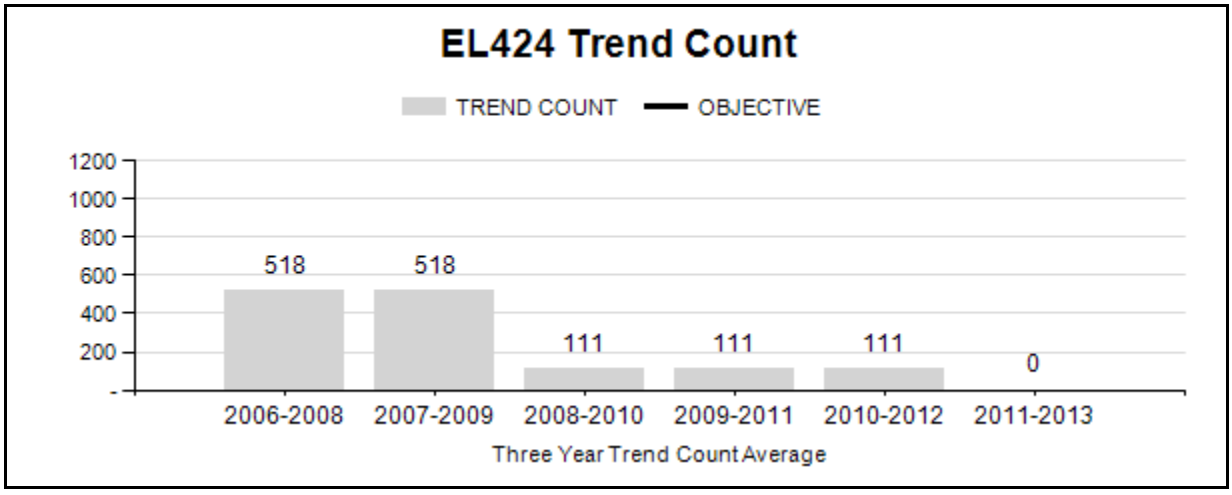
SPECIES: Elk
PERIOD: 6/1/2013 - 5/31/2014
HERD: EL424 - SOUTH ROCK SPRINGS
HUNT AREAS: 30-32
PREPARED BY: PATRICK BURKE

	2008 - 2012 Average	2013	2014 Proposed
Trend Count:	67	0	0
Harvest:	441	226	225
Hunters:	628	379	300
Hunter Success:	70%	60%	75%
Active Licenses:	628	381	300
Active License Percentage:	70%	59%	75%
Recreation Days:	4,727	2,648	2,300
Days Per Animal:	10.7	11.7	10.2
Males per 100 Females:	44	37	
Juveniles per 100 Females	44	31	

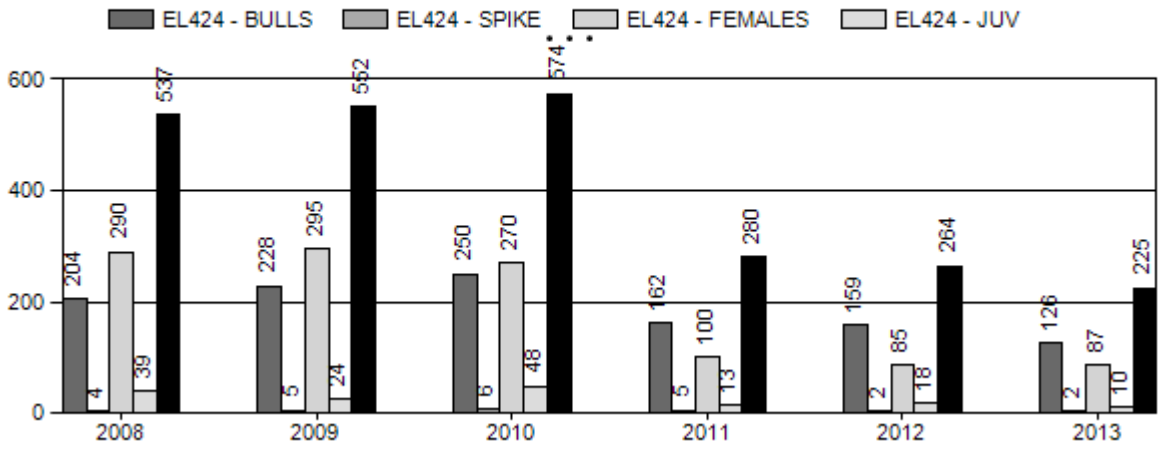
Trend Based Objective (± 20%)	1,000 (800 - 1200)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0

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

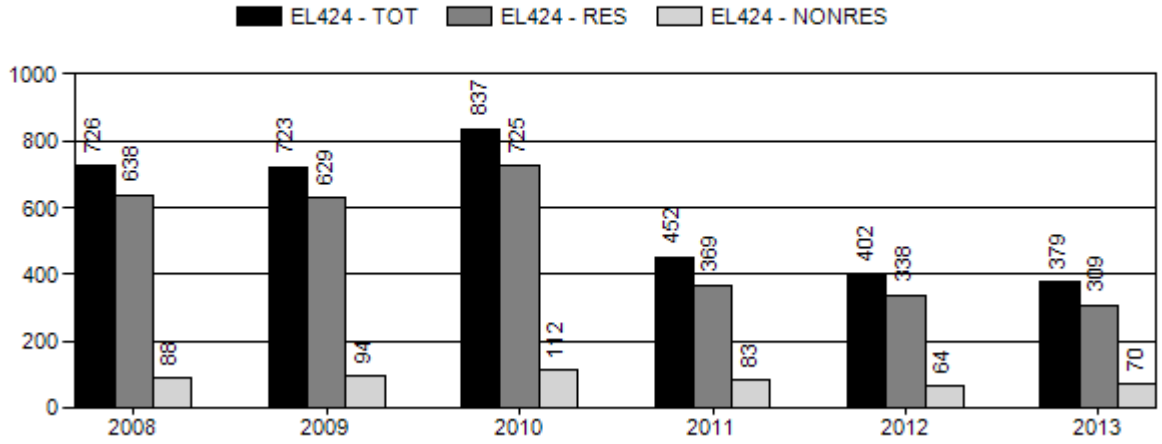
	JCR Year	Proposed
Females ≥ 1 year old:	15.2%	13%
Males ≥ 1 year old:	79.7%	90%
Juveniles (< 1 year old):	6.9%	4%
Total:	21.7%	4%
Proposed change in post-season population:	-4.5%	-5%



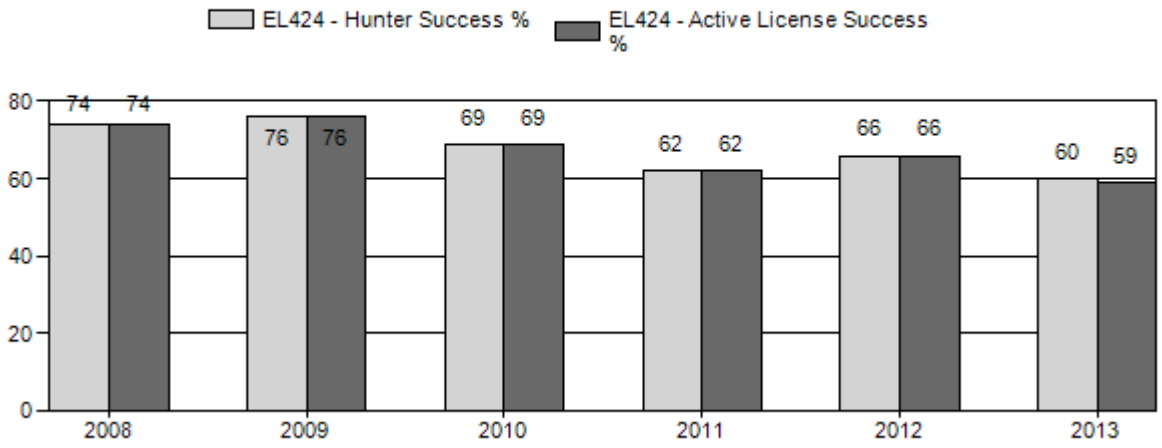
Harvest



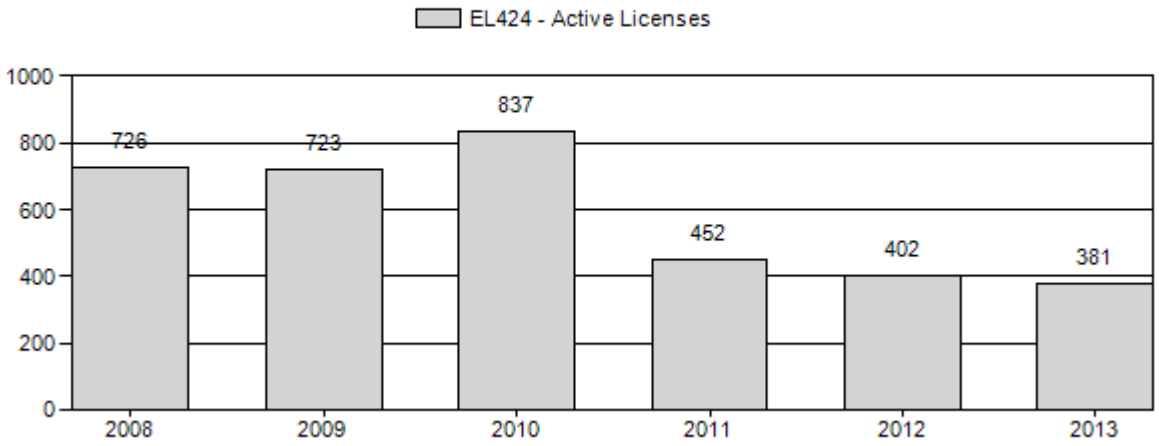
Number of Hunters



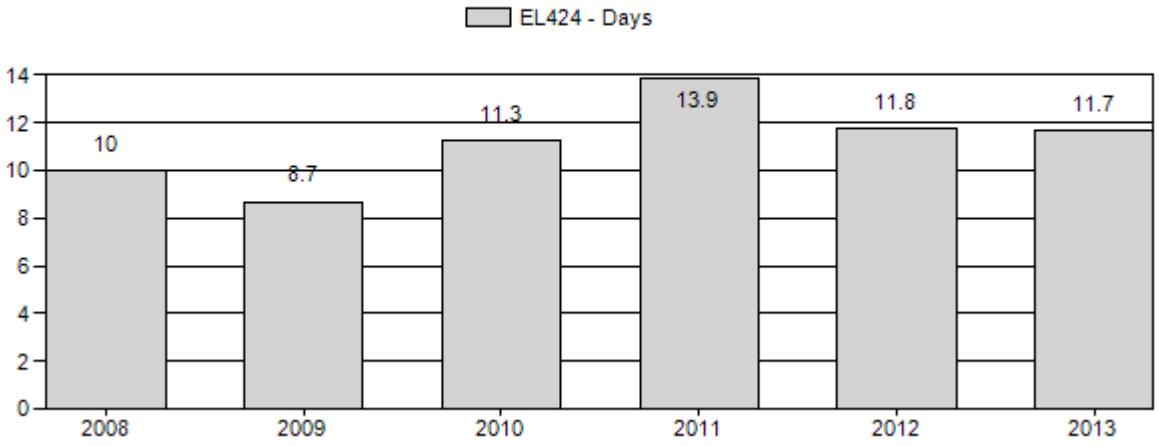
Harvest Success



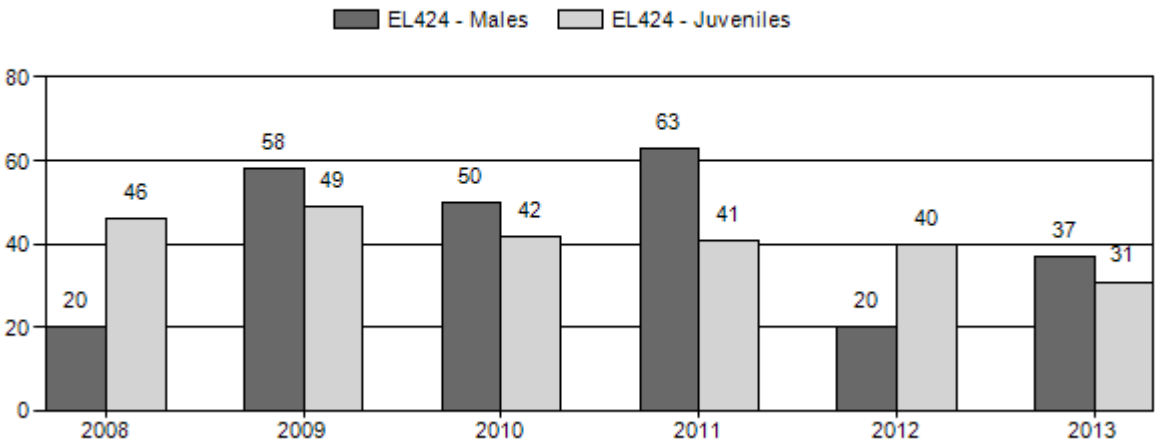
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2008 - 2013 Postseason Classification Summary

for Elk Herd EL424 - SOUTH ROCK SPRINGS

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	1,560	22	64	86	12%	423	60%	195	28%	704	526	5	15	20	± 2	46	± 3	38
2009	1,150	81	95	176	28%	306	48%	149	24%	631	529	26	31	58	± 0	49	± 0	31
2010	625	106	156	262	26%	525	52%	222	22%	1,009	379	20	30	50	± 19	42	± 22	28
2011	1,100	60	116	176	31%	280	49%	116	20%	572	485	21	41	63	± 5	41	± 4	25
2012	799	18	7	25	12%	126	62%	51	25%	202	361	14	6	20	± 5	40	± 7	34
2013	0	78	135	213	22%	582	60%	181	19%	976	398	13	23	37	± 0	31	± 0	23

2014 HUNTING SEASONS
SOUTH ROCK SPRINGS ELK HERD (EL424)

Hunt Area	Type	SEASON DATES Opens	Closes	Quota	Limitations
30	1	Oct. 1	Oct. 31	30	Limited quota; any elk
31	1	Oct. 1	Oct. 31	75	Limited quota; any elk
31	4	Oct. 1	Oct. 31	75	Limited quota; antlerless elk
32	1	Oct. 1	Oct. 31	50	Limited quota; any elk
32	4	Oct. 1	Nov. 16	50	Limited quota; antlerless elk
Archery		Sept. 1	Sept. 30		Refer to license type and limitations in Section 3.

Hunt Area	Type	Quota change from 2013
30	4	-30
32	1	-25
	4	-25
	6	-25
Herd Unit Total	**1**	**-25**
	4	**-55**
	6	**-25**

Management Evaluation
Current Management Objective: 1,000
Management Strategy: Special
2012 Postseason Population Estimate: N/A
2013 Proposed Postseason Population Estimate: N/A

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

Herd Unit Issues

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

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

Weather

The summers of 2012 and 2013 were extremely dry with little summer precipitation, especially the summer of 2012. This lack of moisture was especially evident in areas of the herd unit below 8,000 ft. The drought conditions at the lower elevation winter ranges of the herd unit have had some minor impacts on this in the form of elk choosing to winter at higher elevations than normal which may result in more use of already stressed summer parturition ranges that are used by this herd and the South Rock Springs mule deer herd. During December 2013 classification flights, some elk were seen wintering at over 9,000 ft. and other groups were observed at elevations than typically occupied despite substantial snow depths in those areas. Significant rain and snowfall events did occur during September and October of 2013, while this precipitation came after the growing season, hopefully it will increase soil moisture and allow for better plant growth in 2014. The wet conditions in the fall of 2013 did inhibit hunters' ability to access some parts of the herd unit, but did not seem to negatively impact overall success rates.

Habitat

The Green River aquatic habitat biologist has established six aspen regeneration monitoring transects throughout the South Rock Springs elk herd unit. These transects are designed to evaluate browsing impacts from ungulates, primarily elk on young aspen. Two transects were established on Little Mountain in 2007 as well as four additional transects that were established in 2009, one each on Aspen and Miller Mountains and two in the Pine Mountain area. These transects were read each summer since their establishment, except that one of the Pine Mountain transects was not read in 2013 due to difficulty in accessing that site caused by the amount of rain and snow received during the fall.

A detailed accounting of the technique and results from these monitoring efforts can be found in the aquatic habitat annual report. In general, this method compares the height of the initial growth point for the current year's terminal leader to the height of the tallest previous terminal leader branch that was killed as a result of browsing. A positive Live-Dead (LD) value suggests growth of young trees, while a negative value or value near zero suggests that browsing may be suppressing tree growth. Results of monitoring efforts are presented in the following table (Table 1) taken from the aquatic habitat annual progress report, but in general, three of the five monitored sites showed positive LD values for 2013, while two of the sites had LD values below zero.

Table 1. Trends in aspen regeneration LD values (vertical inches) in the SRS herd unit 2010-2013

Monitoring site	2010	2011	2012	2013
Pine Mt/Red Ck.	-2.4	-0.5	-3.0	NA
South Pine Mt.	0	+0.7	-3.2	-4.3
Miller Mt.	+7.4	+8.7	+5.3	+6.6
Aspen Mt.	-1.2	+1.5	-6.0	+4.6
Little Mt./Dipping Spr.	-4.8	-4.1	-2.6	+0.2
Little Mt./West Currant Ck.	-17.6	+4.2	0	-0.4

Field Data

This herd was classified from a helicopter during late December 2013. The total number of elk observed during that flight was 976. The resulting observed ratios from that flight were 31 calves per 100 cows and 37 total bulls which included 13 yearling bulls per 100 cows. It should be noted that 440 of elk classified in 2013 were within a mile and half of the tri-state marker, where Wyoming, Colorado, and Utah meet. That group included at least nine cows fitted with collars placed on them by both the Colorado Department of Parks and Wildlife and the Utah Department of Wildlife Resources. These elk probably represent the segment of the herd that moves between Wyoming, Colorado and Utah, and are probably only rarely available to Wyoming hunters.

Harvest Data

After several years of increased harvest in the South Rock Springs herd unit, observations by both field personnel and especially the public suggest that there are fewer elk residing in Wyoming than there were a few years ago. This has also been evidenced by reduced hunter success and increasing days per animal for all license types during the last several hunting seasons. Numerous hunters complained about not being able to find cow elk in HA30 and the Type 4 success rate in HA32 was only 18% with 36 days hunted per animal harvested for the 2013 season. The unavailability of cow elk in HA30 might be somewhat explained by the drought conditions experienced during the last two years. Since HA30 is generally lower in elevation and drier than HA31, it's possible that cows may have shifted towards Little Mountain to find more mesic condition more suited to successful calving in 2013. The low success rate for HA32 can almost certainly be explained by the ability for elk in that hunt area to easily move into Colorado or Utah to escape hunting pressure.

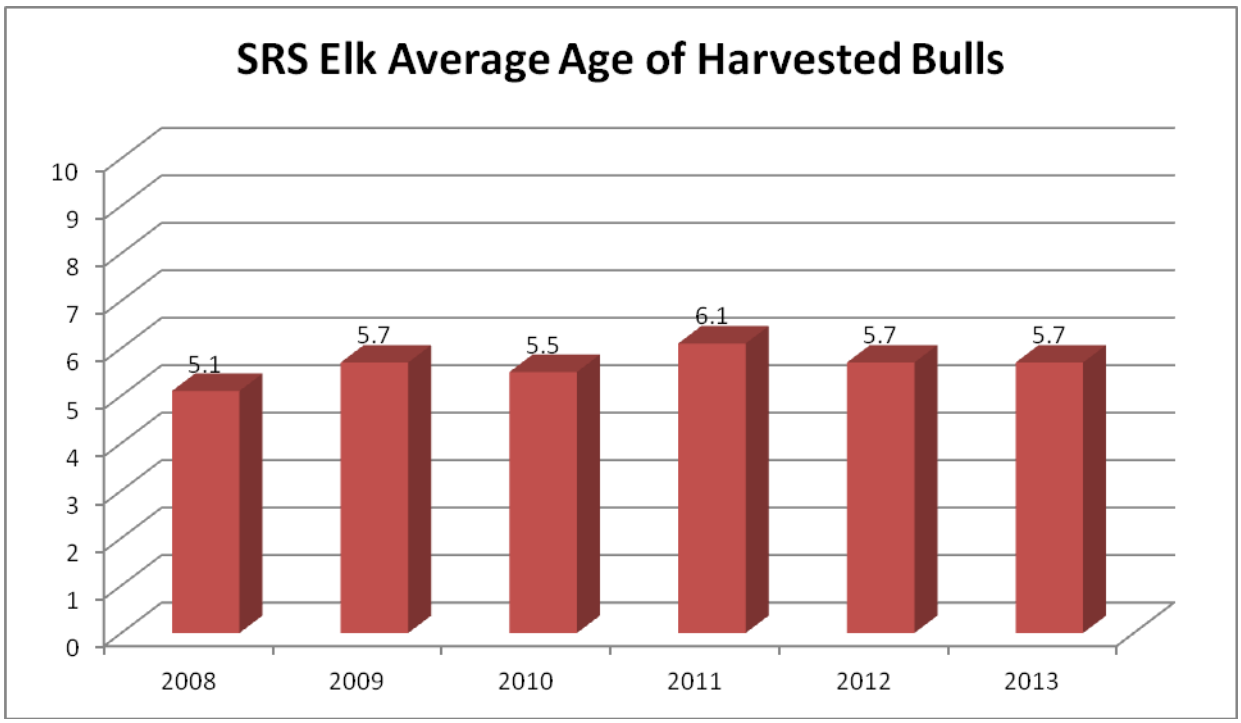
Because of the special management status and the local importance of the South Rock Springs elk herd, successful Type 1 license holders are asked to voluntarily submit tooth samples from harvested elk for cementum annuli analysis. In 2013, tooth samples were submitted by hunters from 60 harvested bull elk. Based on these submissions, the average of harvested bulls in 2013 was 5.7 years old. This compares with an average age of 5.7 in 2012, 6.1 years old in 2011, 5.5 years old in 2010. One 9.5 year old bull was harvested and aged from the herd unit in 2013. This bull came from HA30. In past years, the oldest age class of bull harvested was 7.5 in 2012, 11.5 in 2011, and 12.5 years old in 2010. The reduction in the number of older aged bulls may also suggest a smaller elk population than what was available to hunters in past years along with intensive selection for older, larger bulls in this herd.

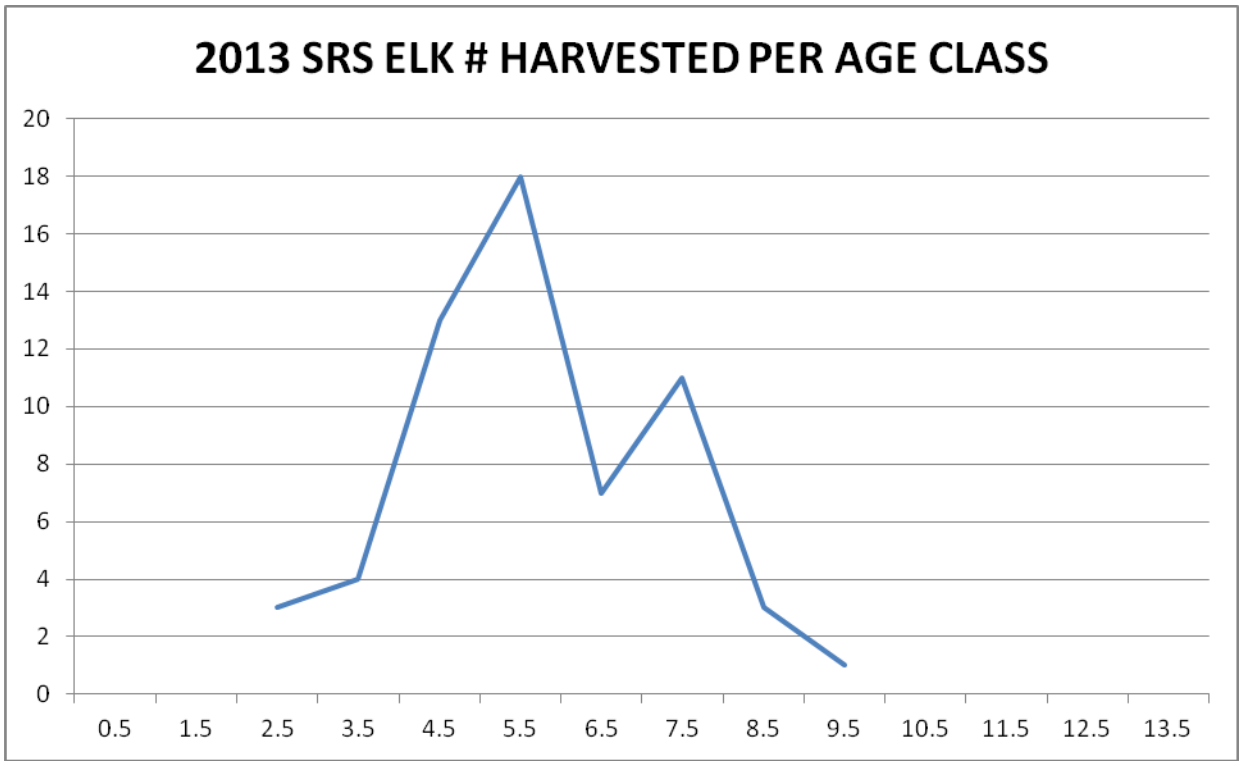
Population

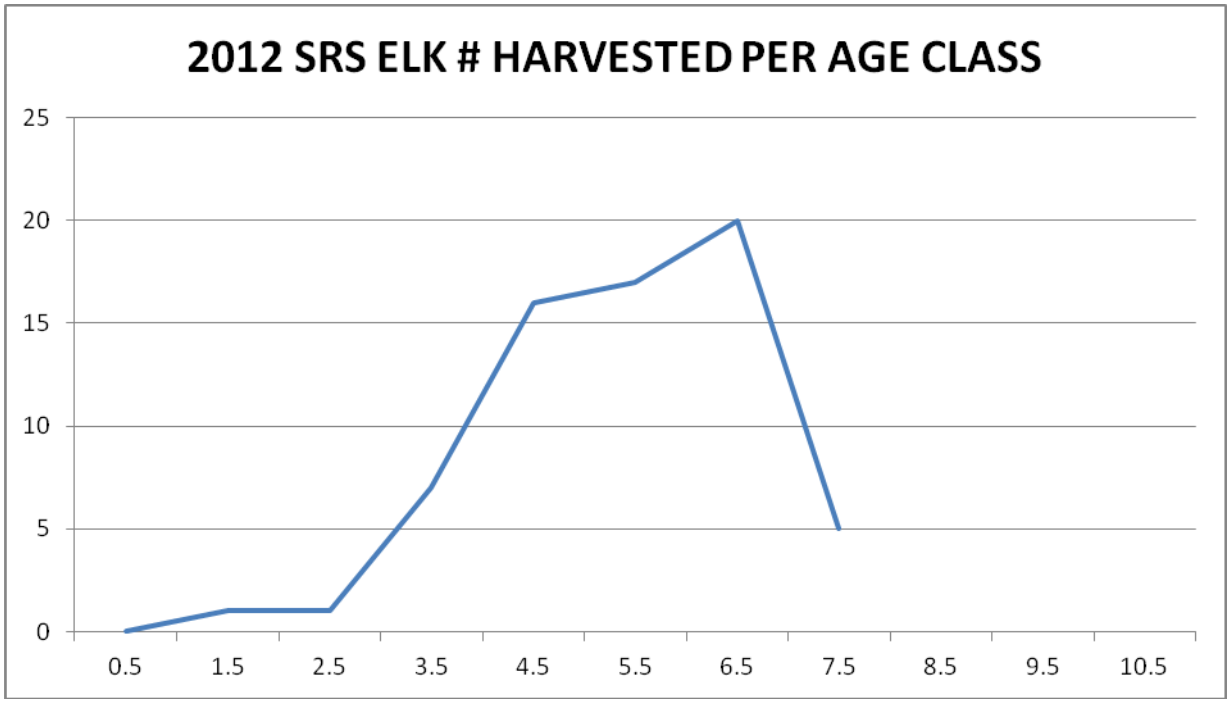
Since collar data from studies being conducted in Colorado and Utah have demonstrated that at least portions of this herd move freely between Wyoming, Colorado, and Utah; attempting to model this herd is not feasible because it violates the assumption of a closed population. Therefore, there is no population estimate for this herd and classification numbers are probably the best approximation for the number of animals in the herd in years when trend-counts are not conducted. In 2013, 976 animals were observed in Wyoming with 536 of those elk probably residing in Wyoming year-round.

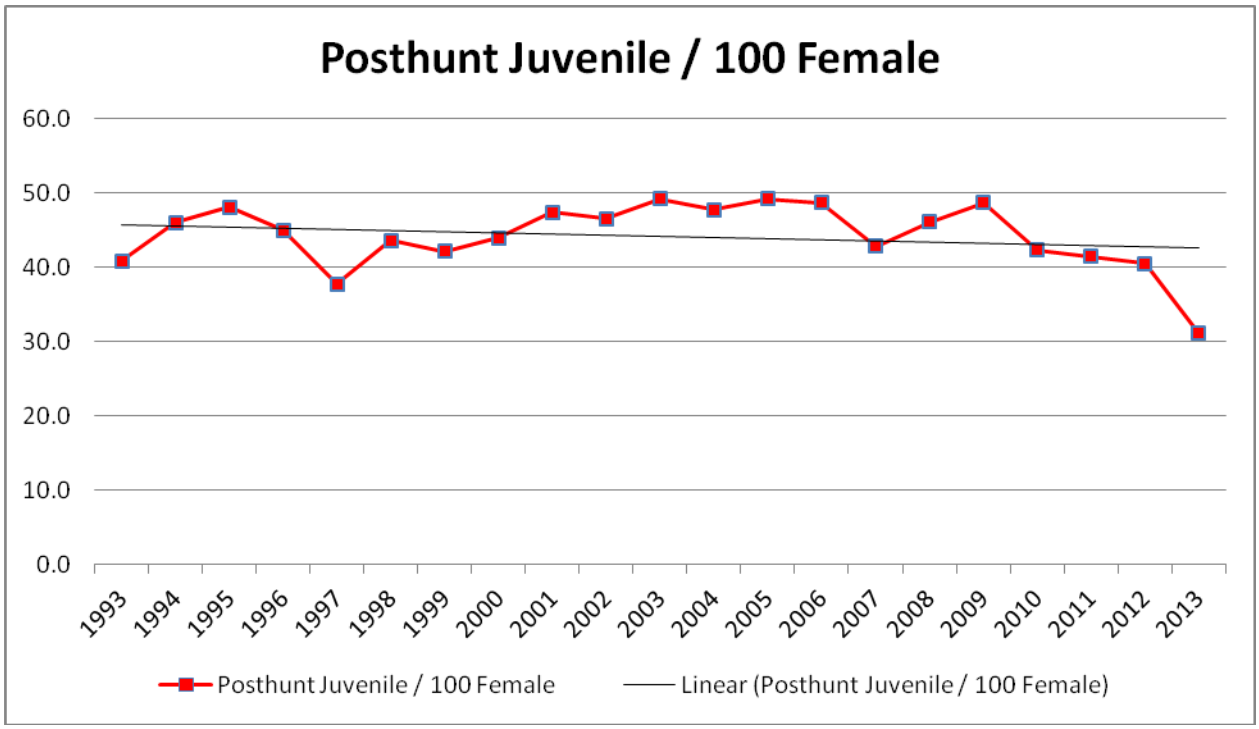
Management Summary

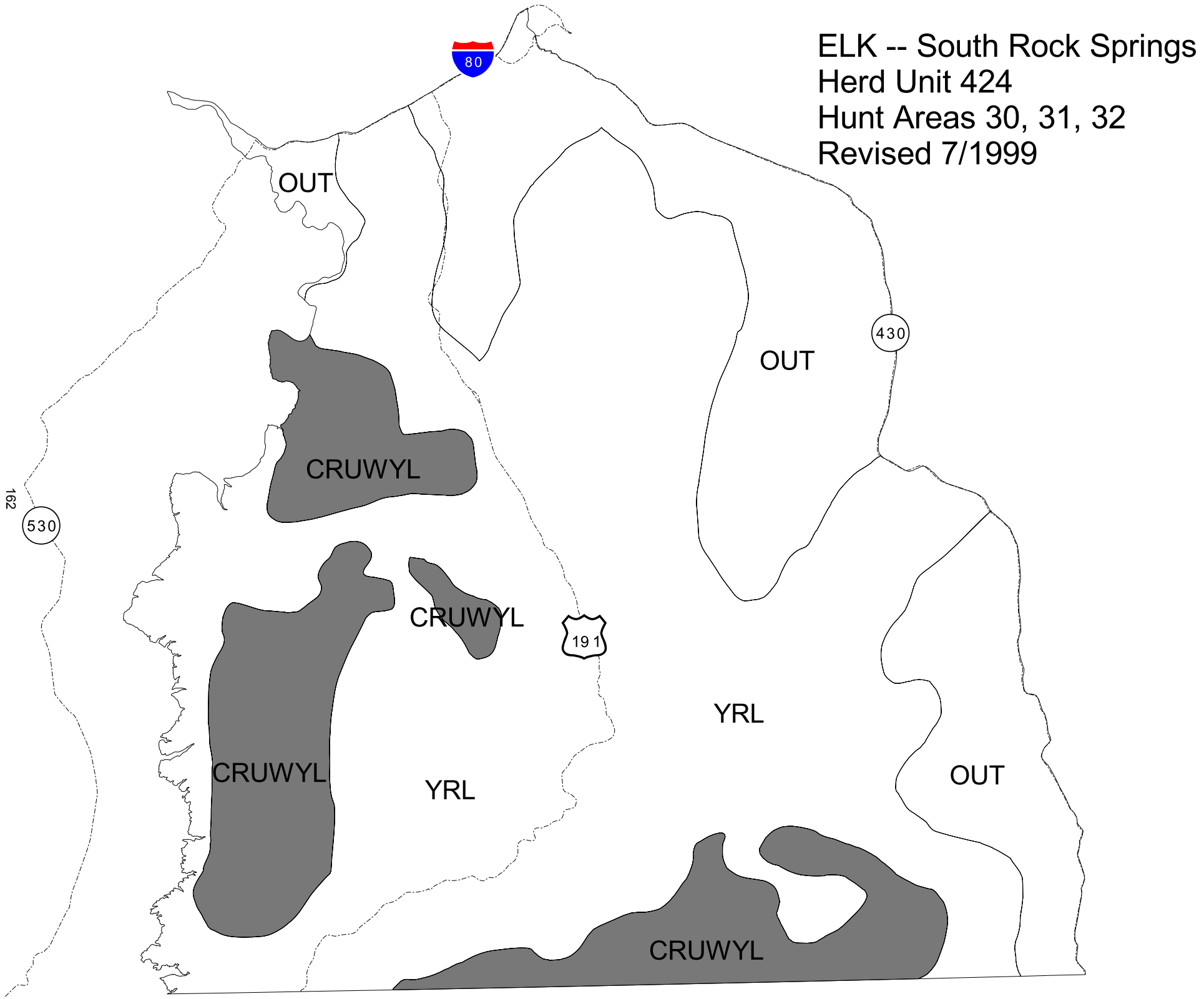
The 2014 hunting season structure is generally similar to season structures from the past few years. Some changes were made for 2014 in Hunt Areas 30 and 32 however. The first of these changes is the elimination of the Type 4 licenses from HA30. This change was proposed due to the apparent absence of cow elk from the hunt area in 2013. The second modification is to remove the Type 6 license that was offered in HA32 in 2013. The ending date for the Type 4 licenses in HA32 was also extended to place additional pressure on those interstate elk and either harvest them if they move into Wyoming or to keep them south of the state line.


SRS Elk Average Age of Harvested Bulls
10
9
8
7
6
5
4
3
2
1
0
5.1
5.7
5.5
6.1
5.7
5.7
2008
2009
2010
2011
2012
2013


2013 SRS ELK # HARVESTED PER AGE CLASS
20
18
16
14
12
10
8
6
4
2
0
0.5
1.5
2.5
3.5
4.5
5.5
6.5
7.5
8.5
9.5
10.5
11.5
12.5
13.5


2012 SRS ELK # HARVESTED PER AGE CLASS
25
20
15
10
5
0
0.5
1.5
2.5
3.5
4.5
5.5
6.5
7.5
8.5
9.5
10.5


Posthunt Juvenile / 100 Female
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Posthunt Juvenile / 100 Female
Linear (Posthunt Juvenile / 100 Female)


ELK -- South Rock Springs
Herd Unit 424
Hunt Areas 30, 31, 32
Revised 7/1999
80
OUT
OUT
430
CRUWYL
162
530
CRUWYL
191
YRL
CRUWYL
YRL
OUT
CRUWYL

2013 - JCR Evaluation Form

SPECIES: Elk | PERIOD: 6/1/2013 - 5/31/2014

HERD: EL425 - SIERRA MADRE

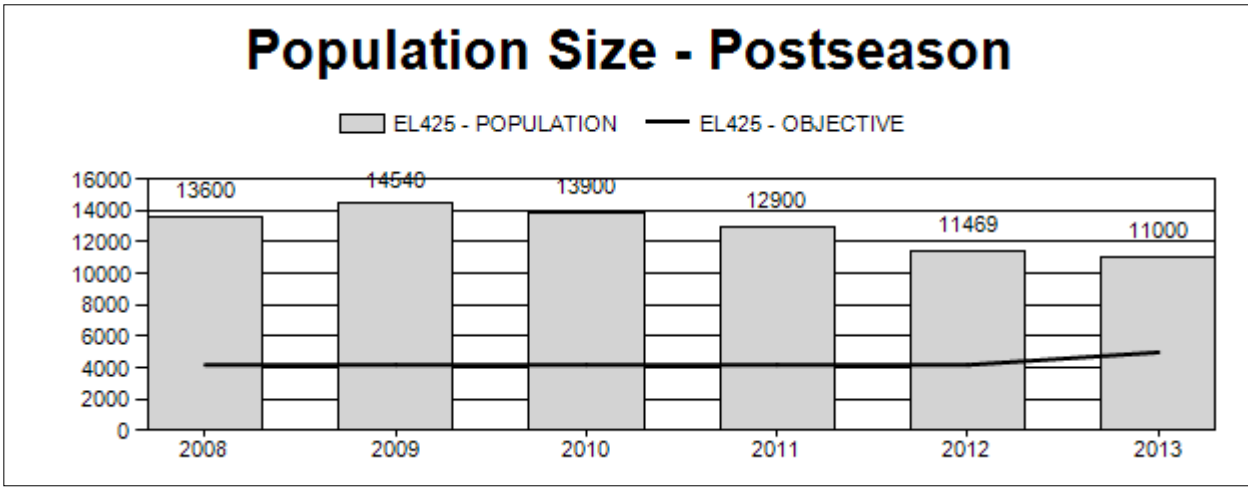
HUNT AREAS: 13, 15, 21, 108, 130 | PREPARED BY: TONY MONG

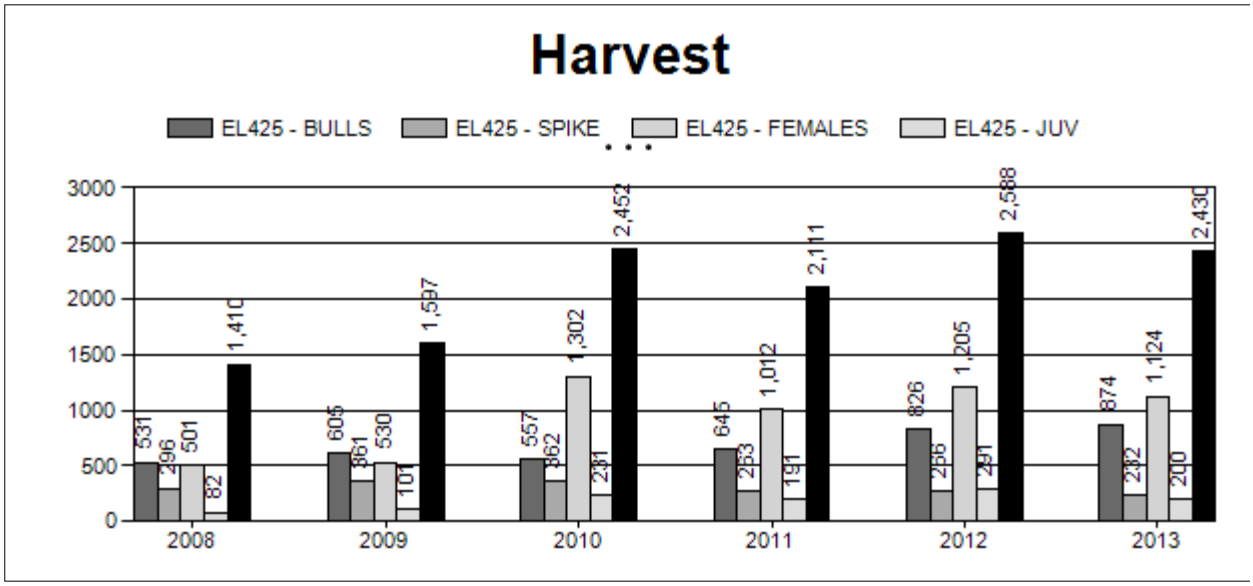
	2008 - 2012 Average	2013	2014 Proposed
Population:	13,282	11,000	9,600
Harvest:	2,032	2,430	2,600
Hunters:	5,077	5,506	5,900
Hunter Success:	40%	44%	44%
Active Licenses:	5,251	5,757	6,000
Active License Percent:	39%	42%	43%
Recreation Days:	32,551	36,622	38,000
Days Per Animal:	16.0	15.1	14.6
Males per 100 Females	24	29	
Juveniles per 100 Females	35	44	

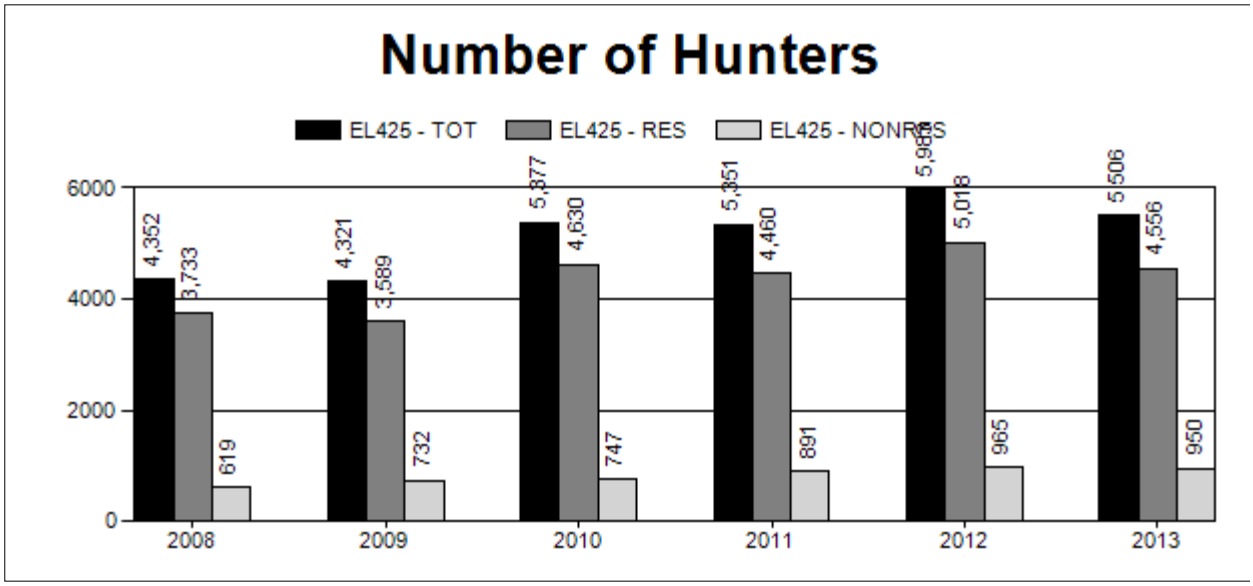
Population Objective:	5,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	120%
Number of years population has been + or - objective in recent trend:	10
Model Date:	03/03/2014

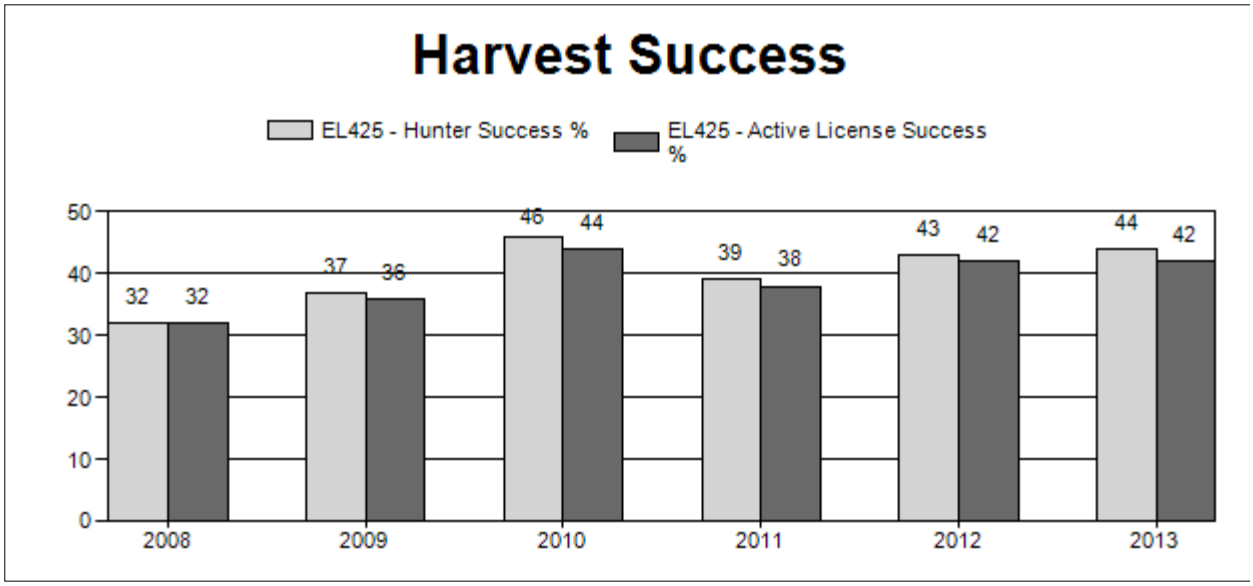
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

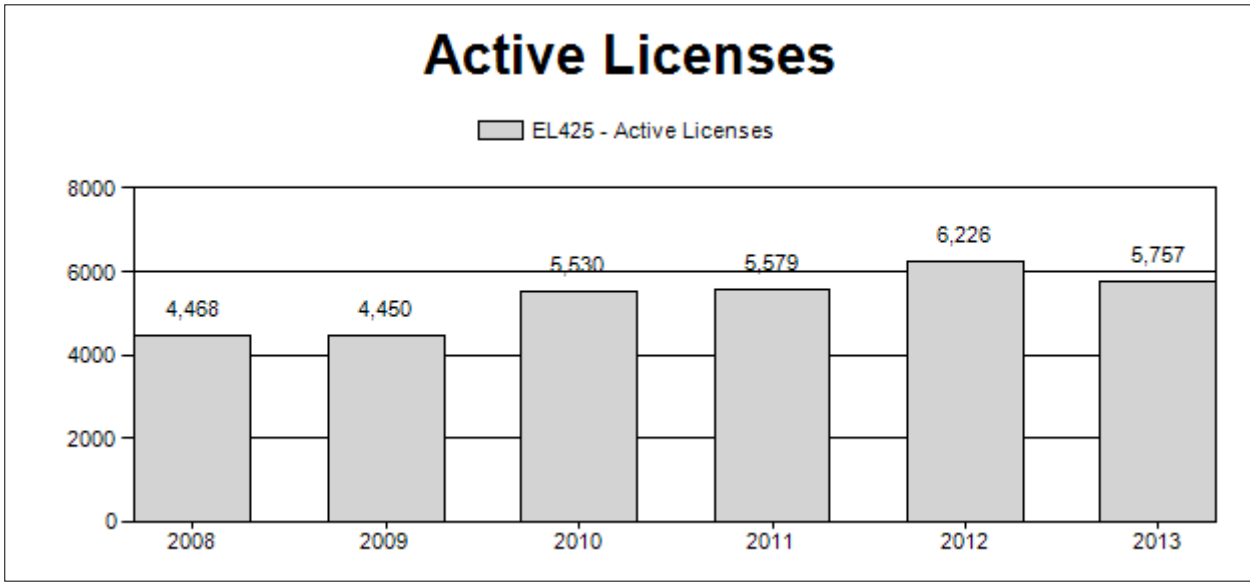
	JCR Year	Proposed
Females ≥ 1 year old:	18%	18%
Males ≥ 1 year old:	31%	31%
Juveniles (< 1 year old):	7%	7%
Total:	20%	20%
Proposed change in post-season population:	10%	10%

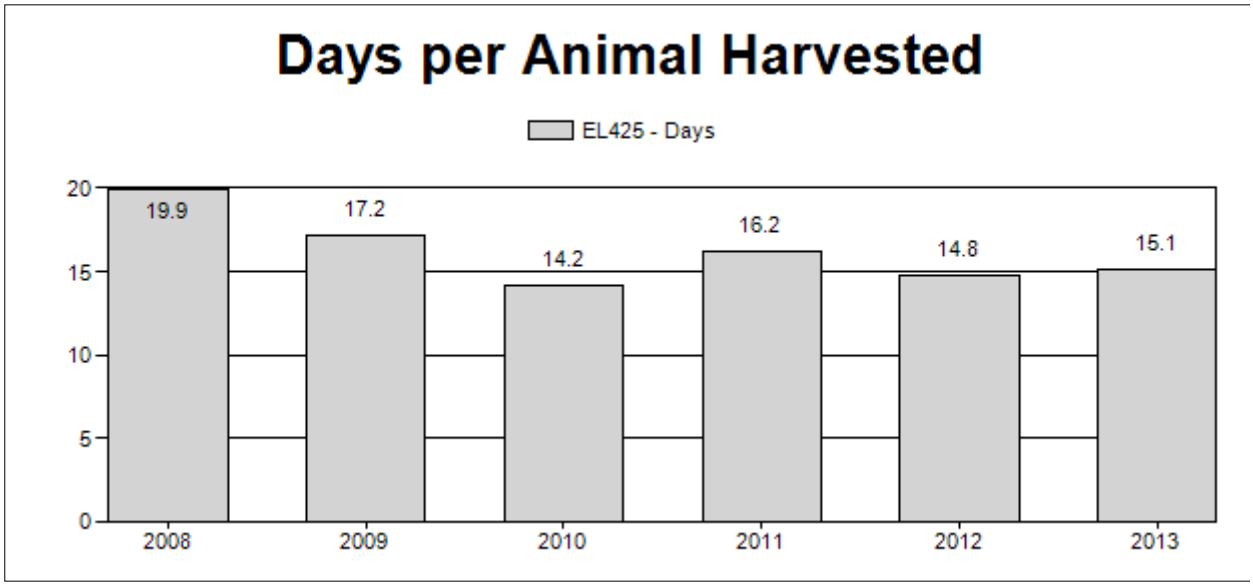


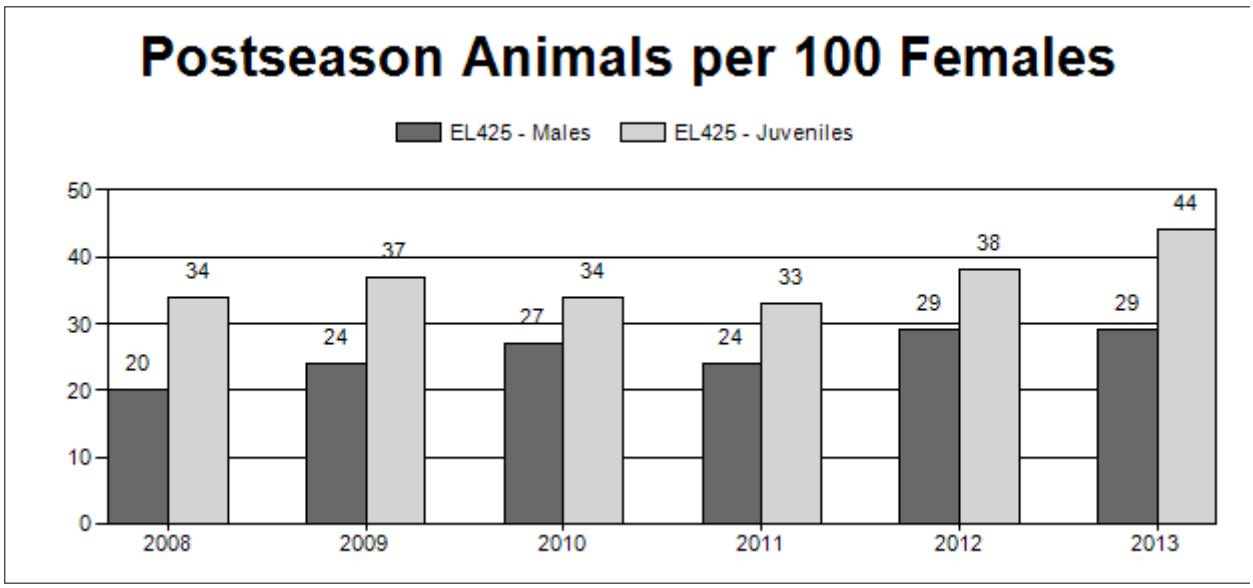

Harvest
EL425 - BULLS
EL425 - SPIKE
EL425 - FEMALES
EL425 - JUV
3000
2500
2000
1500
1000
500
0
531
296
501
82
1,410
605
361
530
101
1,597
557
362
1,302
281
2,452
645
253
1,012
191
2,111
826
256
1,205
291
2,588
874
282
1,124
200
2,430
2008
2009
2010
2011
2012
2013


Number of Hunters
EL425 - TOT
EL425 - RES
EL425 - NONRES
6000
4000
2000
0
4,352
3,733
619
4,321
3,589
732
5,377
4,630
747
5,351
4,460
891
5,983
5,018
965
5,506
4,556
950
2008
2009
2010
2011
2012
2013


Harvest Success
EL425 - Hunter Success %
EL425 - Active License Success %
50
40
30
20
10
0
32
32
37
36
46
44
39
38
43
42
44
42
2008
2009
2010
2011
2012
2013







2008 - 2013 Postseason Classification Summary

for Elk Herd EL425 - SIERRA MADRE

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Yl g	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	To tal	Conf Int	100 Fem	Conf Int	100 Adult
2008	13,600	323	318	641	13%	3,251	65%	1,116	22%	5,008	455	10	10	20	± 1	34	± 1	29
2009	14,540	416	311	727	15%	3,080	62%	1,153	23%	4,960	0	14	10	24	± 1	37	± 1	30
2010	13,900	530	347	877	17%	3,246	62%	1,109	21%	5,232	0	16	11	27	± 1	34	± 1	27
2011	12,900	398	345	743	15%	3,113	64%	1,041	21%	4,897	0	13	11	24	± 1	33	± 1	27
2012	11,469	323	342	665	18%	2,259	60%	851	23%	3,775	0	14	15	29	± 1	38	± 2	29
2013	11,000	158	124	282	17%	985	58%	430	25%	1,697	0	16	13	29	± 2	44	± 3	34

2014 HUNTING SEASON

SPECIES : **Elk**

HERD UNIT : **Sierra Madre (425)**
HUNT AREAS: **13, 15, 21, 108, 130**

Hunt Area	Type	Date of Seasons Opens	Closes	Quota	Licenses	Limitations
13		Oct. 15	Oct. 31		General	Any elk
	6	Oct. 15	Nov. 14	100	Limited quota	Cow or calf
15		Oct. 15	Oct. 31		General	Any elk
	6	Oct. 1	Nov. 14	100	Limited quota	Cow or calf
21		Oct. 11	Oct. 14		General youth	Antlerless elk
		Oct. 15	Oct. 24		General	Any elk
		Oct. 25	Nov. 30		General	Antlerless elk
	6	Oct. 15	Nov. 30	450	Limited quota	Cow or calf
	6	Dec. 1	Jan. 31			Unused Area 21 Type 6 licenses valid for cow or calf elk north of the Cow Creek Butte Road (Carbon County Road 608, B.L.M. Road 3305, and B.L.M. Road 3308)
	7	Sept. 1	Dec. 31	125	Limited quota	Cow or calf valid on or within one-half (½) mile of private land
108	1	Oct. 11	Oct. 31	75	Limited quota	Any elk
	4	Oct. 11	Nov. 30	100	Limited quota	Antlerless elk
	6	Oct. 11	Nov. 30	100	Limited quota	Cow or calf
	7	Dec. 1	Jan. 31	500	Limited quota	Cow or calf valid for antlerless elk in that portion of Area 108 west of the Twentymile Road (Carbon County Road 605) and north of the Continental Divide
130		Oct. 1	Oct. 23		General	Any elk
		Oct. 24	Nov. 30		General	Antlerless elk
13, 15, 21, 108, 130	Archery	Sep. 1	Sep. 30		General	General license; any elk; Limited quota license refer to Section 3

Hunt Area	*Type*	*Quota change from 2013*
13	*6*	*0*
15	*6*	*-50*
21	*6*	*0*
	7	*0*
108	*1*	*0*
	4	*0*
	6	*0*
	7	*0*
Herd Unit Total	***1***	***0***
	4	***0***
	6	***-50***
	7	***0***

Management Evaluation

Current Management Objective: 5,000 (2013)
Management Strategy: Recreational

2013 End-of-bio-year Estimate: 11,400
2014 Proposed Postseason Population Estimate: 9,600

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

Herd Unit Issues

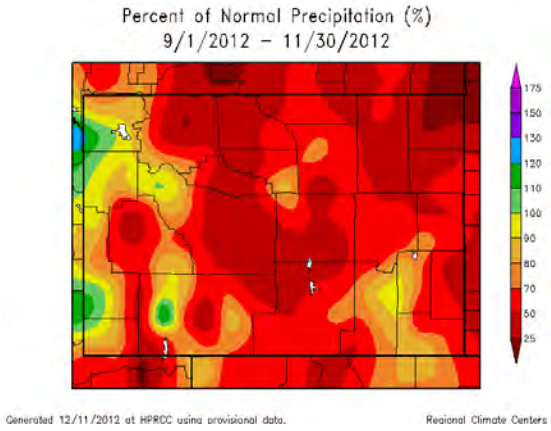
Despite increasing pressure from the Atlantic Rim gas field the SMEH continues to be productive and has not shown negative impacts from the increase in gas and oil activities in the herd unit. The large Choke Cherry-Sierra Madre wind project may impact SMEH negatively because this project could directly impact both wintering elk and migrating elk which may negatively impact the herd. Another landscape wide impact to the SMEH will be the progression of beetle kill through the Sierra Madre range. Currently trees have begun to fall at alarming rates which may lead to disruption in traditional movement patterns or the ability of hunters to access the forest.

Weather

The weather conditions have been quite variable over the last several years. In 2011-12 moisture levels were at record lows. 2012-13 brought continued drought until the fall of 2013 when high amounts of precipitation in the form of both snow and rain aided in a fall green up which allowed animals to put on weight before winter (Figure 1). Temperatures were also closer to normal in 2013 compared to 2012 (Figure 2).

Figure 1. A) Percent of normal precipitation September to November 2012, B) Percent of normal precipitation September to November 2013.

A)



B)

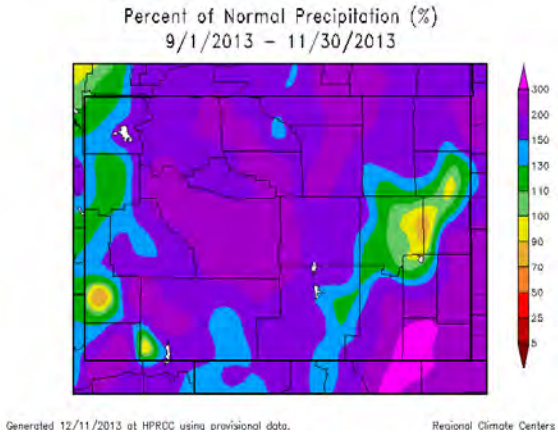
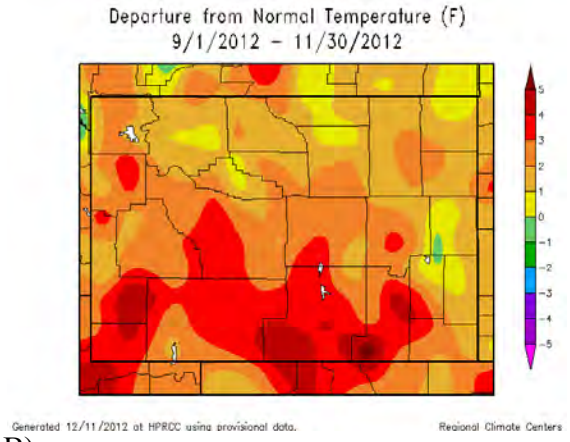
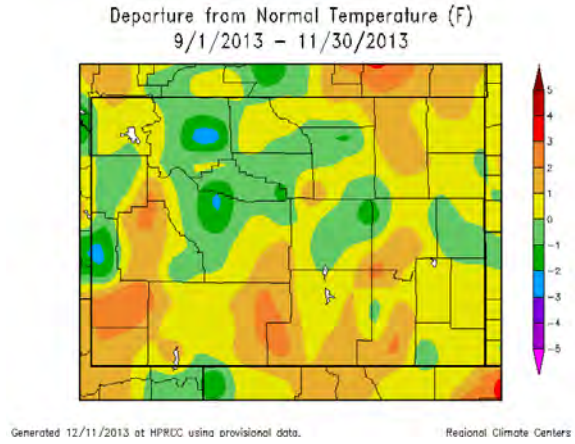


Figure 2. A) Departure from normal temperatures September to November 2012 B) Departure from normal temperatures September to November 2013.

A)



B)



Field Data

The SMEH herd has traditionally been a very productive herd and until recently has shown the steady growth. Although calf ratios have remained relatively modest over the last ten years (40) the herd is at a level that makes it difficult to decrease the population. The institution of an any elk season in 2010 clearly marks the start of decreasing overall numbers bringing this population closer to objective. Calf ratios are the highest we have seen since 2005 (44). This higher calf ratio may indicate a return to a population level that is closer to carrying capacity. Historically this herd has had low bull ratios and low bull quality due to heavy hunting pressure on bulls. However, with the recent focus on cow harvest and the any elk seasons we are seeing an increase in branch antlered bull ratios (10 year average prior to any elk seasons, 9; average after any elk seasons, 13). This is most likely a combination of artificial inflation due to higher cow harvest compared to bull harvest and actual increases in the number of bulls that live through the season because many hunters are not waiting to harvest a bull but harvesting a cow instead.

Harvest Data

The SMEH continues to be one of the most heavily hunted/highest harvested herd units in the state. Over the last 4 years hunters have harvested close to 10,000 elk out of the SMEH. The 2013 hunting season showed a decrease in hunter numbers from an all time high of 6,069 in 2012 to 5,550. This decrease is likely due to poor weather conditions during the first part of the

hunting season (5 inches of snow reported at the Battle Mountain NRCS snowtel site on October 1). Despite tough weather conditions, hunters were still successful in their hunts with a continued high success rate of 43%. Surprisingly the large number of hunters in the unit did not negatively impact their satisfaction with their hunt in the SMEH (71.4% satisfied, 1494 hunters surveyed). We can expect both harvest success and hunter satisfaction to decrease as we decrease elk numbers to reach objective.

Population

The current post-hunt population objective model estimate for the SMEH indicates that we are still above the current objective at 10,500 animals. The TSF, CA, MSC model has the lowest AICc value indicating the best fit model and tracks bull ratios better than other models therefore the TSF, CA, MSC model was chosen to represent the population. In addition to the standard parameters included in the model, an independent estimate of the population was created from a sightability flight conducted in March 2013 (WGFD JCR 2012).

Management Summary

Harvest success, hunter success, model estimates, local manager thoughts and total number of elk classified in 2012-13 all indicate the current elk population in the SMEH is over objective. However, there are some discrepancies between model estimates, total number of elk classified and local biologist and warden sense of population size. The 2012-13 sightability flight was a compromise within the region, with all available flight dollars for elk being used for this flight, in return, all dollars for 2013-14 were spent in the Green River Elk Herd. Classification counts therefore reflect that no helicopter time was designated to elk specifically and elk were only counted during mule deer flights and from the ground (limited). Despite this, the local managers believe that the current spreadsheet model estimate is tracking higher than actual population levels.

Current liberal seasons focusing on cow harvest will continue to decrease the SMEH and bring the population closer to the current objective. High cow harvest will be maintained in 2014 because of the high calf ratios seen in the 2012-13 data, therefore both the general cow season and regular type 6 seasons will stay extended to the end of November. In addition, because of the current objective of decreasing the herd numbers and the recent mild winters that did not provide additional late season opportunities in area 108, we are extending the type 6 license through the end of December in the portion of the area that is north and west of Cow Creek Butte Rd. This additional opportunity should result in higher cow harvest. Also, because of the success of our cow only youth season we are continuing this year with that same structure. Even with the high harvest in the SMEH, the overall high survival rates of both adult and juvenile elk will slow the decrease in herd size.

INPUT	
Species:	Elk
Biologist:	Tony Mong
Herd Unit & No.:	EL425 Sierra Madre
Model date:	03/03/14

☐ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CF,CA	Constant Juvenile & Adult Survival	251	260	☐ CF,CA Model	
SCF,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	196	205	☐ SCF,SCA Moc	
TSF,CA	Time-Specific Juvenile & Constant Adult Survival	1189	1272	☐ TSJ,CA Model	
TSF,CA,MSC	Time-Specific Juv, Constant Adult Survival, Male survival coefficient	44	170	☑ TSJ,CA,MSC Model	

Population Estimates from Top Model

Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population				Predicted Posthunt Population				Objective
	Field Est	Field SE		Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	
1993				2890	1977	7049	11915	2782	1110	6423	10315	4200
1994				3125	2364	7432	12920	2995	1023	6876	10894	4200
1995				3472	1859	7440	12771	3373	960	6896	11229	4200
1996				3336	1913	7572	12822	3226	1414	6911	11551	4200
1997				2984	2296	7542	12822	2877	1131	6815	10823	4200
1998				3101	2341	7763	13205	3031	1443	6984	11457	4200
1999				3218	2542	7832	13591	2984	1383	6952	11319	4200
2000				3075	2436	7750	13261	2901	1399	6721	11020	4200
2001				3070	2513	7593	13176	2896	1219	6757	10873	4200
2002				3283	2521	7804	13607	3029	1405	6758	11192	4200
2003				3282	2758	7867	13907	3132	1527	7000	11660	4200
2004				3233	2782	8007	14023	3153	1412	7402	11967	4200
2005				3730	2757	8474	14961	3579	1661	7689	12929	4200
2006				3551	2772	8528	14851	3339	1693	7775	12807	4200
2007				3346	3037	8844	15228	3214	1876	8193	13283	4200
2008				2908	2726	8758	14391	2817	1816	8207	12840	4200
2009				3316	3043	9146	15505	3205	1981	8563	13749	4200
2010				3010	3161	9447	15618	2753	2176	8057	12987	4200
2011				2731	3088	8709	14528	2521	2089	7596	12206	4200
2012	7900	1225		2971	3159	8423	14553	2647	1924	7056	11627	4200
2013				3154	3064	7970	14187	2929	1825	6709	11463	5000
2014				2386	2592	7261	12239	2124	1522	5972	9617	5000
2015				2183	2438	6689	11310	1920	1367	5400	8688	5000
2016				1956	2196	6049	10201	1693	1126	4760	7578	5000
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

Survival and Initial Population Estimates

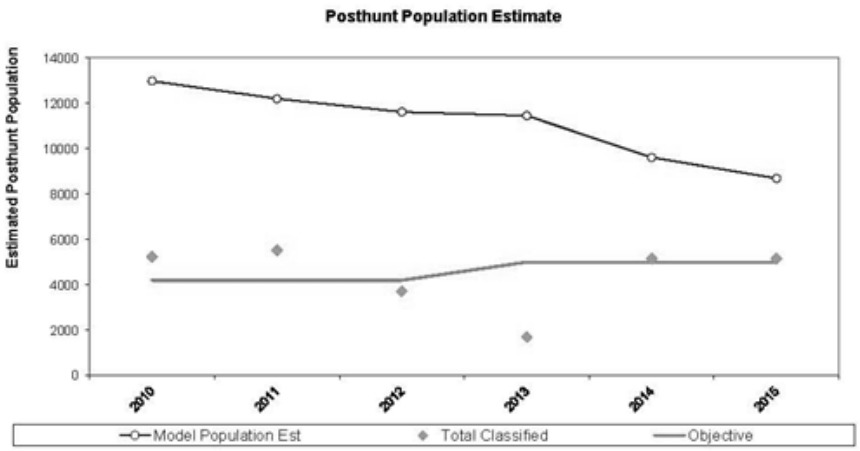
Year	Winter Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.95			0.95		
1994	0.60			0.95		
1995	0.60			0.95		
1996	0.60			0.95		
1997	0.89			0.95		
1998	0.78			0.95		
1999	0.76			0.95		
2000	0.83			0.95		
2001	0.95			0.95		
2002	0.95			0.95		
2003	0.86			0.95		
2004	0.91			0.95		
2005	0.68			0.95		
2006	0.87			0.95		
2007	0.60			0.95		
2008	0.95			0.95		
2009	0.81			0.95		
2010	0.76			0.95		
2011	0.95			0.95		
2012	0.95			0.95		
2013	0.60			0.95		
2014	0.95			0.95		
2015	0.95			0.95		
2016				0.95		
2017						

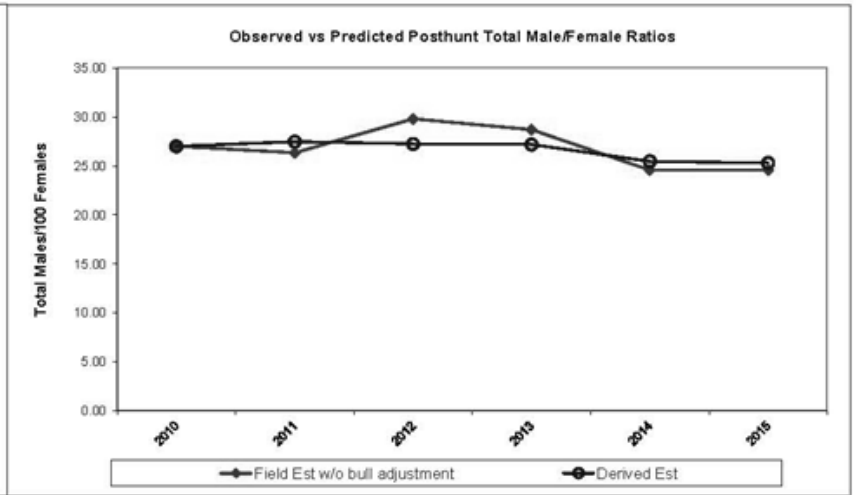
Parameters:	Optim cells
Male Survival Coefficient	0.987
Adult Survival =	0.951
Initial Total Male Pop/10,000 =	0.111
Initial Female Pop/10,000 =	0.642

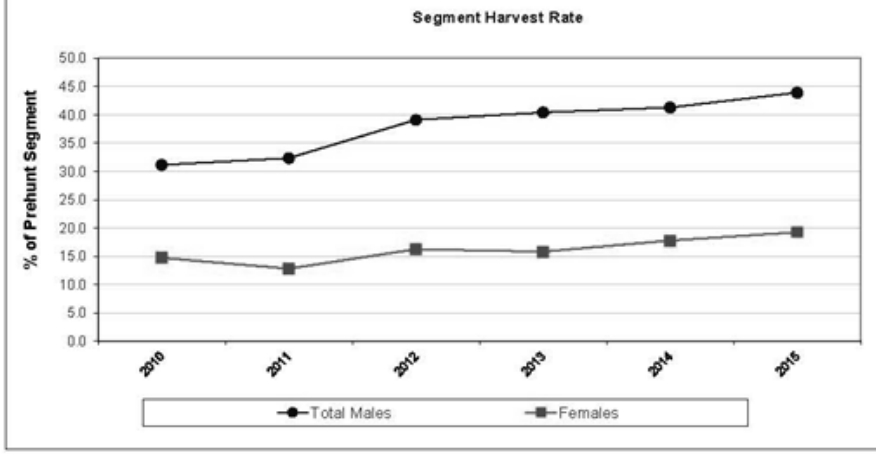
MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Total Bulls Adjustment Factor	100%

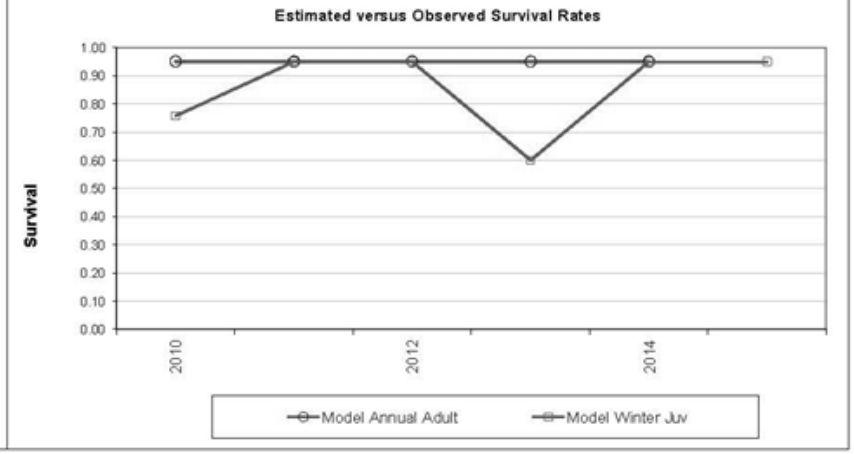
Classification Counts								Harvest						
Year	Juvenile/Female Ratio			Total Male/Female Ratio									Segment Harvest Rate (% of Prehunt Segment)	
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/ bull adj	Field Est w/o bull adj	Field SE	Juv	Yrl males	2+ Males	Females	Total Harvest	Total Males	Females
1993		43.31	1.58	17.28	16.93	16.93	0.89	98	254	534	569	1455	43.9	8.9
1994		43.56	2.06	14.87	15.58	15.58	1.10	118	462	757	505	1842	56.7	7.5
1995		48.91	1.90	13.92	13.89	13.89	0.89	90	335	482	494	1401	48.3	7.3
1996		46.68	1.87	20.46	22.27	22.27	1.18	100	7	447	601	1155	26.1	8.7
1997		42.22	1.54	16.59	15.65	15.65	0.84	97	405	654	661	1817	50.7	9.6
1998		43.39	1.53	20.66	20.63	20.63	0.97	64	271	546	708	1589	38.4	10.0
1999		42.93	1.64	19.89	19.89	19.89	1.02	212	392	662	800	2066	45.6	11.2
2000		43.17	1.98	20.81	20.79	20.79	1.26	158	313	630	936	2037	42.6	13.3
2001		42.86	1.92	18.05	17.00	17.00	1.09	103	401	775	760	2039	51.5	11.0
2002		44.82	1.81	20.79	20.20	20.20	1.10	231	301	713	951	2196	44.3	13.4
2003		44.74	2.14	21.82	24.43	24.43	1.47	136	452	667	788	2043	44.6	11.0
2004		42.59	1.67	19.07	19.14	19.14	1.02	73	357	889	550	1869	49.3	7.6
2005		46.55	1.47	21.60	21.62	21.62	0.91	137	330	667	713	1847	39.8	9.3
2006		42.94	1.38	21.77	21.83	21.83	0.91	193	272	709	684	1858	38.9	8.8
2007		39.23	1.34	22.90	26.14	26.14	1.04	120	392	664	592	1768	38.2	7.4
2008		34.33	1.19	22.12	19.72	19.72	0.85	82	296	531	501	1410	33.4	6.3
2009		37.44	1.29	23.13	23.60	23.60	0.97	101	361	605	530	1597	34.9	6.4
2010		34.17	1.19	27.01	27.02	27.02	1.03	234	347	548	1263	2392	31.1	14.7
2011		33.19	1.13	27.50	26.37	26.37	0.98	191	263	645	1012	2111	32.3	12.8
2012		37.52	1.52	27.26	29.82	29.82	1.32	294	276	847	1243	2660	39.1	16.2
2013		43.65	2.52	27.20	28.73	28.73	1.94	205	230	896	1146	2477	40.4	15.8
2014		35.56	1.22	25.48	24.59	24.59	0.98	239	312	661	1172	2384	41.3	17.8
2015		35.56	1.22	25.32	24.59	24.59	0.98	239	312	661	1172	2384	43.9	19.3
2016		35.56	1.22	23.65	24.59	24.59	0.98	239	312	661	1172	2384	48.7	21.3
2017														

FIGURES

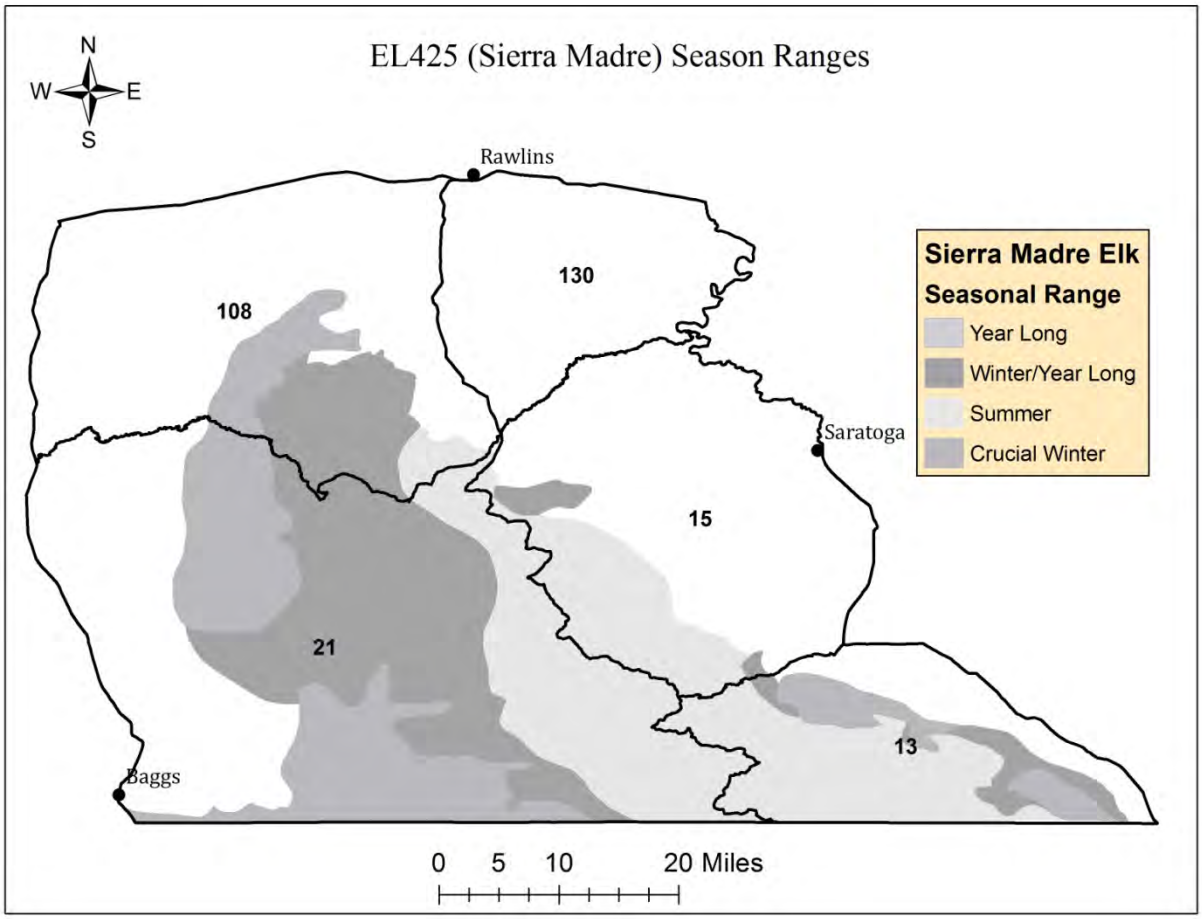








Comments:


EL425 (Sierra Madre) Season Ranges
N
W
E
S
Rawlins
130
108
Saratoga
15
21
13
Baggs
Sierra Madre Elk
Seasonal Range
Year Long
Winter/Year Long
Summer
Crucial Winter
0 5 10 20 Miles

2013 - JCR Evaluation Form

SPECIES: Elk | PERIOD: 6/1/2013 - 5/31/2014

HERD: EL426 - STEAMBOAT

HUNT AREAS: 100 | PREPARED BY: PATRICK BURKE

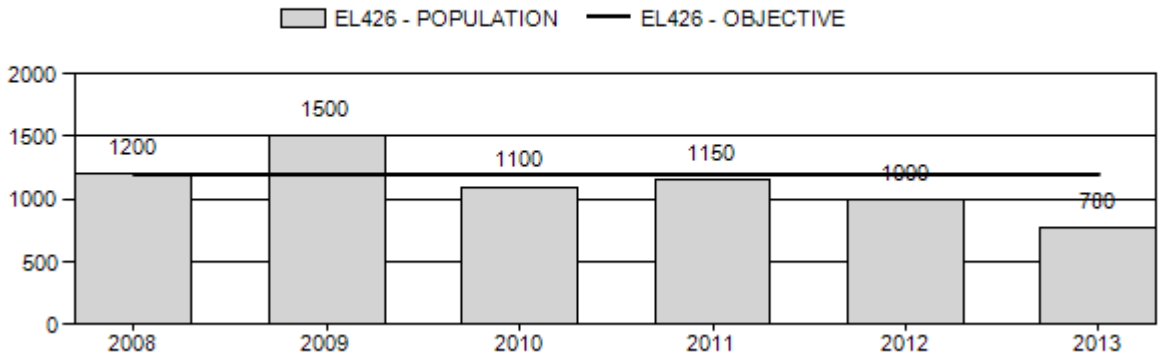
	2008 - 2012 Average	2013	2014 Proposed
Population:	1,186	780	780
Harvest:	333	231	130
Hunters:	402	291	150
Hunter Success:	83%	79%	87%
Active Licenses:	408	294	150
Active License Percent:	82%	79%	87%
Recreation Days:	1,717	1,239	700
Days Per Animal:	5.2	5.4	5.4
Males per 100 Females	57	39	
Juveniles per 100 Females	41	32	

Population Objective:	1,200
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-35%
Number of years population has been + or - objective in recent trend:	3
Model Date:	02/13/2014

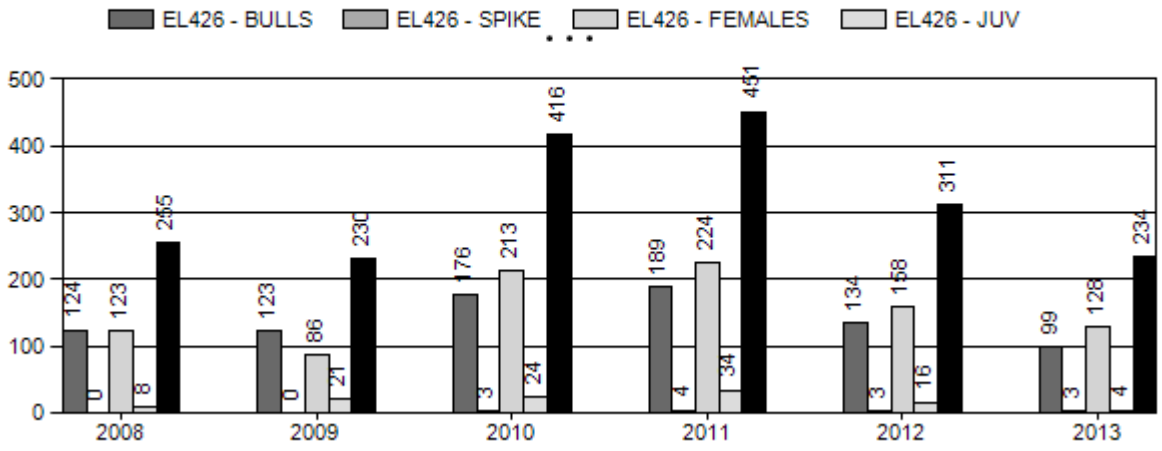
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	JCR Year	Proposed
Females ≥ 1 year old:	21.9%	11%
Males ≥ 1 year old:	40.1%	41%
Juveniles (< 1 year old):	4.9%	0%
Total:	20.5%	17%
Proposed change in post-season population:	-12.8%	0%

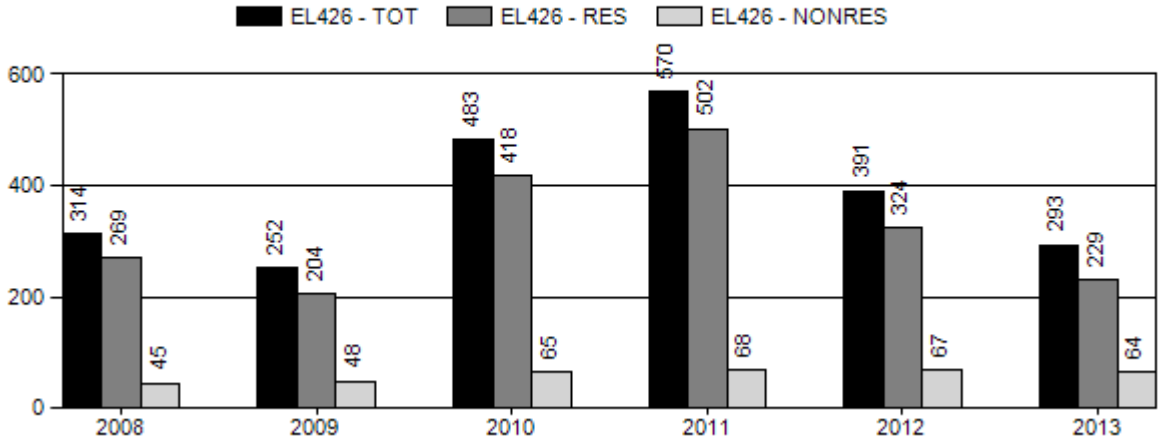
Population Size - Postseason



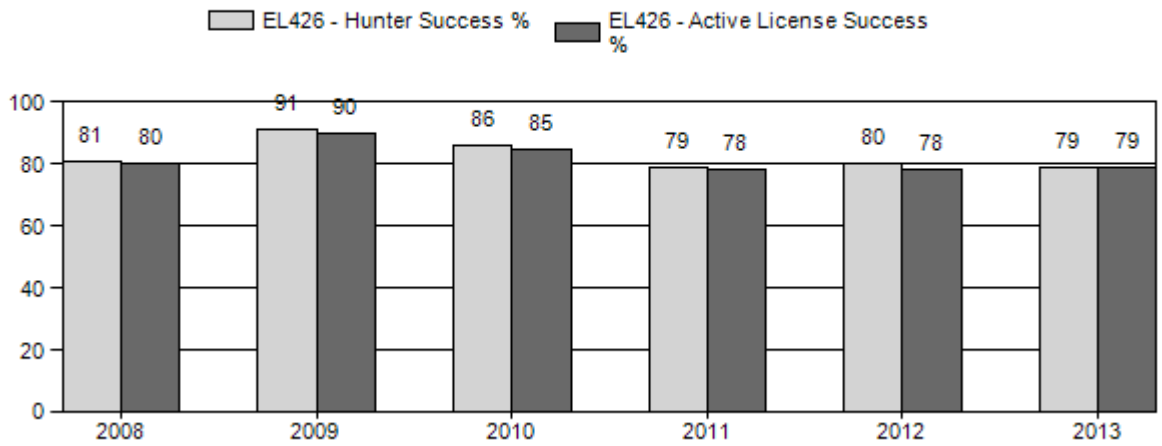
Harvest



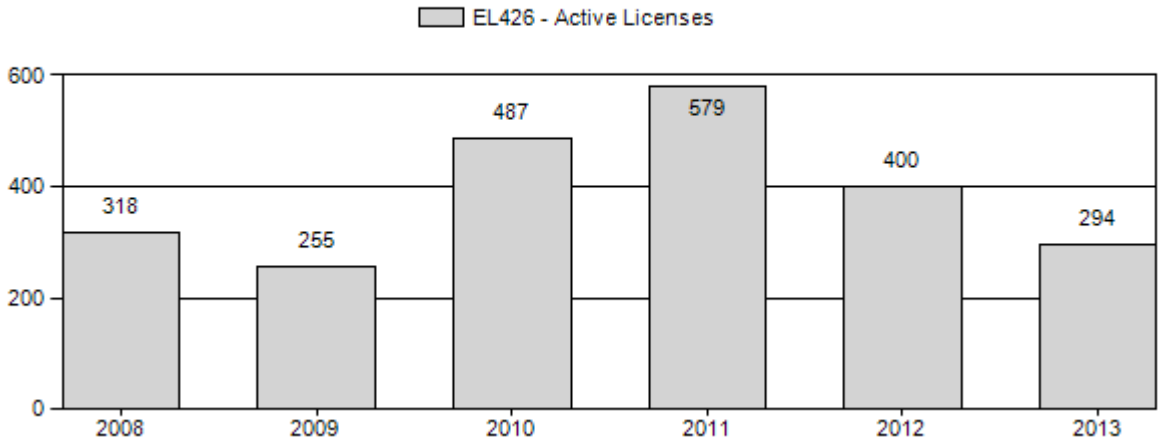
Number of Hunters



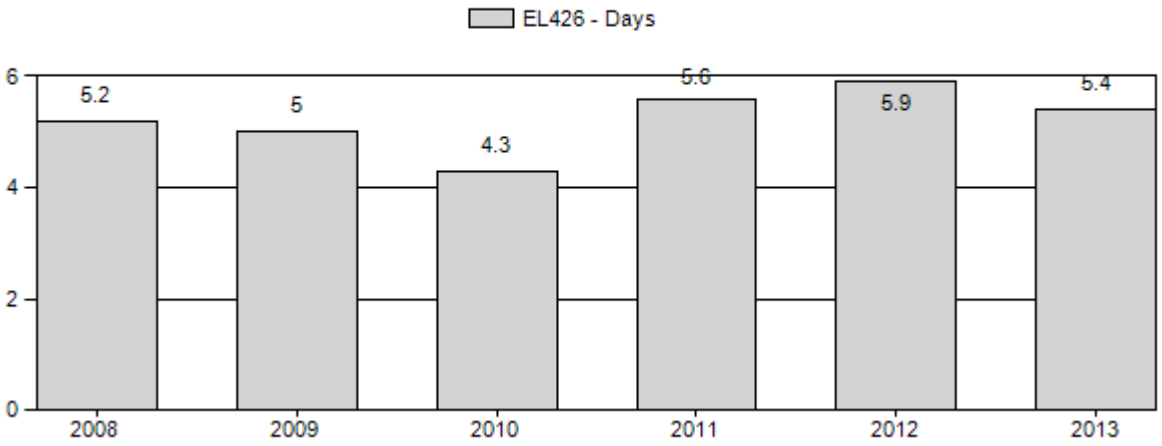
Harvest Success



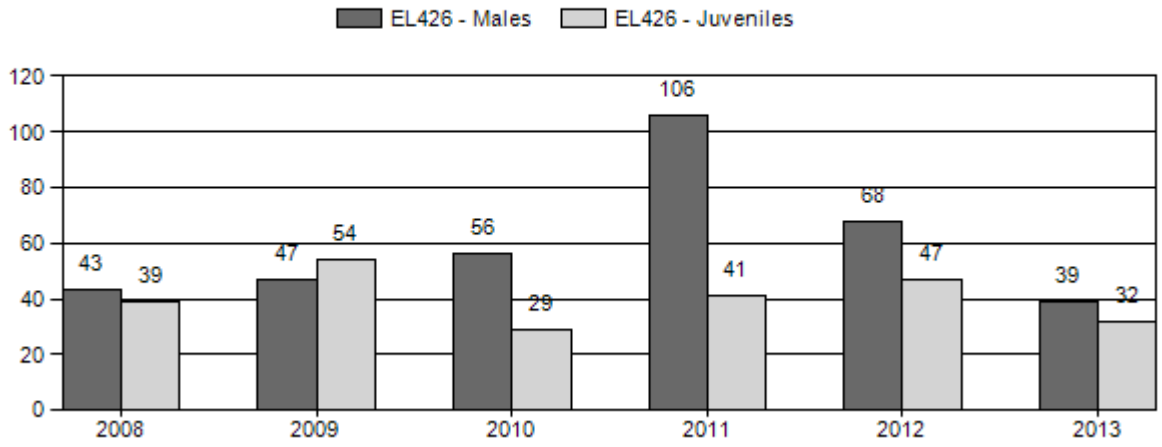
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2008 - 2013 Postseason Classification Summary

for Elk Herd EL426 - STEAMBOAT

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	1,200	72	126	198	24%	460	55%	180	21%	838	427	16	27	43	± 3	39	± 3	27
2009	1,500	78	158	236	23%	504	50%	274	27%	1,014	519	15	31	47	± 0	54	± 0	37
2010	1,100	168	243	411	30%	739	54%	217	16%	1,367	657	23	33	56	± 0	29	± 0	19
2011	1,150	45	131	176	43%	166	40%	68	17%	410	505	27	79	106	± 12	41	± 6	20
2012	982	102	171	273	32%	403	47%	189	22%	865	485	25	42	68	± 2	47	± 2	28
2013	780	34	76	110	23%	280	58%	90	19%	480	432	12	27	39	± 4	32	± 3	23

2014 HUNTING SEASONS
STEAMBOAT ELK HERD (EL426)

Hunt Area	Type	SEASON DATES Opens	Closes	Quota	Limitations
100	1	Oct. 15	Oct. 31	100	Limited quota; antlered elk
	4	Oct. 15	Oct. 31	50	Limited quota; antlerless elk
	6	Oct. 1	Nov. 20	50	Limited quota; cow or calf elk valid in that portion of Area 100 east of the Red Creek Road (BLM Road 3219) and north of the Rocky Crossing Road (BLM Road 3214) and the Osborne Road (BLM Road 3212)
	7	Oct. 1	Oct. 31	50	Limited quota; cow or calf elk valid in that portion of Area 100 east of U.S. Highway 191, south of Sweetwater County Road 17 and Sweetwater County Road 15 and west of Sweetwater County Road 19
Archery		Sept. 1	Sept. 30		Refer to license type and limitations in Section 3.

Hunt Area	Type	Quota change from 2013
100	1	-25
	4	-50
	7	+25
Herd Unit Total	**1**	**-25**
	4	**-50**
	7	**+25**

Management Evaluation

Current Management Objective: 1,200
Management Strategy: Special
2013 Postseason Population Estimate: ~800
2014 Proposed Postseason Population Estimate: ~750

The population objective for the Steamboat elk herd of 1,200 elk post-season was set in 2002. This special management herd has been above objective for much of its history with the population peaking around the year 2000. Since then increased harvest levels and decreased calf ratios have caused the population to decline to the point that current estimates place this herd below its population objective.

Herd Unit Issues

The 2013 post-season modeled population estimate for the Steamboat herd is approximately 800 elk with a declining trend. During the past several years, post-season classifications have indicated that a large proportion of the post-season bull population is made up of yearling bulls. Some years, the yearling bull segment of the population makes up as much as 40% of the total bull population. This has caused some concern about how much harvest pressure is being applied to the older age-class bulls of this herd in an attempt to bring down total bull to cow ratios. This continued high proportion of yearlings in the post-hunt population can probably explained by the open nature of the area this herd occupies and a preference for harvesting larger branch antlered bulls by the hunting public. However, if this trend continues, the age of harvested bulls will be significantly reduced to a level that the hunting public will find unacceptable.

Weather

The summers of 2012 and 2013 were extremely dry with little summer precipitation, especially the summer of 2012. This lack of moisture was especially evident in areas of Southwest Wyoming below 8,000 ft. which represents the entire Steamboat elk herd unit. Due to the hardy nature of elk and the relatively low densities of elk in the herd unit, the drought conditions will probably not have any population level impacts on this herd, although below average calf ratios were observed in the 2013 post-season classifications. Significant rain/snowfall events did occur during September and October of 2013, while this precipitation did come after the growing season, hopefully it will increase soil moisture and allow for better plant growth in 2014. The wet conditions in the fall of 2013 did inhibit hunters' ability to access some parts of the hunt area, but did not seem to negatively impact overall harvest success rates for the herd.

Habitat

No habitat transects targeting elk habitat were conducted within the Steamboat herd unit. However, the summers of 2012 and 2013 were both extremely dry which probably resulted in limited plant growth. The drought conditions during the last two summers, while not likely to have any population level impacts on the Steamboat elk herd will certainly have negative consequences for habitat conditions since little plant growth has occurred during the last two growing seasons.

Field Data

Post-season classifications on the Steamboat herd were conducted from the ground during January 2014. The resulting observed ratios from the ground classification efforts were 32 calves per 100 cows and 39 total bulls per 100 cows with just under 31% of all bulls classified being yearlings. While the proportion of yearling bulls observed in the post-season bull population is not as high as it has been in past years, it still causes some concern about the long term implications of continued over selection of older age class bulls in this herd.

Harvest Data

Harvest statistics for the Steamboat herd from the 2013 hunting season are generally in line with normal values for this herd. The overall harvest success rate for the herd was 79% and the days per animal harvested was 5.4 days per harvest. Both statistics are in the normal range for this herd. Due to the open nature of the country that this herd inhabits, harvest success rates and days per harvest will probably always remain fairly constant. Since this herd lives only in open sagebrush habitat, this herd exhibits harvest statistics more similar to a pronghorn population than a typical elk herd.

Because of the special management status of this herd, hunters who draw a Type 1 license are asked to voluntarily submit tooth samples from harvested bulls for cementum annuli analysis. Based on the 47 tooth samples submitted from the 2013 hunting season, the average age of harvested bulls was 5.6 years old. This compares to 4.9 years old in 2012, 5.4 years old in 2011, and 5.5 years old in 2010. The number of teeth submitted in 2013 was quite a bit lower than has been seen in past years. Based on the teeth that were submitted for ageing, the oldest bull harvested in 2013 was one 10.5 year old bull harvested along the Green River on the western edge of the hunt area. This compares with 7.5 in 2012, 9.5 in 2011, 10.5 in 2010, 12.5 in 2009, and 13.5 in 2008. This general decline in the oldest age class harvested can probably be attributed to an overall smaller population and to the increased bull harvest rates of the last several years. The model for this herd is estimating that over 40% of the male segment of the

population is being harvested annually, with most of that harvest being directed towards the older aged males.

Population

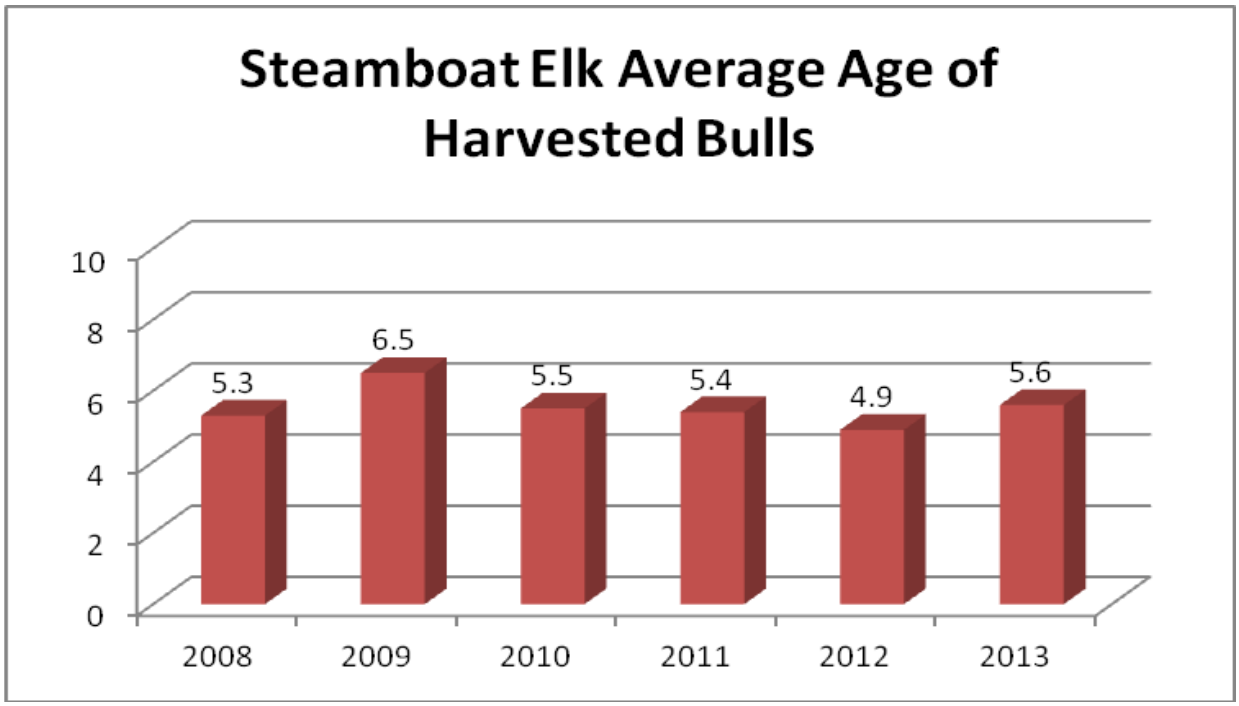
The post-season population estimate for this herd is a little under 800 elk with a slightly declining trend. Based on projected harvest rates for the 2014 season, this slowly declining trend will continue into 2014.

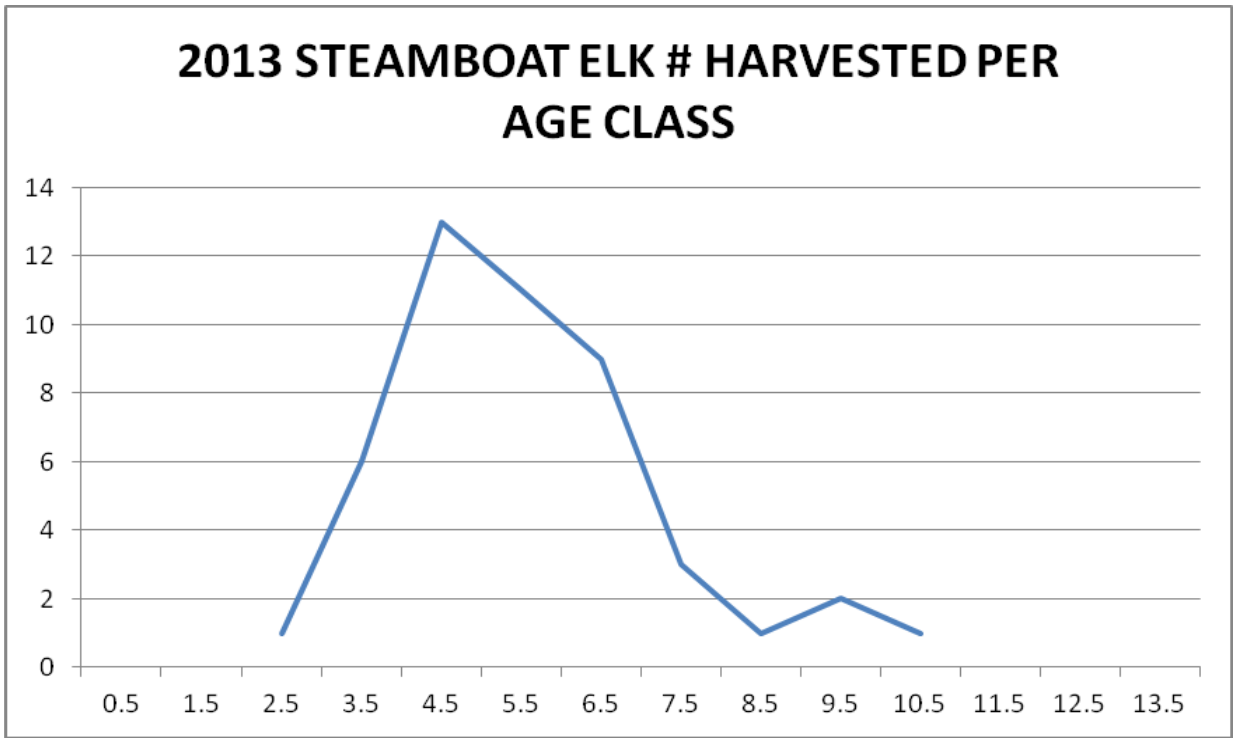
The population model for this herd tracks moderately well with observed data. The general post-season population estimate trend however does tracks reasonably well with trend count numbers with the exception of the outlier post-hunt population size point observed during a trend count flown in the severe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

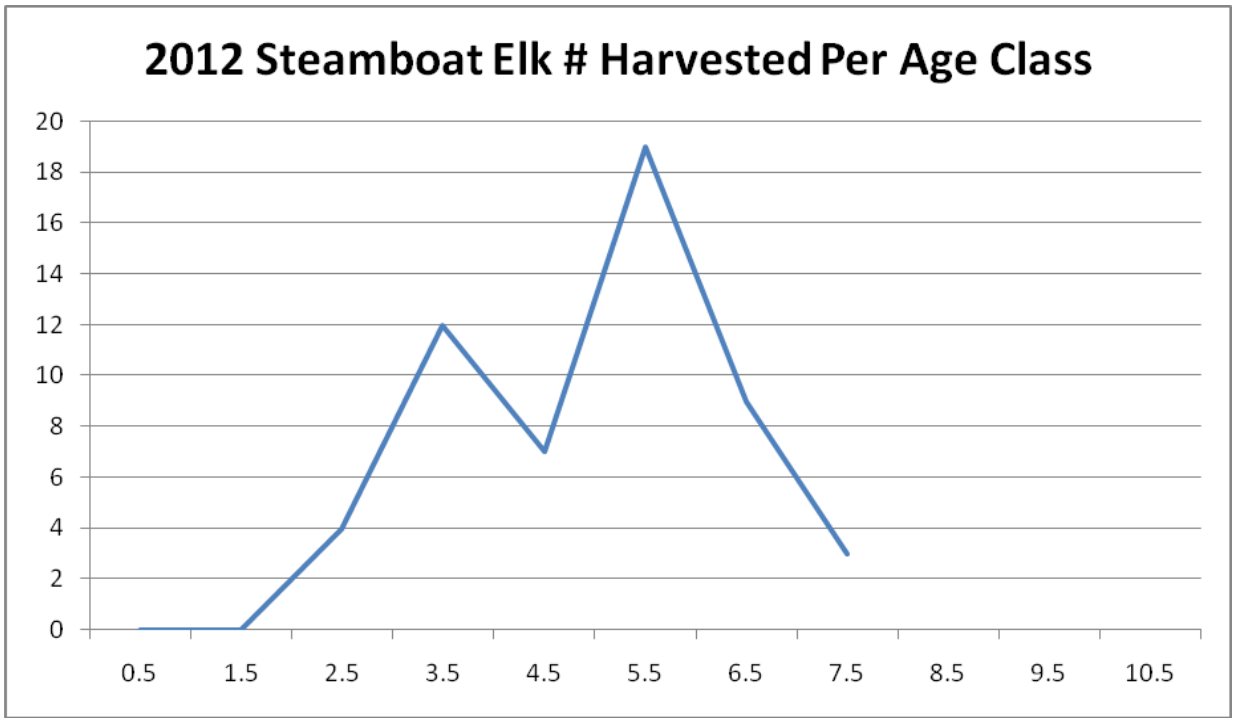
Management Summary

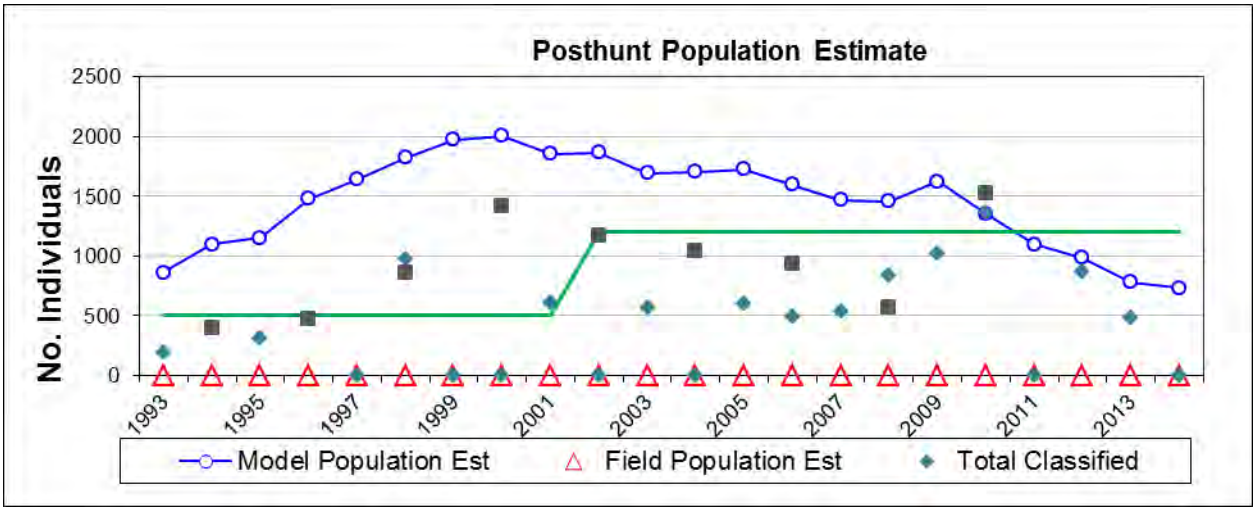
The 2014 season structure includes decreases in the Type 1, and Type 4 licenses and an increase in the Type 7 licenses. The decrease in the Type 1 and Type 4 licenses was proposed because the current population model is estimating this herd as being under its population objective. The increase in the number of Type 7 licenses was proposed to direct female harvest to areas when a reduced elk presence is desired. The Type 7 license type was originally created to reduce elk densities in the area near the Bridger coal mine to aid in their reclamation efforts. The area that the Type 7 licenses are valid also overlaps important mule deer winter ranges, so reducing elk densities in this area will hopefully benefit both mine reclamation efforts and wintering mule deer.

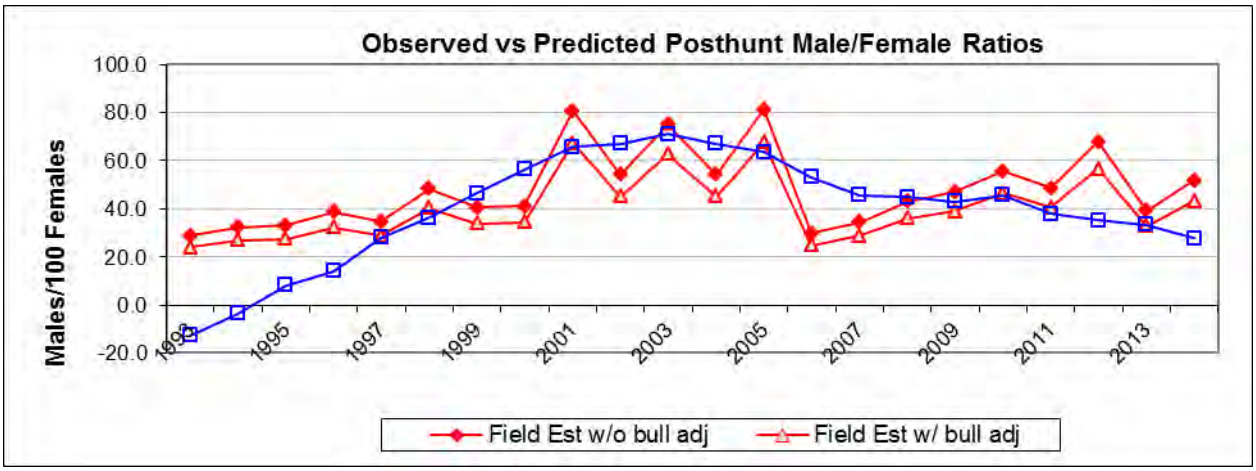
It is anticipated that the season for 2014 will result in the harvest of approximately 80 bulls, 75 cows and 5 sub-adult elk. The seasons will also result in a projected 2014 post-hunt population of roughly 750 elk, which is below its population objective of 1,200 elk post-season.

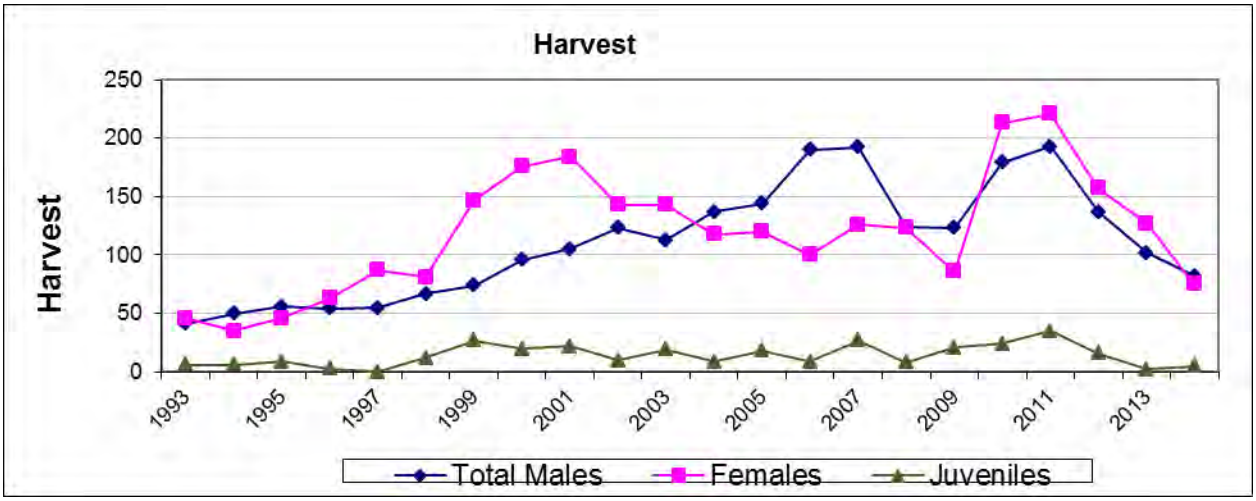

Steamboat Elk Average Age of Harvested Bulls
10
8
6
4
2
0
5.3
6.5
5.5
5.4
4.9
5.6
2008
2009
2010
2011
2012
2013

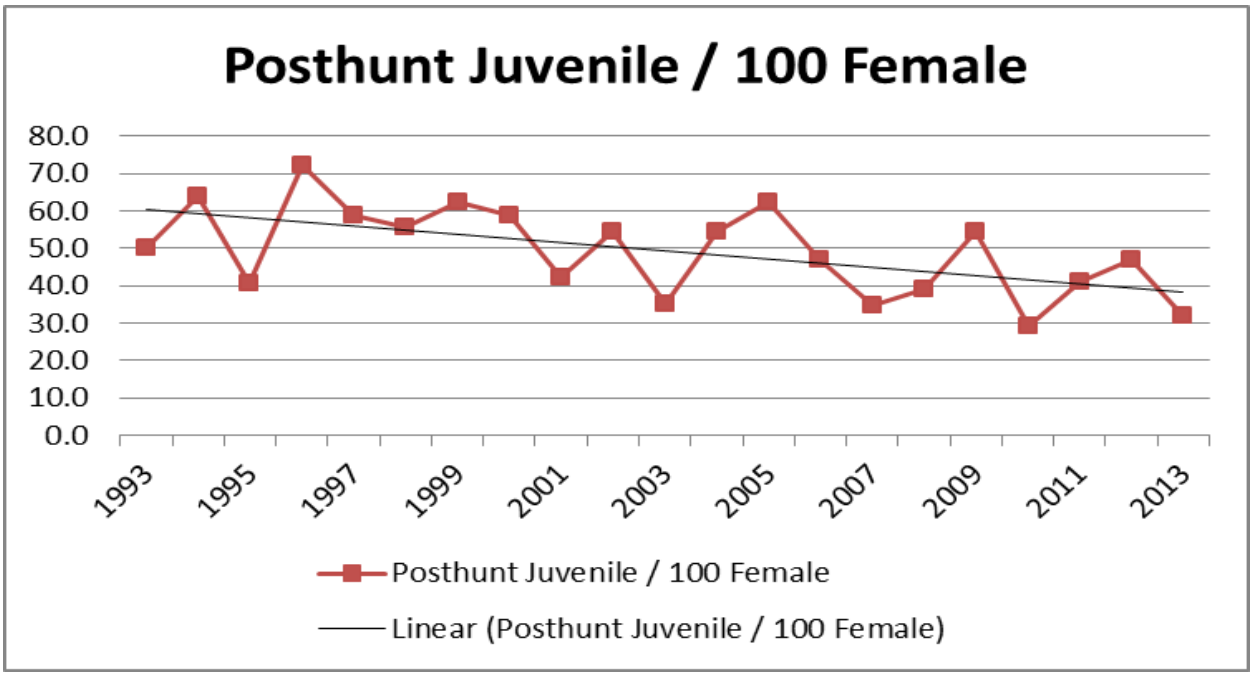

2013 STEAMBOAT ELK # HARVESTED PER AGE CLASS
14
12
10
8
6
4
2
0
0.5
1.5
2.5
3.5
4.5
5.5
6.5
7.5
8.5
9.5
10.5
11.5
12.5
13.5

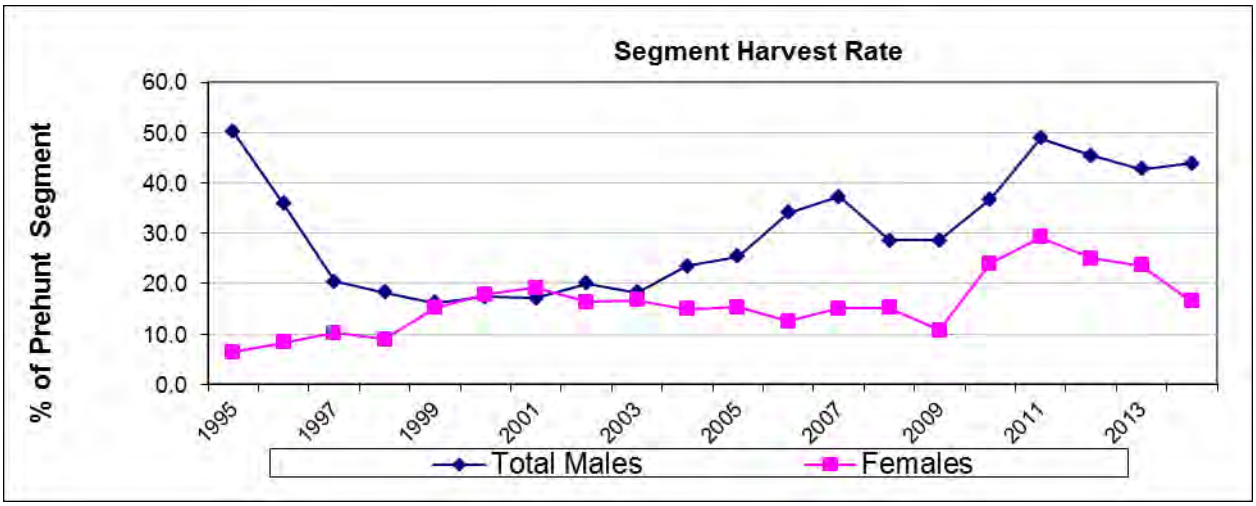

2012 Steamboat Elk # Harvested Per Age Class
20
18
16
14
12
10
8
6
4
2
0
0.5
1.5
2.5
3.5
4.5
5.5
6.5
7.5
8.5
9.5
10.5

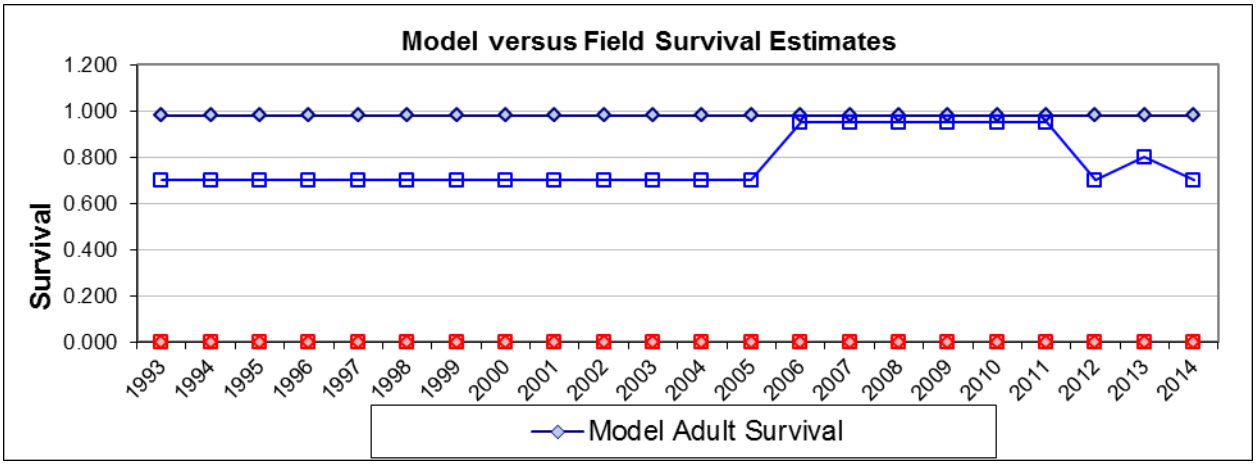

Posthunt Population Estimate
No. Individuals
2500
2000
1500
1000
500
0
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
Model Population Est
Field Population Est
Total Classified


Observed vs Predicted Posthunt Male/Female Ratios
Males/100 Females
100.0
80.0
60.0
40.0
20.0
0.0
-20.0
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
Field Est w/o bull adj
Field Est w/ bull adj


Harvest
Harvest
250
200
150
100
50
0
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
Total Males
Females
Juveniles


Posthunt Juvenile / 100 Female
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
Posthunt Juvenile / 100 Female
Linear (Posthunt Juvenile / 100 Female)


Segment Harvest Rate
% of Prehunt Segment
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
Total Males
Females


Model versus Field Survival Estimates
Survival
1.200
1.000
0.800
0.600
0.400
0.200
0.000
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Model Adult Survival

INPUT	
Species:	Elk
Biologist:	Patrick Burke
Herd Unit & No.:	Steamboat EL426
Model date:	02/13/14

Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	348	357	CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	202	211	SCJ,SCA Model	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	282	375	TSJ,CA Model	
TSJ,CA,MSC	Time-Specific Juv, Constant Adult Survival, Male survival coefficien	363	464	TSJ,CA,MSC Model	

Population Estimates from Top Model

Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population			Total	Predicted Posthunt Population			Total	Objective
	Field Est	Field SE		Juveniles	Total Males	Females		Juveniles	Total Males	Females		
1993				321	-32	681	970	314	-79	628	864	500
1994			400	444	33	726	1202	437	-25	685	1097	500
1995				325	128	825	1278	315	64	772	1151	500
1996			474	575	173	866	1615	572	111	794	1477	500
1997				517	309	978	1804	517	245	878	1640	500
1998			859	543	421	1041	2005	529	344	948	1821	500
1999				619	523	1114	2256	588	437	945	1971	500
2000			1415	571	635	1132	2338	548	524	930	2002	500
2001				401	705	1103	2210	376	585	892	1852	500
2002			1172	469	705	1005	2179	458	563	841	1862	1200
2003				310	712	984	2007	288	582	820	1690	1200
2004			1038	429	671	904	2005	418	514	769	1701	1200
2005				497	650	900	2046	476	484	762	1722	1200
2006			929	384	641	913	1938	374	423	798	1595	1200
2007				314	592	960	1865	283	371	815	1468	1200
2008			568	319	498	933	1749	310	355	791	1456	1200
2009				472	495	922	1889	448	354	823	1625	1200
2010			1524	255	559	1020	1834	227	353	775	1356	1200
2011				291	454	867	1613	251	233	613	1097	1200
2012				271	347	720	1339	253	190	540	982	1200
2013				154	274	617	1045	151	157	471	780	1200
2014				169	215	522	906	163	97	407	668	1200
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

Survival and Initial Population Estimates

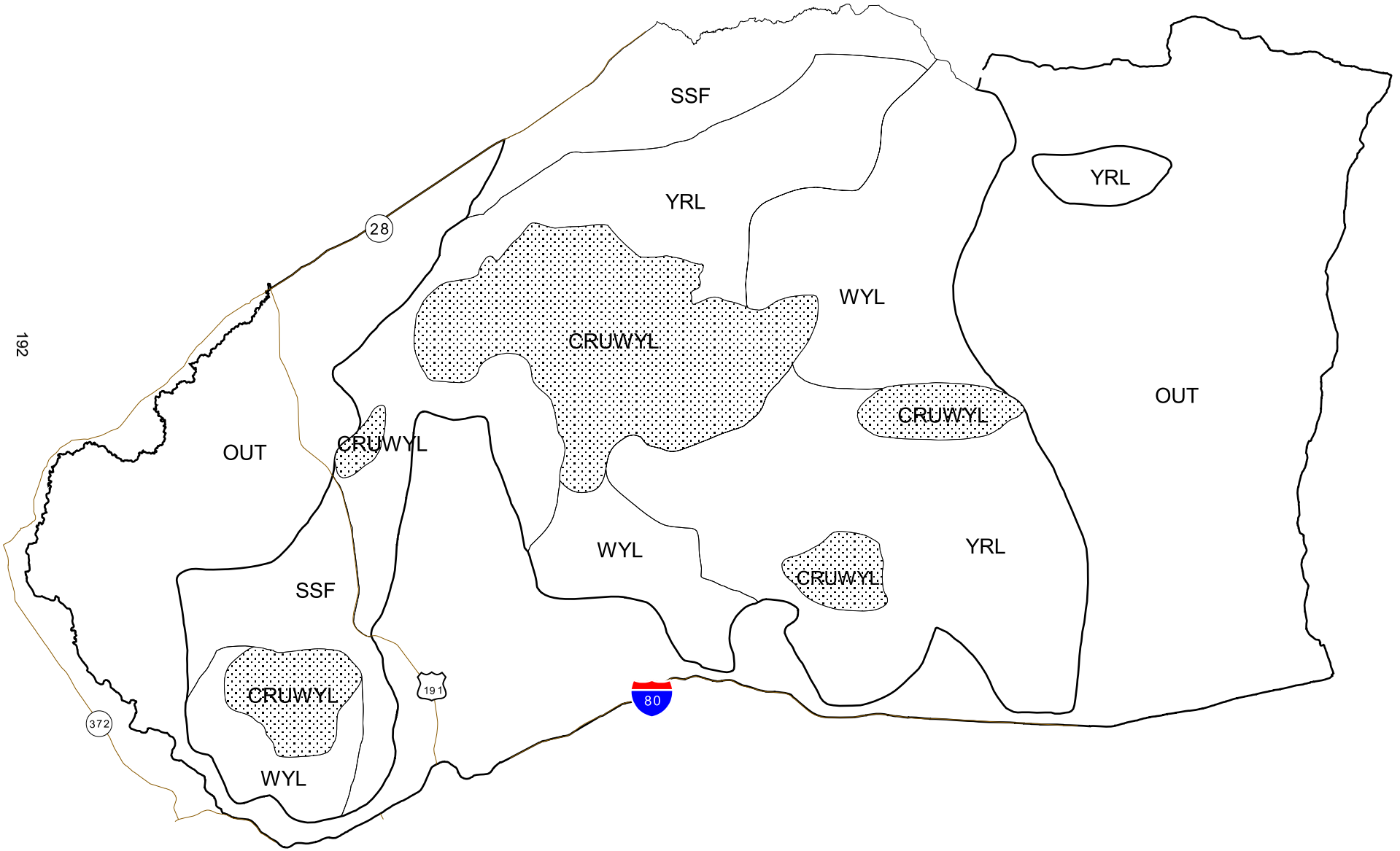
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.70			0.98		
1994	0.70			0.98		
1995	0.70			0.98		
1996	0.70			0.98		
1997	0.70			0.98		
1998	0.70			0.98		
1999	0.70			0.98		
2000	0.70			0.98		
2001	0.70			0.98		
2002	0.70			0.98		
2003	0.70			0.98		
2004	0.70			0.98		
2005	0.70			0.98		
2006	0.95			0.98		
2007	0.95			0.98		
2008	0.95			0.98		
2009	0.95			0.98		
2010	0.95			0.98		
2011	0.95			0.98		
2012	0.70			0.98		
2013	0.80			0.98		
2014	0.70			0.98		
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

Parameters:	Optim cells
Adult Survival =	0.980
Initial Total Male Pop/10,000 =	-0.008
Initial Female Pop/10,000 =	0.063

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	15%
Wounding Loss (females) =	15%
Wounding Loss (juveniles) =	15%
Total Bulls Adjustment Factor	120%

Year	Classification Counts							Harvest					Segment Harvest Rate (% of Prehunt Segment)	
	Juvenile/Female Ratio			Total Male/Female Ratio										
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/ bull adj	Field Est w/o bull adj	Field SE	Juv	Yrl males	2+ Males	Females	Total Harvest	Total Males	Females
1993		50.00	8.33	-12.57	23.92	28.70	5.85	6	7	34	46	93	-148.1	7.8
1994		63.73	7.15	-3.64	26.96	32.35	4.58	6	13	37	35	91	176.6	5.5
1995		40.78	5.66	8.30	27.47	32.96	4.95	9	12	44	46	111	50.1	6.4
1996		72.00	7.42	13.96	32.22	38.67	4.88	3	2	52	63	120	35.9	8.4
1997		58.84	6.74	27.95	28.88	34.66	4.80	0	0	55	87	142	20.5	10.2
1998		55.77	4.27	36.31	40.18	48.22	3.87	12	1	66	81	160	18.3	8.9
1999		62.20	6.14	46.27	33.76	40.51	4.52	27	2	72	147	248	16.3	15.2
2000		58.93	5.72	56.36	34.28	41.13	4.40	20	5	91	176	292	17.4	17.9
2001		42.18	4.67	65.58	67.27	80.73	7.28	22	2	103	184	311	17.1	19.2
2002		54.44	5.51	66.97	45.10	54.12	5.40	10	2	121	143	276	20.1	16.4
2003		35.16	4.17	71.01	62.58	75.09	6.94	19	2	111	143	275	18.2	16.7
2004		54.44	5.51	66.86	45.10	54.12	5.40	9	8	129	118	264	23.5	15.0
2005		62.50	6.40	63.60	67.54	81.05	7.69	18	2	142	120	282	25.5	15.3
2006		46.81	4.94	52.99	24.82	29.79	3.70	9	10	180	100	299	34.1	12.6
2007		34.69	3.82	45.55	28.65	34.38	3.80	27	0	192	126	345	37.3	15.1
2008		39.13	3.44	44.91	35.87	43.04	3.66	8	0	124	123	255	28.6	15.2
2009		54.37	4.08	42.96	39.02	46.83	3.69	21	0	123	86	230	28.6	10.7
2010		29.36	2.27	45.63	46.35	55.62	3.42	24	3	176	213	416	36.8	24.0
2011		40.95	3.26	37.92	40.41	48.49	3.59	35	4	189	221	449	48.8	29.3
2012		46.90	4.13	35.14	56.45	67.74	5.31	16	3	134	157	310	45.4	25.1
2013		32.14	3.89	33.33	32.74	39.29	4.42	2	3	99	127	231	42.8	23.7
2014		40.00	3.76	23.86	43.20	51.84	4.44	5	2	80	75	162	54.7	22.0
2015														
2016														
2017														
2018														
2019														
2020														
2021														
2022														
2023														
2024														
2025														

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



2013 - JCR Evaluation Form

Species: Elk | Period: 6/1/2013 - 5/31/2014

Herd: EL428 - WEST GREEN RIVER

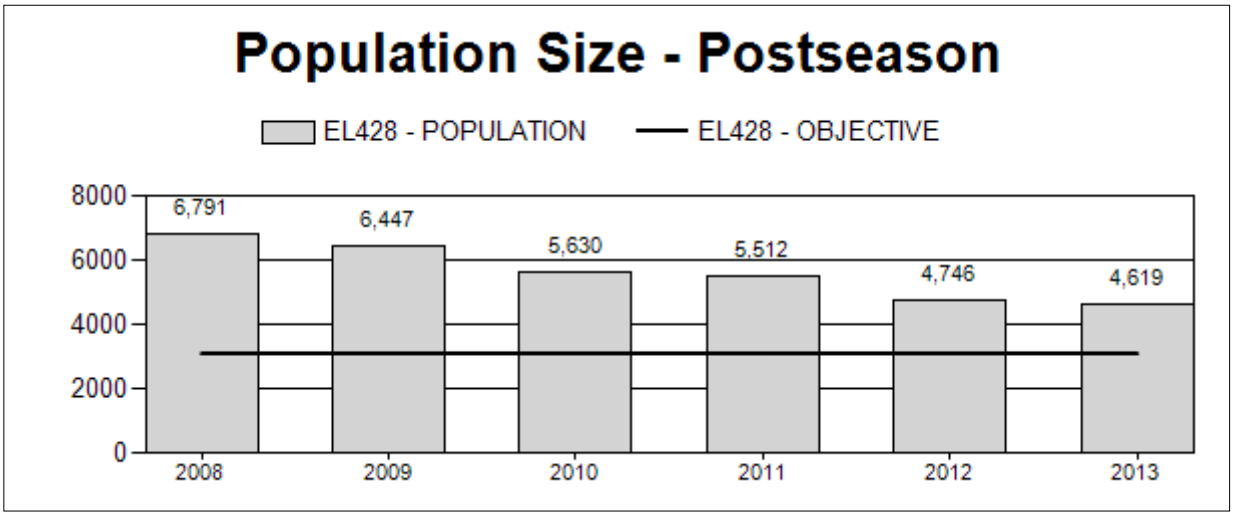
Hunt Areas: 102-105 | Prepared By: JEFF SHORT

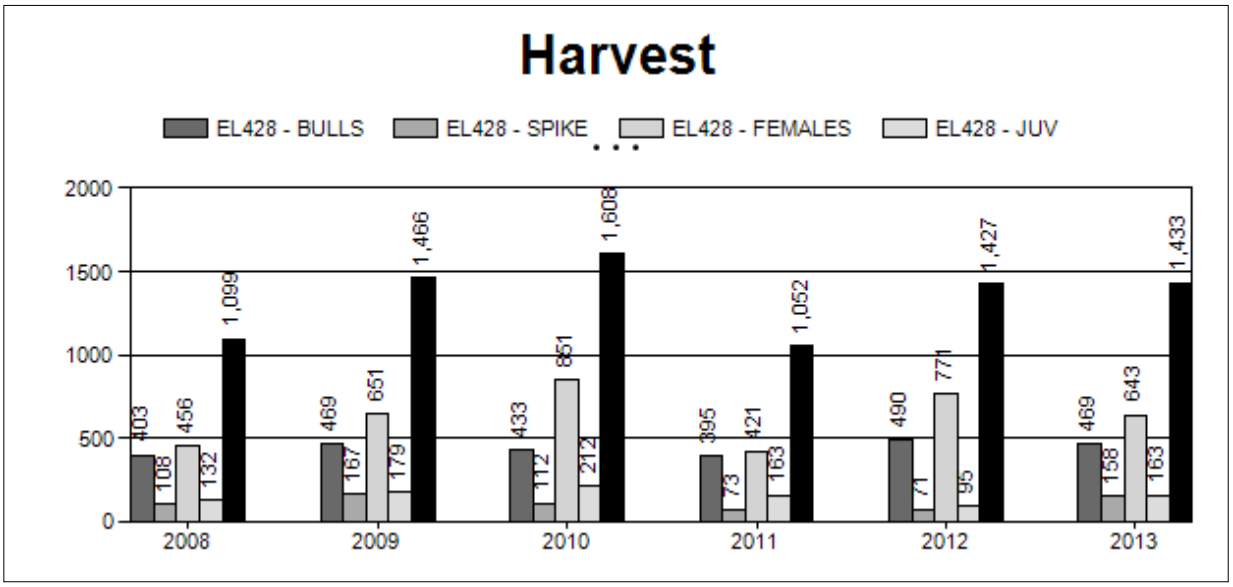
	2008 - 2012 Average	2013	2014 Proposed
Population:	5,825	4,619	3,635
Harvest:	1,330	1,433	1,500
Hunters:	4,126	4,216	4,200
Hunter Success:	32%	34%	36%
Active Licenses:	4,301	4,365	4,400
Active License Percent:	31%	33%	34 %
Recreation Days:	29,488	28,893	29,000
Days Per Animal:	22.2	20.2	19.3
Males per 100 Females	28	0	
Juveniles per 100 Females	34	0	

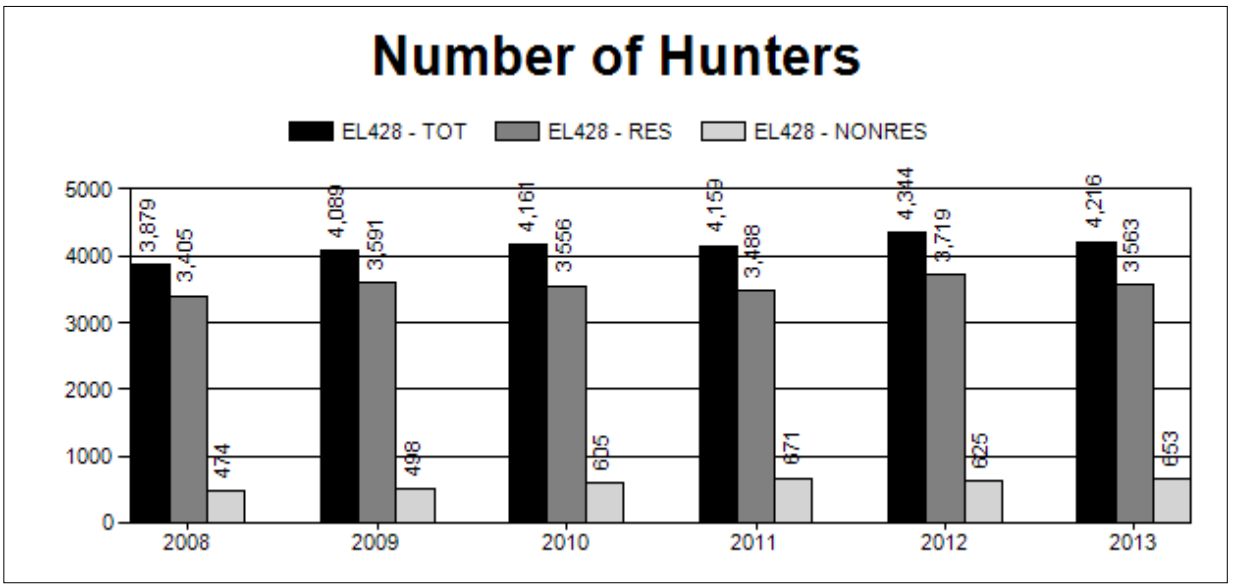
Population Objective:	3,100
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	49%
Number of years population has been + or - objective in recent trend:	6
Model Date:	02/18/2014

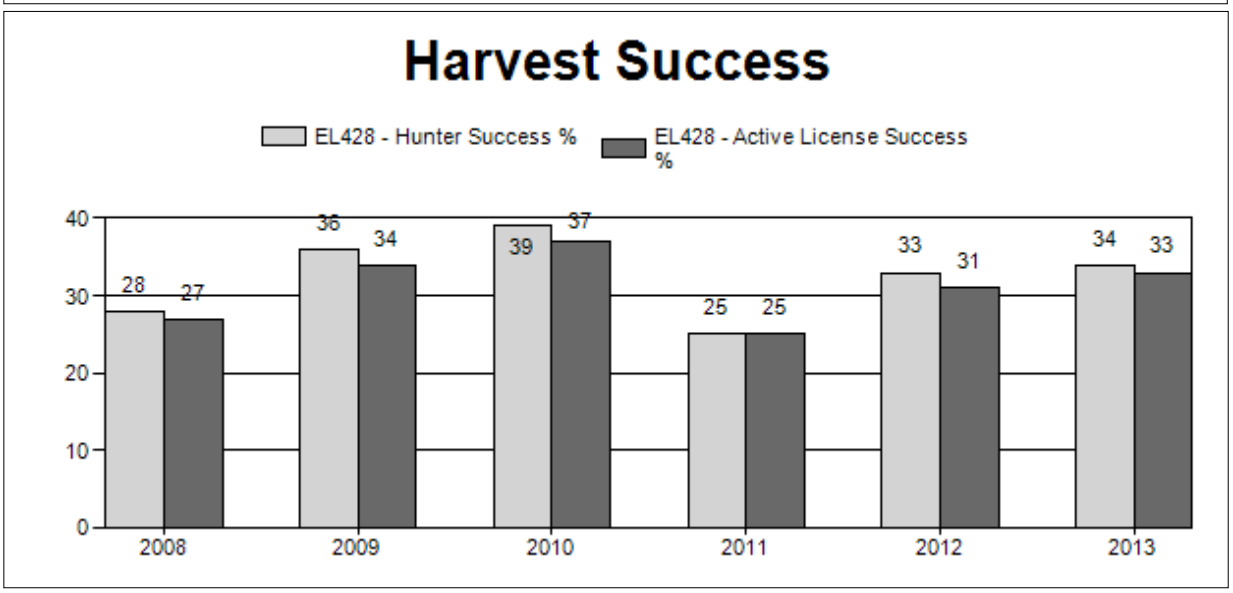
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

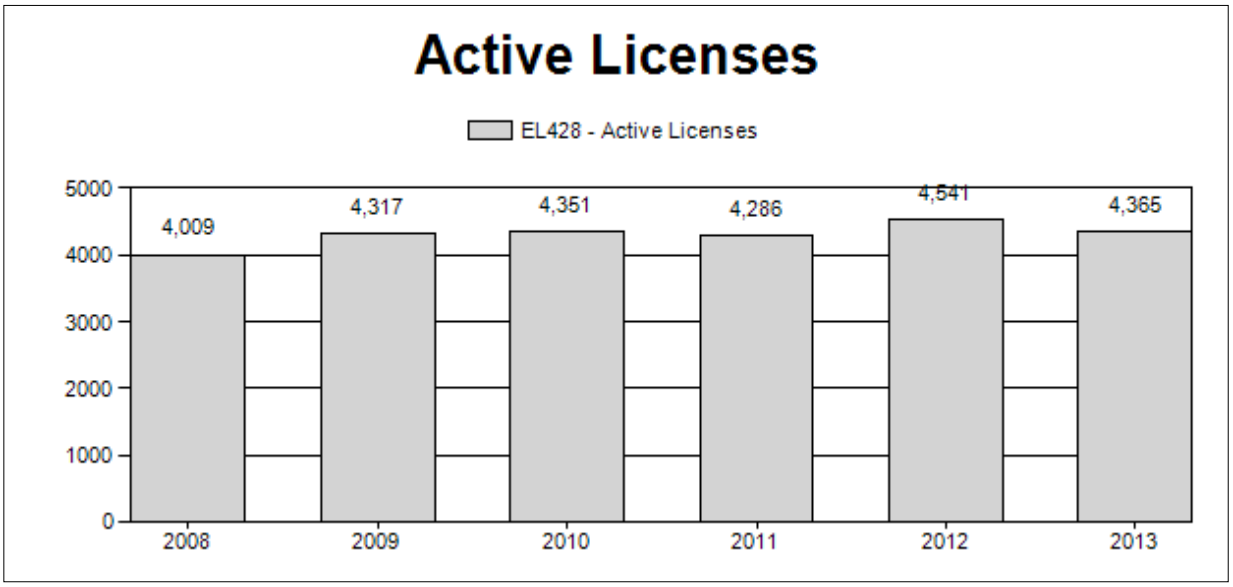
	JCR Year	Proposed
Females ≥ 1 year old:	19.7%	29.0%
Males ≥ 1 year old:	46.8%	50.8%
Juveniles (< 1 year old):	14.32%	23.13%
Total:	23.13%	28.38%
Proposed change in post-season population:	-20.4%	-21.3%

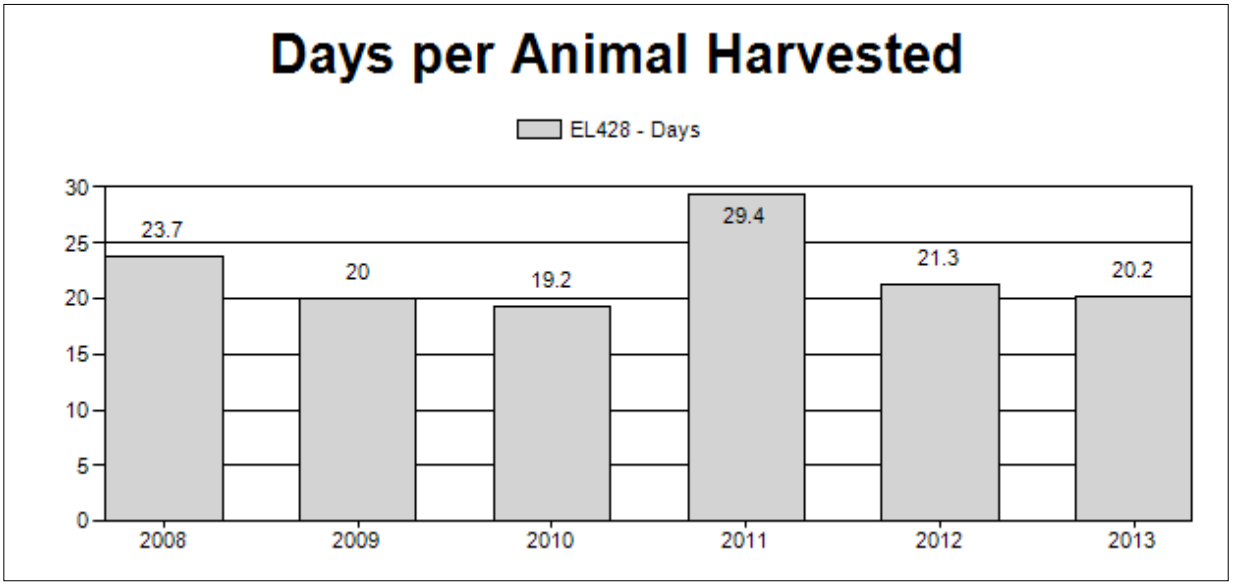


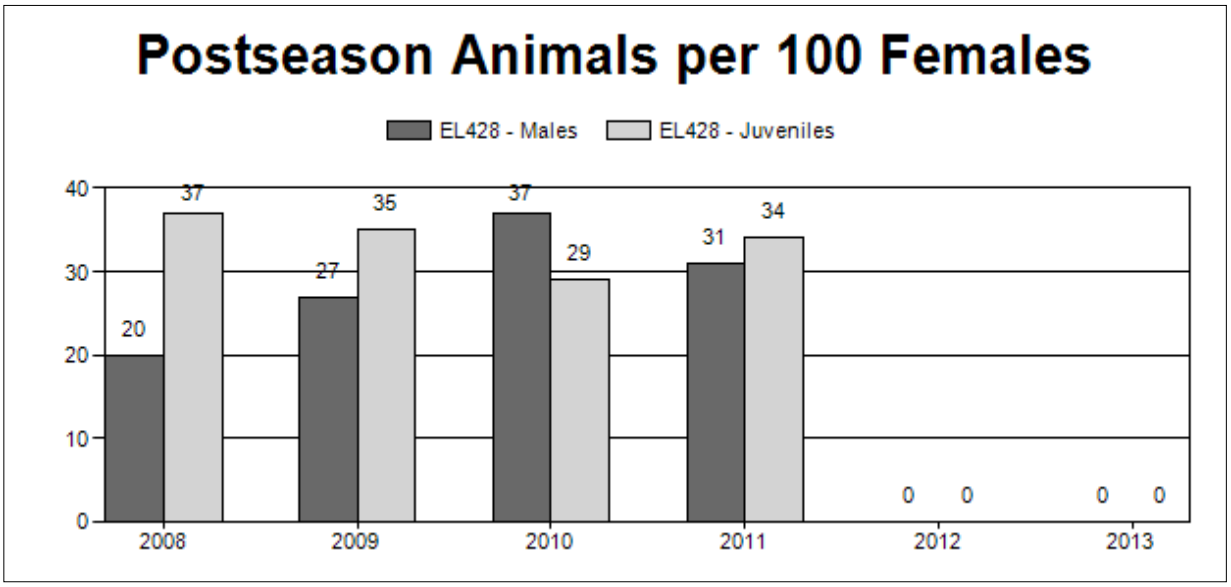

Harvest
EL428 - BULLS
EL428 - SPIKE
EL428 - FEMALES
EL428 - JUV
2000
1500
1000
500
0
403
108
456
132
1,099
469
167
651
179
1,466
433
112
851
212
1,608
395
73
421
163
1,052
490
71
771
95
1,427
469
158
643
163
1,433
2008
2009
2010
2011
2012
2013


Number of Hunters
EL428 - TOT
EL428 - RES
EL428 - NONRES
5000
4000
3000
2000
1000
0
3,879
3,405
474
4,089
3,591
498
4,161
3,556
605
4,159
3,488
671
4,344
3,719
625
4,216
3,563
653
2008
2009
2010
2011
2012
2013


Harvest Success
EL428 - Hunter Success %
EL428 - Active License Success %
40
30
20
10
0
28
27
36
34
39
37
25
25
33
31
34
33
2008
2009
2010
2011
2012
2013


Active Licenses
EL428 - Active Licenses
5000
4000
3000
2000
1000
0
4,009
4,317
4,351
4,286
4,541
4,365
2008
2009
2010
2011
2012
2013


Days per Animal Harvested
EL428 - Days
30
25
20
15
10
5
0
23.7
20
19.2
29.4
21.3
20.2
2008
2009
2010
2011
2012
2013


Postseason Animals per 100 Females
EL428 - Males
EL428 - Juveniles
40
30
20
10
0
20
37
27
35
37
29
31
34
0
0
0
0
2008
2009
2010
2011
2012
2013

2008 - 2013 Postseason Classification Summary

for Elk Herd EL428 - WEST GREEN RIVER

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	6,791	377	199	576	13%	2,894	64%	1,060	23%	4,530	0	13	7	20	± 1	37	± 1	31
2009	6,447	286	242	528	17%	1,921	62%	672	22%	3,121	0	15	13	27	± 1	35	± 1	27
2010	5,630	265	264	529	22%	1,424	60%	409	17%	2,362	0	19	19	37	± 2	29	± 2	21
2011	5,512	385	474	859	19%	2,758	61%	929	20%	4,546	0	14	17	31	± 1	34	± 1	26
2012	4,746	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2013	4,619	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

2014 HUNTING SEASONS

SPECIES : Elk

HERD UNIT : West Green River (428)
HUNT AREAS: 102, 103, 104, 105

Hunt Area	Type	Dates of Seasons Opens	Closes	Limited Quota	Limitations
102		Oct. 15	Oct. 24		General license; any elk
		Oct. 25	Nov. 9		General license; antlerless elk
	6	Oct. 15	Nov. 23	250	Limited quota licenses; cow or calf
		Dec. 6	Dec. 14		Unused Area 102 Type 6 licenses
	7	Dec. 15	Jan. 31	25	Limited quota licenses; cow or calf
103		Oct. 15	Oct. 24		General license; any elk
		Oct. 25	Nov. 23		General license; antlerless elk
	6	Oct. 15	Nov. 23	150	Limited quota licenses; cow or calf
		Nov. 28	Nov. 30		Unused Area 103 Type 6 licenses
		Dec. 20	Jan. 31		Unused Area 103 Type 6 licenses
104		Oct. 15	Oct. 24		General license; any elk
		Oct. 25	Nov. 23		General license; antlerless elk
	6	Oct. 15	Nov. 23	700	Limited quota licenses; cow or calf
		Nov. 28	Nov. 30		Unused Area 104 Type 6 licenses
		Dec. 6	Dec. 14		Unused Area 104 Type 6 licenses
	7	Dec. 20	Jan. 31	100	Limited quota licenses; cow or calf
		Jan. 1	Jan. 31		Unused Area 104 Type 7 licenses valid west of U.S. Highway 30 and east of Lincoln County Road 207, or east of Rock Creek within the Twin Creek drainage.
105		Oct. 15	Oct. 31		General license; any elk
102-105	Archery	Sept. 1	Sept. 30		Refer to Section 3 of this chapter

Hunt Area	License Type	Quota change from 2013
102	6	-250
103	6	+50
104	6	+200
104	7	+50
Herd Unit Total	6	0
	7	+50

Management Evaluation

Current Postseason Population Management Objective: 3,100
Management Strategy: Recreation
2013 Postseason Population Estimate: ~4,619
2014 Proposed Postseason Population Estimate: ~3,635

Herd Unit Issues

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

In the last three hunting seasons hunters commonly complained that elk numbers were down significantly and they were too low for their standards. However, we are still over the set objective. This herd recently went through an objective review in 2012 and it was determined that the objective should remain at 3,100 mainly due to input from agriculture producers.

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

Weather

Weather during 2013 and into 2014 was highly variable. In the early part of 2013 the winter was very mild and dry. A dry spring and summer followed. In late August and into September heavy precipitation came and ended the dry conditions. The winter of 2013-2014 has been reasonably mild to this point. The winters of 2011-2012 and 2012-2013 were very mild with low snowpack resulting in good over winter survival. However, the dry springs and summers of 2012 and 2013 negatively impacted summer and winter range forage production in upland areas.

Habitat

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

Field Data

The post season 2013 population model estimate was about 4,619 elk with the population trending downward. A fairly intensive helicopter based elk flight was performed in March of 2012 with 4,791 elk observed. Flight conditions were favorable for congregating elk. Idaho's sightability model correction was used for the survey and increased the estimate for the area flown to 4,874. The low correction factor was due to large groups of elk in high snow cover and open environments. This creates survey conditions where very few elk are missed during

helicopter surveys. We flew the majority of the available elk winter range during the survey. An additional area that was not flown due to budget constraints was thought by field personnel to contain approximately 600 elk. Addition of this information produces a total estimate of ~5,500 elk in the herd unit post season 2011.

Recent post-season bull ratios have been excellent. Calf ratios have been near average for this herd and express good production for this herd. Harvest has been increased on this herd markedly over several years in an effort to get the herd to objective. It appears that this is working and that the herd may approach objective in the near future if harvest remains around current levels. If this holds true antlerless harvest will have to be greatly reduced once the herd reaches objective. It is also probable that bull harvest will go down due to less elk production with a smaller herd and it may become more difficult to maintain favorable bull:cow ratios. Another intensive helicopter survey is planned for 2014 barring projected budget limitations. This is a new sampling strategy where surveys are flown every other year and with greater intensity. In the past classification surveys were flown on a yearly basis but with less intensity. This provided excellent classification data but did not provide any estimate of overall population size and/or trend information. The new strategy should improve overall population estimates and give us a better estimate of trend.

Harvest Data

Antlerless harvest opportunity was increased every year for several years in this herd unit. The 2010 to 2013 season structures offered substantially increased cow/calf harvest opportunity to try to reduce the herd. Those seasons allowed significant antlerless harvest with large increases in licenses and season lengths. These hunts had good success rates if ample weather moved elk to winter ranges during those hunts. This management framework has reduced this population based on the dramatic population declines shown in the model and concerns voiced by the public. For 2014 we are recommending a continuation of this strategy to further reduce the herd toward objective. However, this is already unpopular with the hunting public who feel elk numbers are currently too low.

Population

The TSJ,CA model was selected due to the low Relative AICc score and its good fit with the data. The TSJ,CA, MSC model scored slightly better but there is no information to indicate that a MSC model would be appropriate for this herd and the MSC model did not fit with aerial survey data.

In the future it will be imperative that we get a reliable population estimate periodically to check the status of the herd and anchor the model. With this it is likely that we can provide a reasonable population model and track the trend of this population. Without this it will be unclear if our current harvest levels can be sustained without taking the population below objective or if we are on the right management track relative to objective.

Due to documented interchange with adjacent herd units, models generated for this herd should be used with some caution. This interchange has been affirmed in recent years with several radio collared elk from multiple studies crossing the herd unit border at different times of year. More radio collar studies would help determine the extent of these movements. In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

Currently the model is estimating we have around 4,600 elk in the herd. This is a significant reduction in the herd over the last few years but it is still above the objective of 3,100 elk. The

model predicts a post-season population of around 3,600 elk in 2014. This is a sharp decline in population driven by harvest. This is substantiated by hunter comments and anecdotal field observations. Harvest survey data indicate that we have had more than adequate harvest in the past four years to reduce this herd and move toward objective. This supporting information gives us some confidence in model results

Management Summary

For 2014 season setting we are to continue reducing the herd toward the current objective. We will continue with hunt timing and license management to maximize elk harvest opportunities late in the season. To do this we provide a break in the hunt to placate elk and promote unhindered migration to more open winter ranges where the elk are more vulnerable to harvest. The harvest system in place should have this herd to objective in the near future.

INPUT	
Species:	Elk
Biologist:	Jeff Short
Herd Unit & No.:	WGR EL428
Model date:	02/18/14

☐ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report
CJ,CA	Constant Juvenile & Adult Survival	1888	1897	☐ CJ,CA Model
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	548	564	☐ SCJ,SCA Mo
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	207	316	☑ TSJ,CA Model
TSJ,CA,MSC	Time-Specific Juv, Constant Adult Survival, Male survival coefficien	131	250	☐ TSJ,CA,MSC Model

Population Estimates from Top Model

Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population				Predicted Posthunt Population				Objective
	Field Est	Field SE		Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	
1993				2282	974	4955	8211	2217	503	4621	7341	3100
1994				2551	1226	5221	8999	2410	517	4826	7752	3100
1995				2193	1224	5404	8821	2165	710	5111	7986	3100
1996				2599	1338	5607	9544	2548	869	5076	8494	3100
1997				2502	1608	5688	9798	2398	1093	4938	8429	3100
1998				2279	1779	5509	9568	2030	1315	4539	7884	3100
1999				1686	1885	5012	8583	1538	1290	4415	7242	3100
2000				1857	1712	4743	8312	1681	1127	4054	6861	3100
2001				1466	1597	4436	7499	1364	1136	4018	6518	3100
2002				1627	1511	4307	7446	1513	1127	3962	6603	3100
2003				1634	1653	4403	7690	1550	1222	4067	6839	3100
2004				1870	1650	4410	7931	1727	1037	3966	6731	3100
2005				1749	1578	4418	7745	1680	1159	4138	6976	3100
2006				1507	1880	4770	8156	1353	1247	4268	6868	3100
2007				1945	1818	4749	8512	1787	1139	4209	7134	3100
2008				1706	1785	4763	8255	1561	1223	4262	7046	3100
2009				1638	1889	4836	8364	1441	1190	4120	6751	3100
2010				1299	1802	4645	7746	1065	1203	3709	5977	3100
2011	5500	250		1397	1646	4077	7120	1217	1131	3614	5963	3100
2012				1160	1645	4054	6859	1056	1028	3205	5289	3100
2013				1138	1472	3584	6195	959	783	2877	4619	3100
2014				872	1191	3222	5285	762	586	2287	3635	3100

Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.67			0.97		
1994	0.60			0.97		
1995	0.60			0.97		
1996	0.60			0.97		
1997	0.60			0.97		
1998	0.60			0.97		
1999	0.60			0.97		
2000	0.60			0.97		
2001	0.60			0.97		
2002	0.74			0.97		
2003	0.60			0.97		
2004	0.66			0.97		
2005	0.90			0.97		
2006	0.90			0.97	0.97	0.05
2007	0.76			0.97	0.95	0.05
2008	0.90			0.97	0.95	0.05
2009	0.90			0.97		
2010	0.90			0.97		
2011	0.90			0.97		
2012	0.90			0.97		
2013	0.90			0.97		
2014	0.60			0.97		

Parameters:	Optim cells
Adult Survival =	0.970
Initial Total Male Pop/10,000 =	0.050
Initial Female Pop/10,000 =	0.462

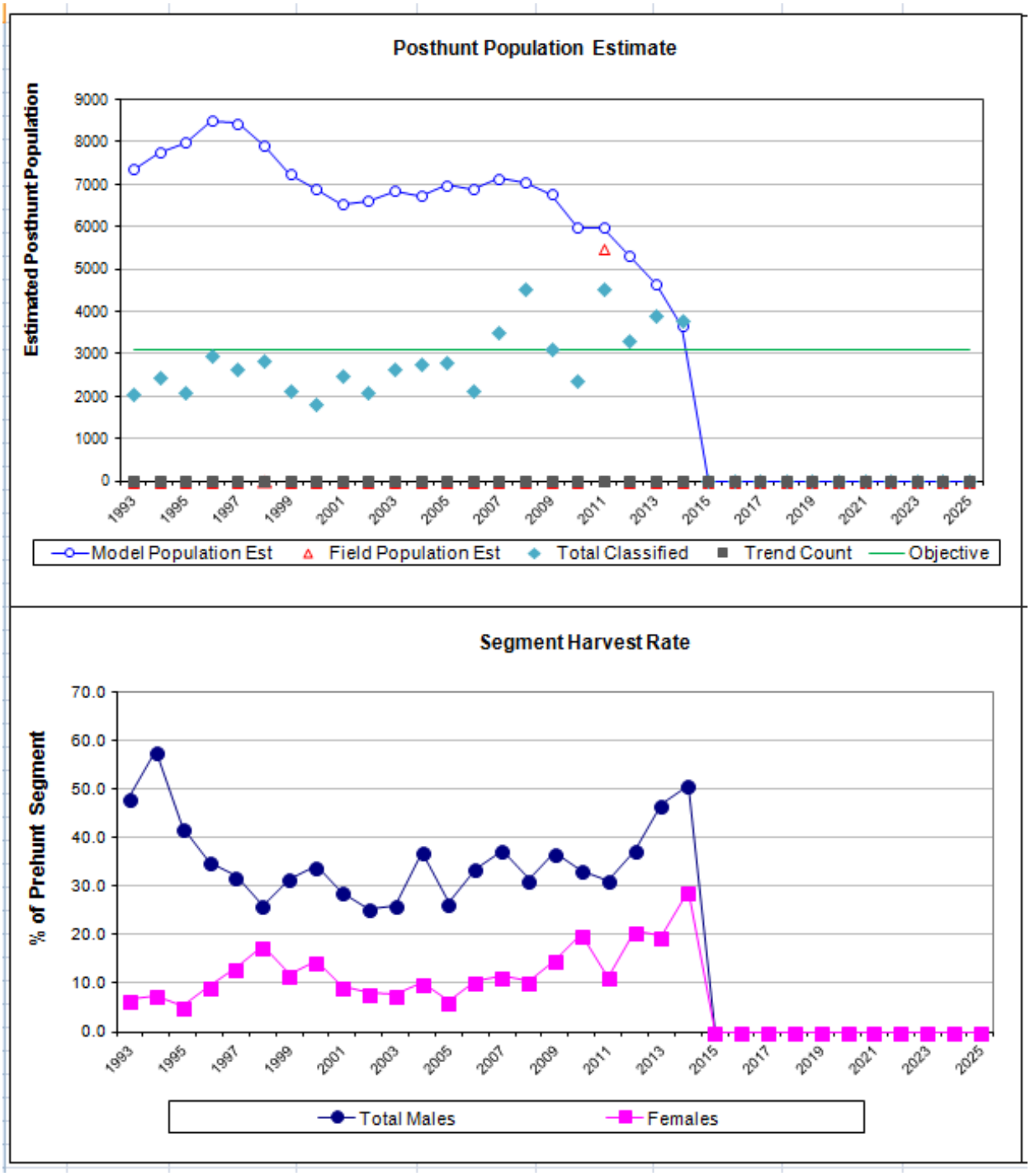
MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Total Bulls Adjustment Factor	100%

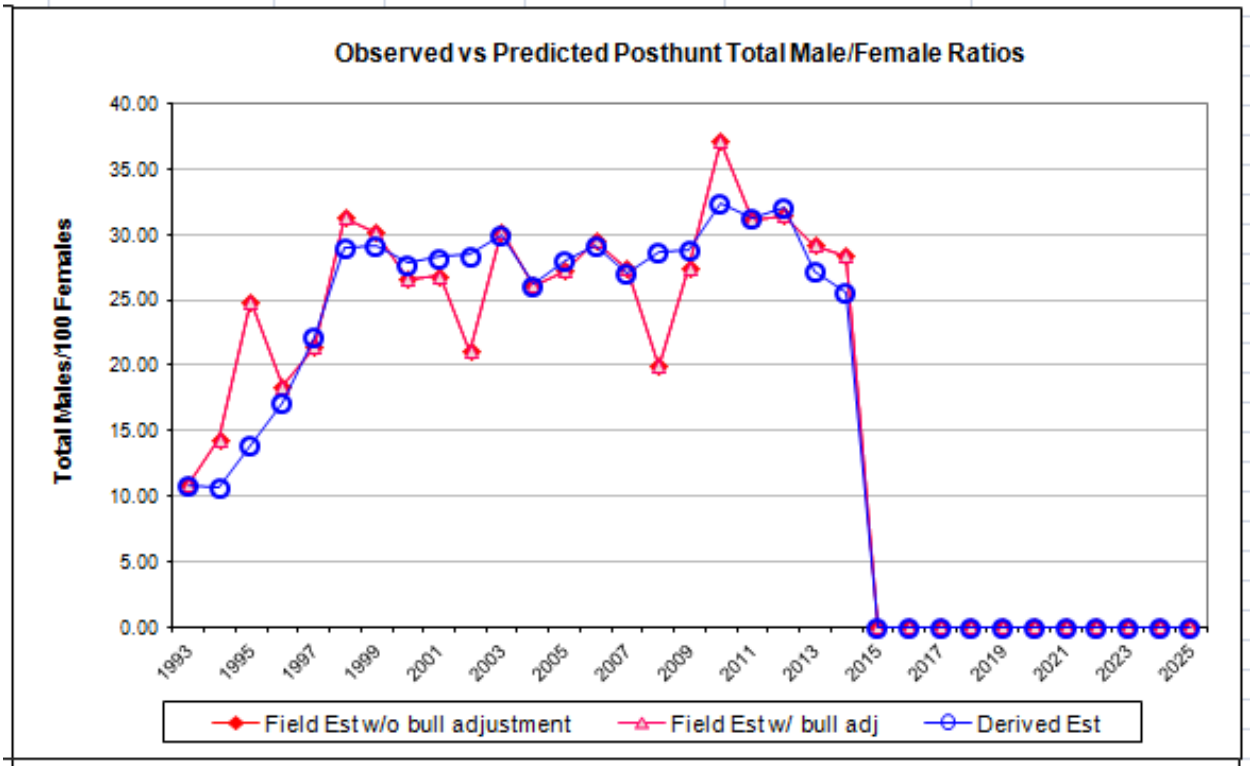
Classification Counts

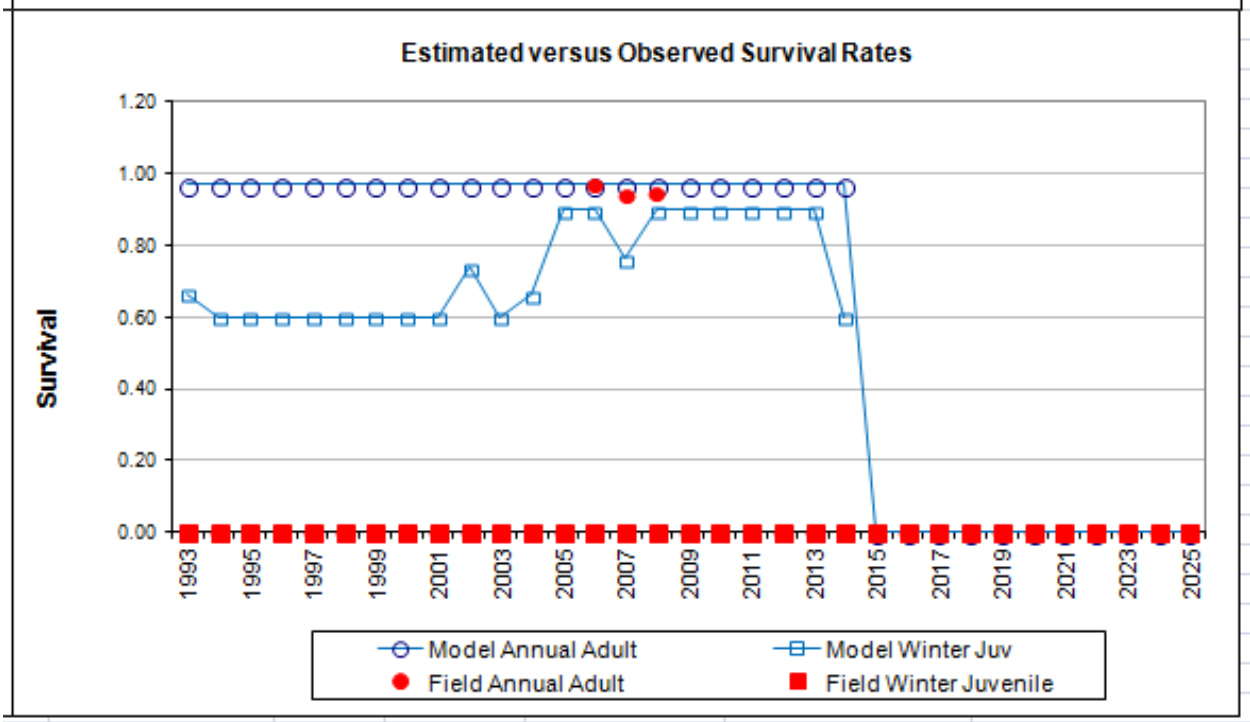
Year	Juvenile/Female Ratio			Total Male/Female Ratio			
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/ bull adj	Field Est w/o bull adj	Field SE
1993		47.99	2.34	10.88	10.90	10.90	0.97
1994		49.93	2.24	10.71	14.31	14.31	1.05
1995		42.37	2.20	13.88	24.86	24.86	1.58
1996		50.20	2.07	17.12	18.37	18.37	1.11
1997		48.56	2.15	22.13	21.40	21.40	1.29
1998		44.71	1.99	28.98	31.30	31.30	1.59
1999		34.83	1.91	29.21	30.19	30.19	1.74
2000		41.46	2.31	27.80	26.58	26.58	1.75
2001		33.93	1.71	28.28	26.80	26.80	1.48
2002		38.18	1.99	28.45	21.08	21.08	1.38
2003		38.11	1.83	30.04	30.21	30.21	1.58
2004		43.55	1.96	26.16	26.04	26.04	1.42
2005		40.60	1.84	28.00	27.26	27.26	1.44
2006		31.69	1.76	29.22	29.46	29.46	1.69
2007		42.45	1.71	27.06	27.40	27.40	1.30
2008		36.63	1.31	28.71	19.90	19.90	0.91
2009		34.98	1.57	28.87	27.49	27.49	1.35
2010		28.72	1.61	32.43	37.15	37.15	1.89
2011		33.68	1.28	31.31	31.15	31.15	1.22
2012		32.93	1.47	32.08	31.39	31.39	1.42
2013		33.33	1.36	27.21	29.17	29.17	1.25
2014		30.00	1.27	25.61	28.33	28.33	1.23

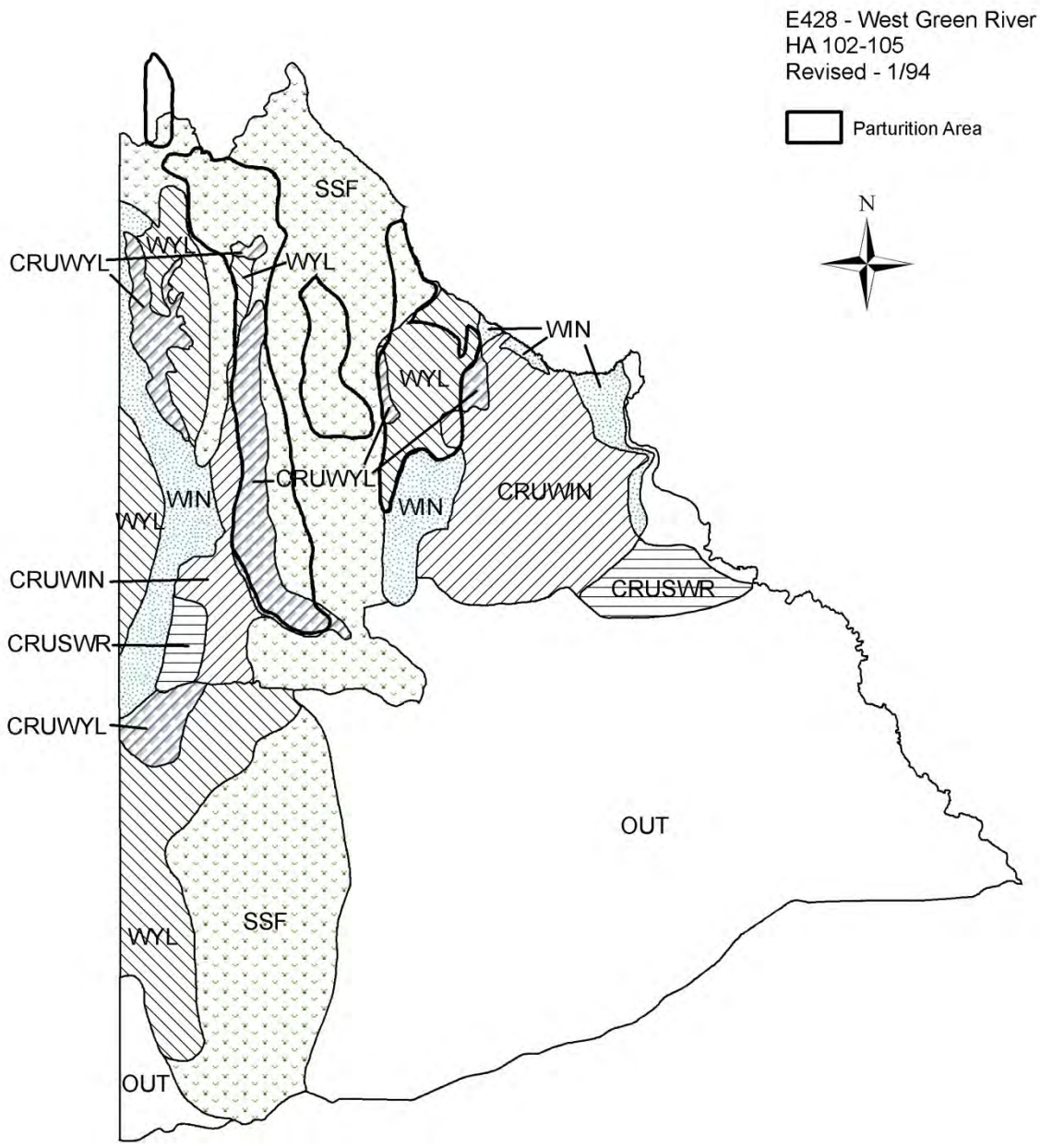
Harvest

Year	Juv	Yrl males	2+ Males	Females	Total Harvest	Segment Harvest Rate (% of Prehunt	
						Total Males	Females
1993	59	158	270	304	791	48.3	6.7
1994	129	260	385	359	1133	57.8	7.6
1995	25	194	274	266	759	42.0	5.4
1996	46	192	234	483	955	35.0	9.5
1997	95	190	278	682	1245	32.0	13.2
1998	227	166	256	882	1531	26.1	17.6
1999	135	172	369	543	1219	31.6	11.9
2000	160	153	379	627	1319	34.2	14.5
2001	93	88	331	380	892	28.9	9.4
2002	104	99	250	313	766	25.4	8.0
2003	76	100	292	305	773	26.1	7.6
2004	130	128	429	404	1091	37.1	10.1
2005	63	117	264	255	699	26.6	6.3
2006	140	138	437	456	1171	33.6	10.5
2007	144	167	451	491	1253	37.4	11.4
2008	132	108	403	456	1099	31.5	10.5
2009	179	167	469	651	1466	37.0	14.8
2010	212	112	433	851	1608	33.3	20.2
2011	163	73	395	421	1052	31.3	11.4
2012	95	71	490	771	1427	37.5	20.9
2013	163	158	469	643	1433	46.8	19.7
2014	100	100	450	850	1500	50.8	29.0


Posthunt Population Estimate
Estimated Posthunt Population
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
Model Population Est
Field Population Est
Total Classified
Trend Count
Objective
Segment Harvest Rate
% of Prehunt Segment
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Total Males
Females


Observed vs Predicted Posthunt Total Male/Female Ratios
Total Males/100 Females
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
Field Est w/o bull adjustment
Field Est w/ bull adj
Derived Est


Estimated versus Observed Survival Rates
Survival
1.20
1.00
0.80
0.60
0.40
0.20
0.00
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
Model Annual Adult
Model Winter Juv
Field Annual Adult
Field Winter Juvenile


E428 - West Green River
HA 102-105
Revised - 1/94
Parturition Area
N
SSF
WYL
CRUWYL
WYL
WIN
WYL
CRUWYL
WIN
WYL
WIN
CRUWIN
CRUWIN
CRUSWR
CRUSWR
CRUWYL
OUT
SSF
WYL
OUT

2013 - JCR Evaluation Form

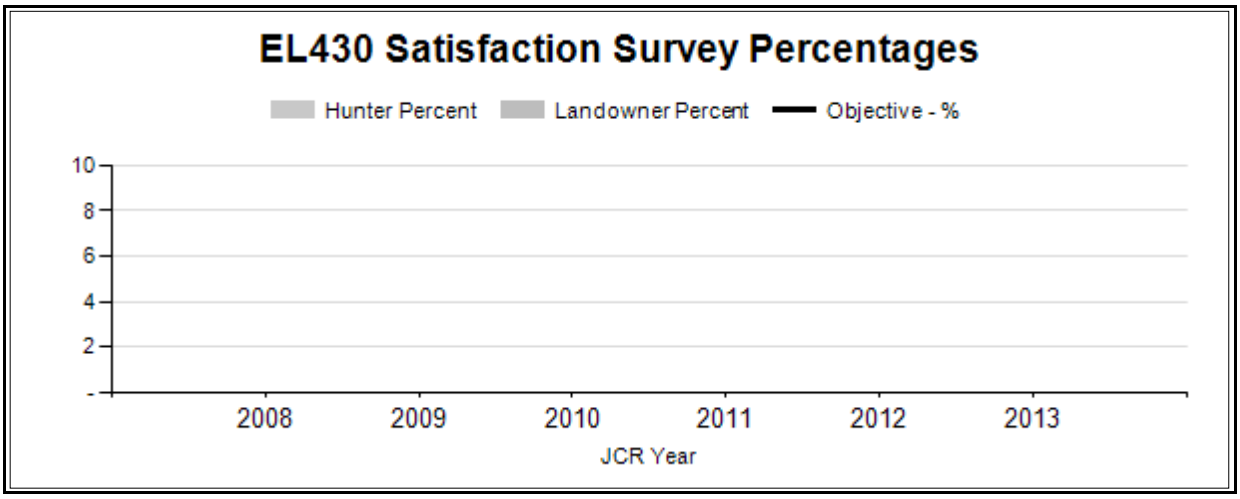
SPECIES: Elk
PERIOD: 6/1/2013 - 5/31/2014

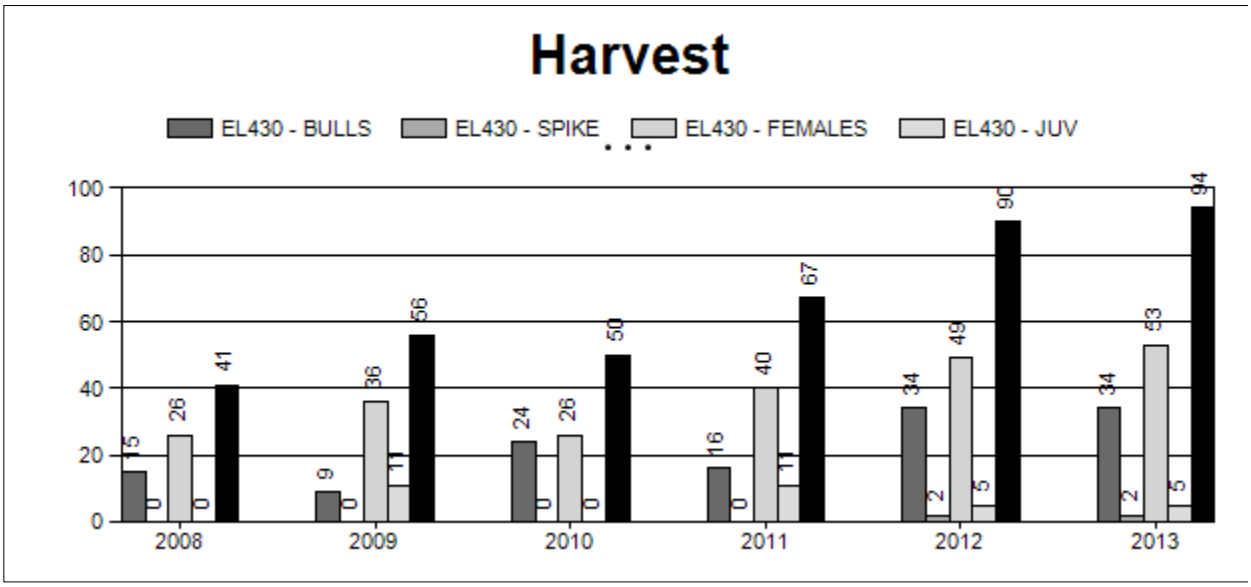
HERD: EL430 - PETITION

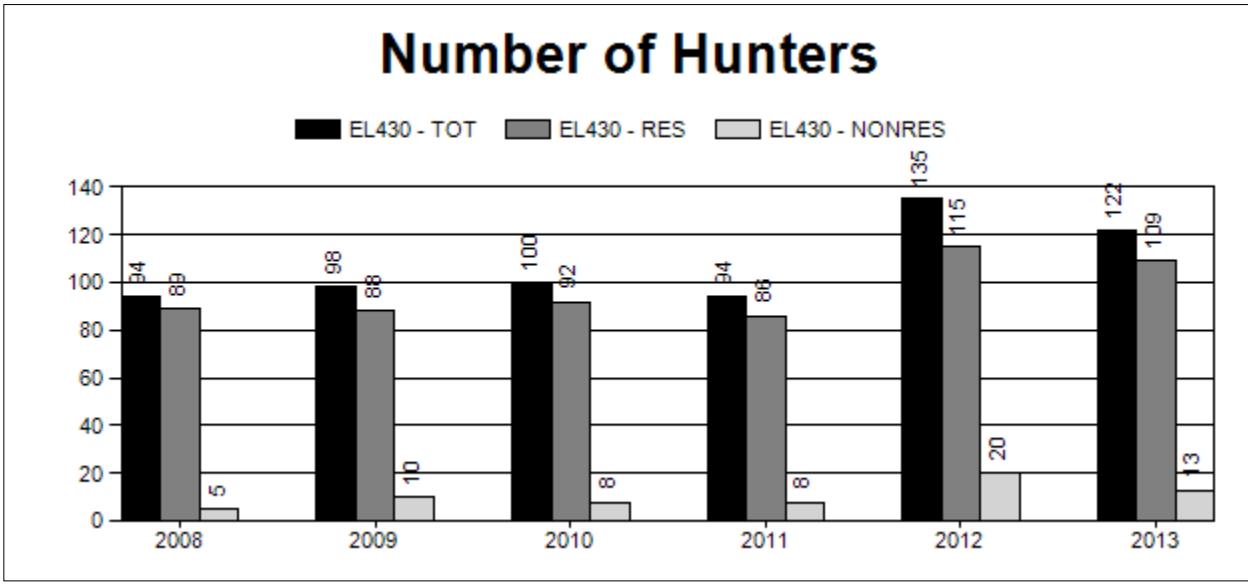
HUNT AREAS: 124
PREPARED BY: TONY MONG

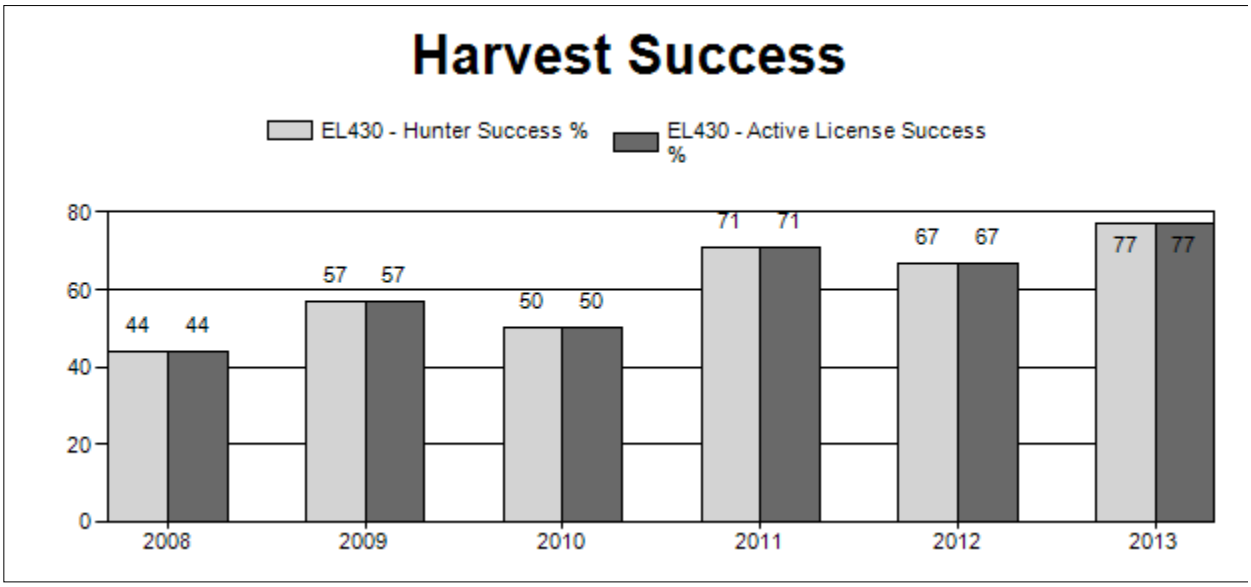
	2008 - 2012 Average	2013	2014 Proposed
Hunter Satisfaction Percent			
Landowner Satisfaction Percent			
Harvest:	61	94	110
Hunters:	104	122	127
Hunter Success:	59%	77%	87%
Active Licenses:	104	77%	127
Active License Percentage:	59%	77%	87%
Recreation Days:	781	870	900
Days Per Animal:	12.8	9.3	8.2
Males per 100 Females:	0	0	
Juveniles per 100 Females	250	0	

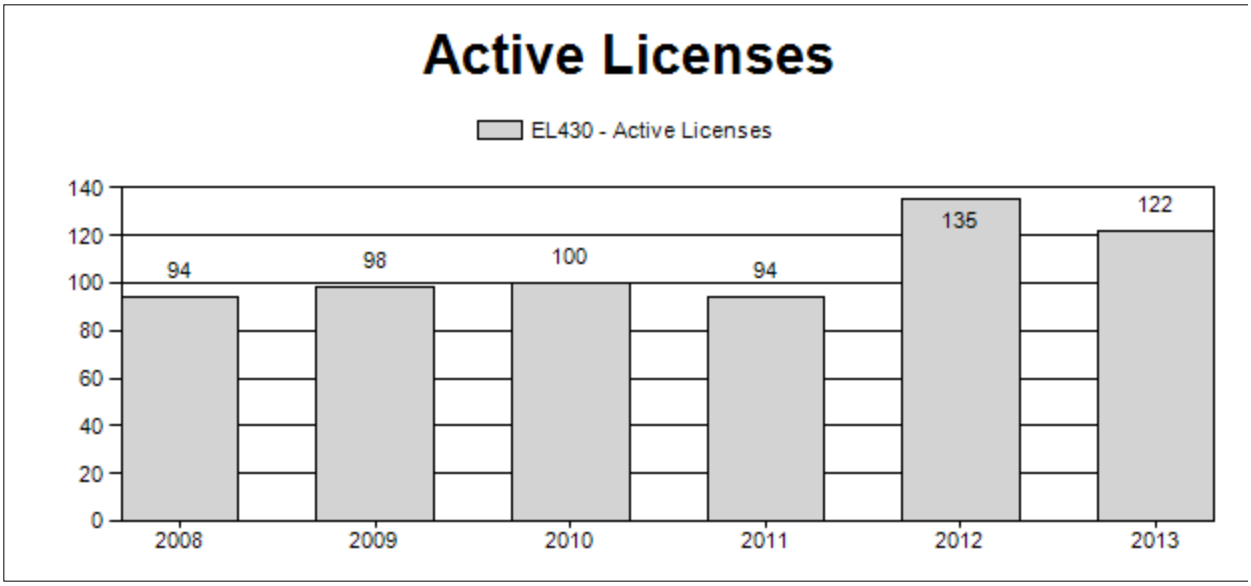
Satisifaction Based Objective	0%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0

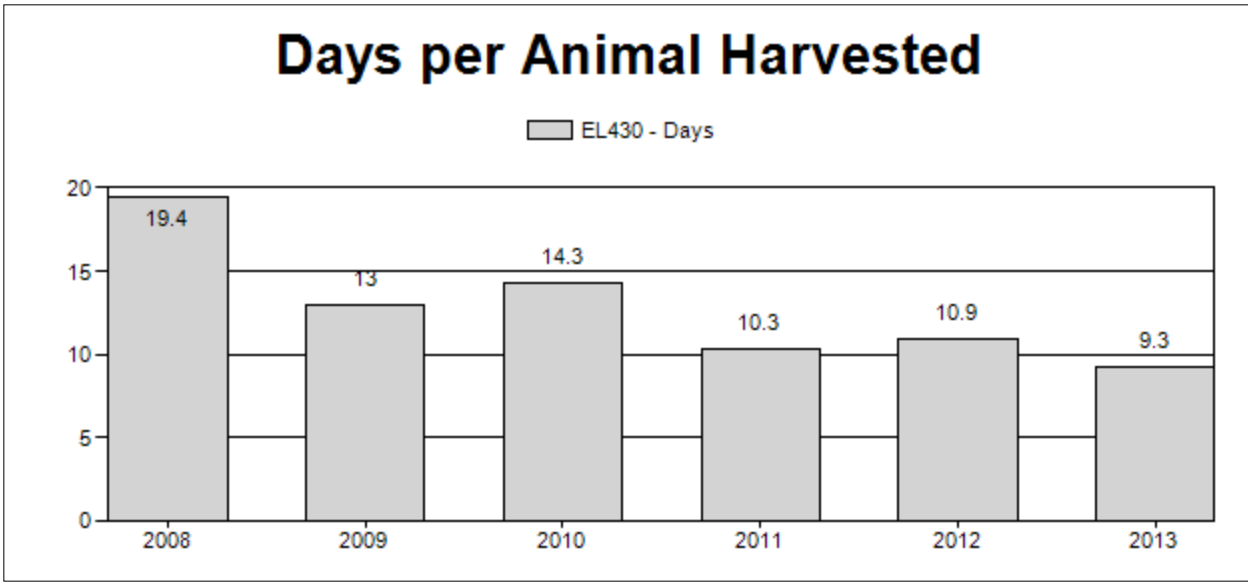


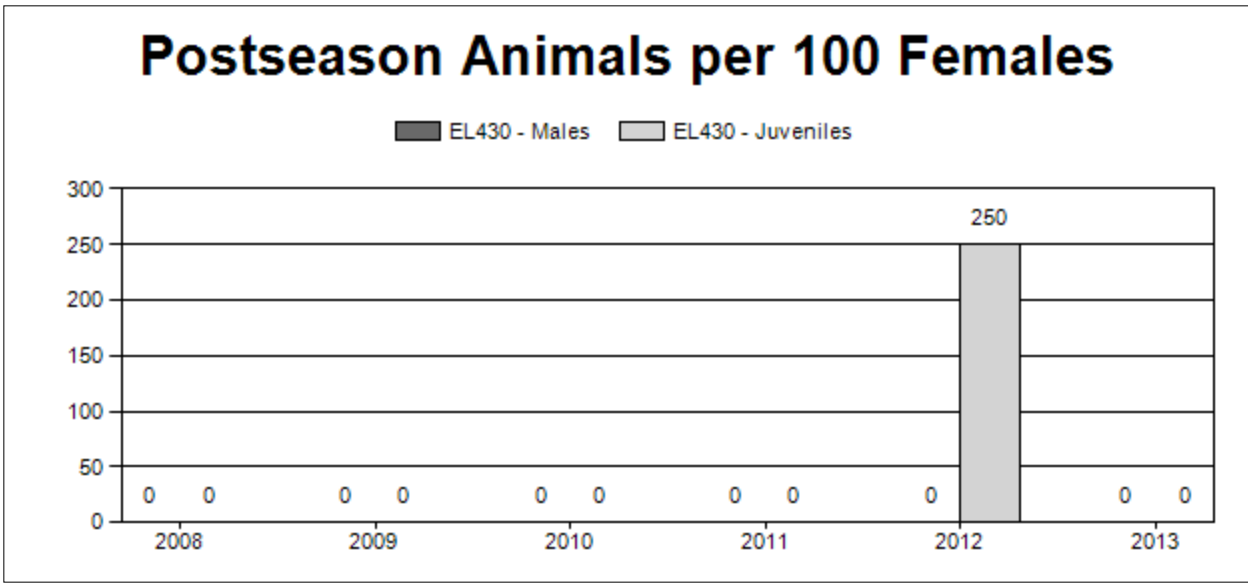

Harvest
EL430 - BULLS
EL430 - SPIKE
EL430 - FEMALES
EL430 - JUV
100
80
60
40
20
0
15
0
26
0
41
9
0
36
11
56
24
0
26
0
50
16
0
40
11
67
34
2
49
5
90
34
2
53
5
94
2008
2009
2010
2011
2012
2013

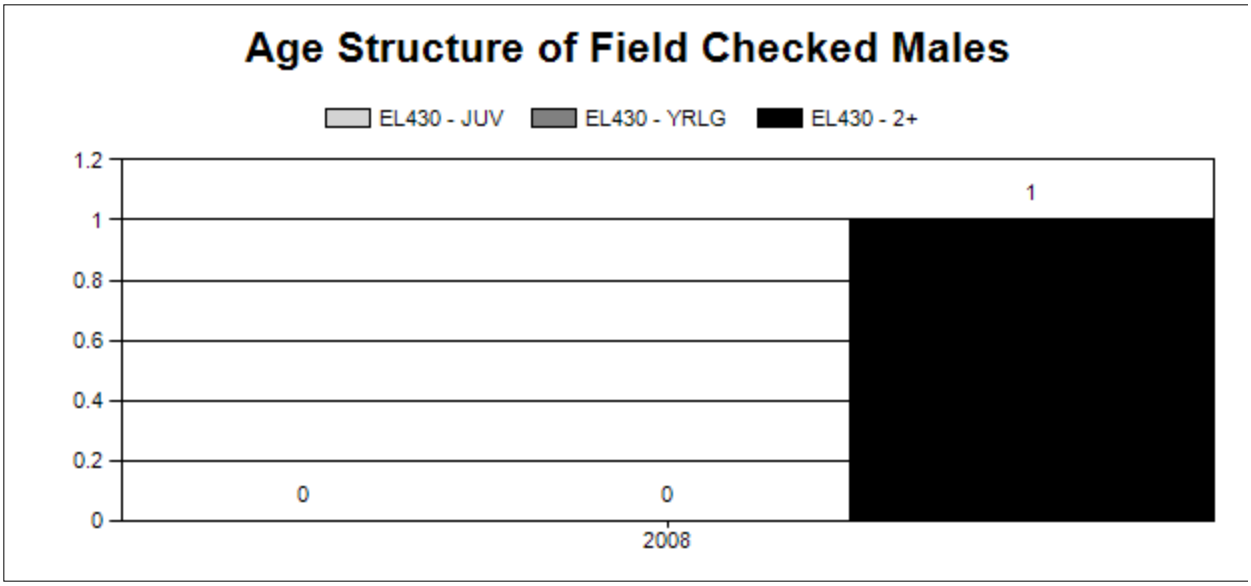

Number of Hunters
EL430 - TOT
EL430 - RES
EL430 - NONRES
140
120
100
80
60
40
20
0
94
89
5
98
88
10
100
92
8
94
86
8
135
115
20
122
109
13
2008
2009
2010
2011
2012
2013

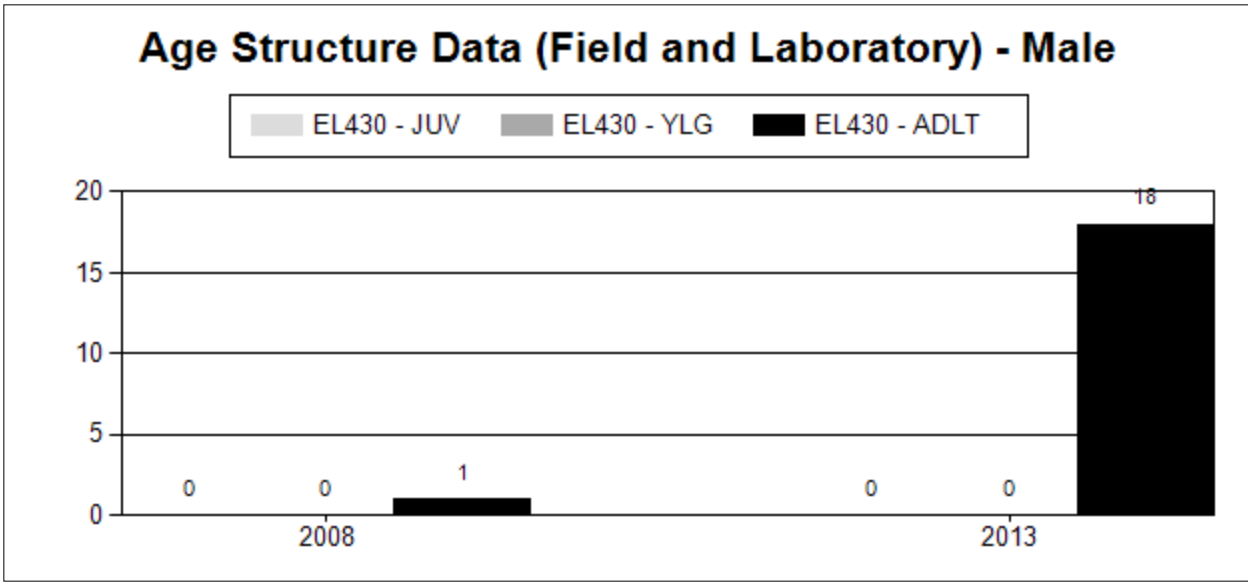

Harvest Success
EL430 - Hunter Success %
EL430 - Active License Success %
80
60
40
20
0
44
44
57
57
50
50
71
71
67
67
77
77
2008
2009
2010
2011
2012
2013

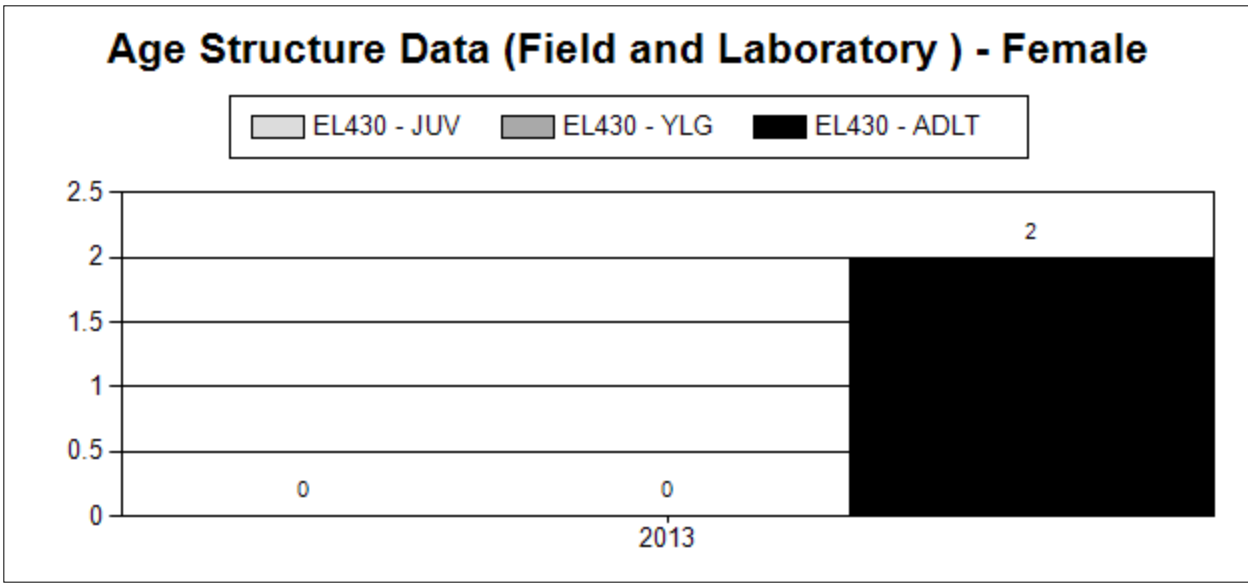

Active Licenses
EL430 - Active Licenses
140
120
100
80
60
40
20
0
94
98
100
94
135
122
2008
2009
2010
2011
2012
2013


Days per Animal Harvested
EL430 - Days
20
15
10
5
0
19.4
13
14.3
10.3
10.9
9.3
2008
2009
2010
2011
2012
2013


Postseason Animals per 100 Females
EL430 - Males
EL430 - Juveniles
300
250
200
150
100
50
0
0 0
0 0
0 0
0 0
0
250
0 0
2008
2009
2010
2011
2012
2013


Age Structure of Field Checked Males
EL430 - JUV
EL430 - YRLG
EL430 - 2+
1.2
1
0.8
0.6
0.4
0.2
0
0
0
1
2008


Age Structure Data (Field and Laboratory) - Male
EL430 - JUV
EL430 - YLG
EL430 - ADLT
20
15
10
5
0
0
0
1
0
0
18
2008
2013


Age Structure Data (Field and Laboratory) - Female
EL430 - JUV
EL430 - YLG
EL430 - ADLT
2.5
2
1.5
1
0.5
0
0
0
2
2013

2008 - 2013 Postseason Classification Summary

for Elk Herd EL430 - PETITION

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2009	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2010	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2011	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2012	0	0	0	0	0%	2	29%	5	71%	7	0	0	0	0	± 0	250	± 0	250
2013	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

2014 HUNTING SEASONS

SPECIES : **Elk** HERD UNIT : **Petition (430)**
HUNT AREAS: **124**

Hunt Area	Type	Opens	Closes	Quota	License	Limitations
124	1	Oct. 15	Nov. 30	40	Limited quota	Any elk
	4	Oct. 15	Nov. 30	100	Limited quota	Antlerless elk
	7	Oct. 15	Dec. 31	25	Limited quota	Unused Area 124 Type 4 licenses valid on the Tipton Hunter Management Area (HMA permission slip required)
	Archery	Sep. 1	Sep. 30			Refer to Section 3

Hunt Area	*Type*	*Quota change from 2013*
124	*1*	*0*
	4	*0*
	6	*25*
Herd Unit Total	***1***	***0***
	4	***0***
	6	***25***

Management Evaluation

Current Hunter/Landowner Satisfaction Objective: 60% landowner/hunter satisfaction; bull quality

Management Strategy: Recreational

2013 Hunter Satisfaction Estimate: 73%

2013 Landowner Satisfaction Estimate: ~75%

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

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

The current management objective was set in 2013 and was set as an alternative objective of Landowner and sportsmen satisfaction along with a bull quality measure using tooth age of harvested bulls. Our strategy is to continue with current levels of harvest across the area except in the northern portion of the area specifically within the Tipton Hunter Management Area where we are increasing cow licenses to decrease numbers in that portion of the hunt area.

Herd Unit Issues

The Petition elk herd is a small highly mobile herd of elk spread over a large area showing large interchange with Colorado making meaningful data collection and population estimation

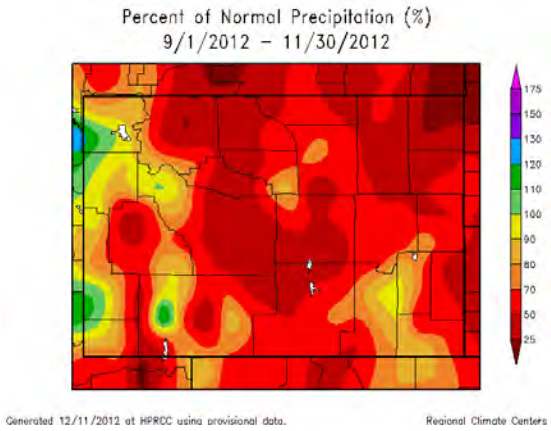
difficult. Possible competition with mule deer in the South Rock Springs Deer herd is becoming a potential issue that will need to be addressed in the near future.

Weather

The weather conditions have been quite variable over the last several years. In 2011-12 moisture levels were at record lows. 2012-13 brought continued drought until the fall of 2013 when high amounts of precipitation in the form of both snow and rain aided in a fall green up which allowed animals to put on weight before winter (Figure 1). Temperatures were also closer to normal in 2013 compared to 2012 (Figure 2).

Figure 1. A) Percent of normal precipitation September to November 2012, B) Percent of normal precipitation September to November 2013.

A)



B)

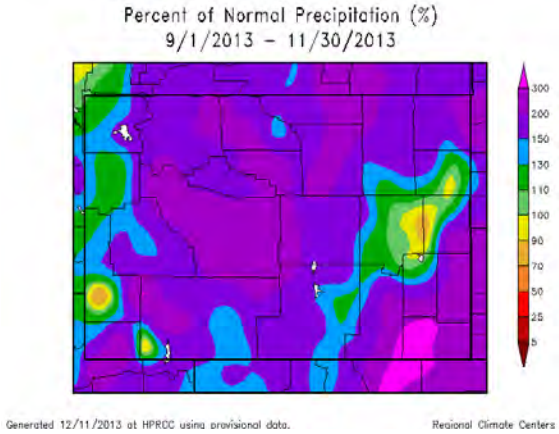
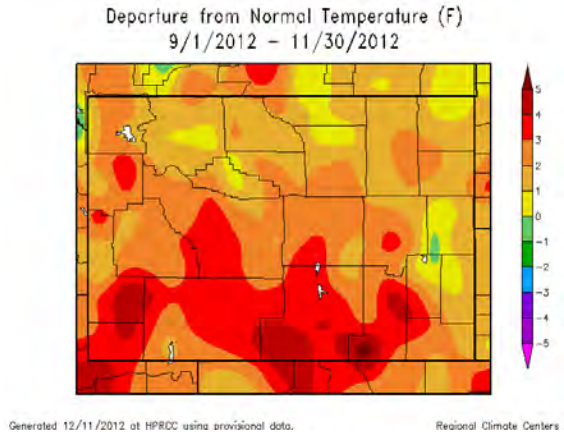
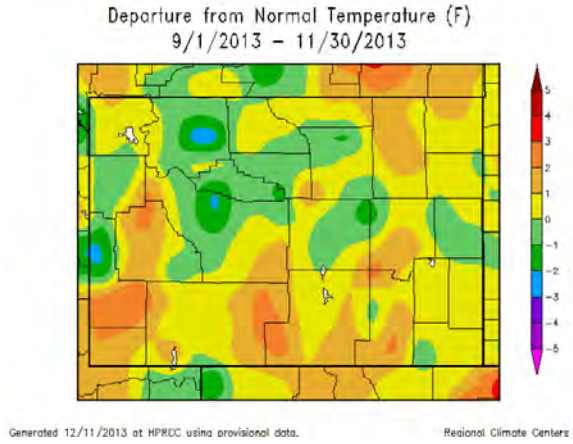


Figure 2. A) Departure from normal temperatures September to November 2012 B) Departure from normal temperatures September to November 2013.

A)



B)



Field Data

No population data is currently collected for this herd making management difficult. However, public input and harvest statistics lead us to believe this herd has grown over the last 5 years. Field checks and pre-season setting meetings have indicated that many hunters that have hunted in HA 124 are seeing more elk than they had historically. Harvest success for the herd unit has been high during the last 2 years (Average = 71%) indicating that hunters are finding the animals they would like to harvest.

Tooth age data from teeth sent in to the WGFD tooth aging lab (N = 19) coupled with harvest data indicating that 3 yearling bulls were harvested yield an average age of 6.5 (range 1.5 to 12.5). Our initial internal discussions had indicated a 3-year average age of 7.5 would be sufficient to maintain trophy quality bulls within this herd. We will continue to collect tooth age data over the next 2 years to give an indication of age trend and average age over the 3 years of data collection.

Sportsmen satisfaction in this herd is high with 73% of the 51 respondents "satisfied or very satisfied" with their overall hunting experience. Landowner satisfaction was collected through phone calls to landowners throughout the herd unit. A majority of landowners are satisfied with

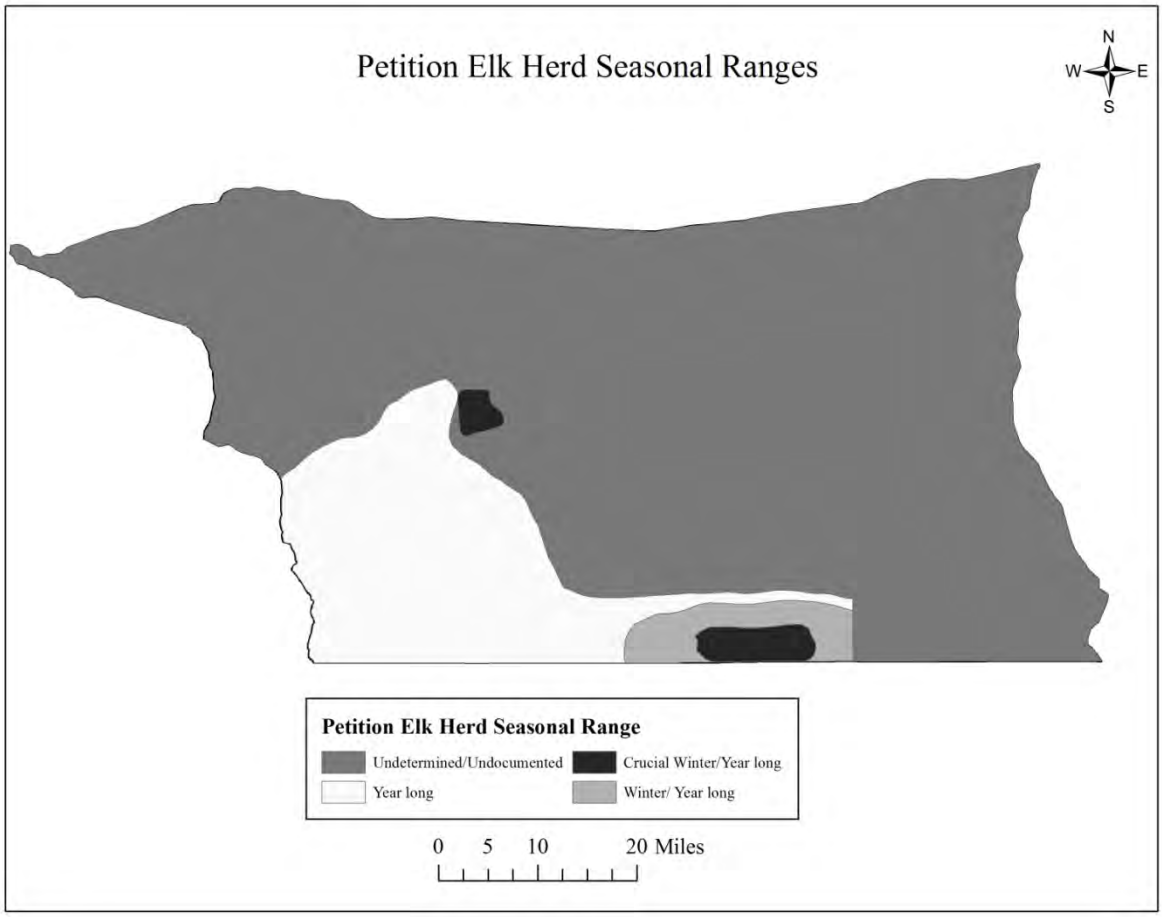
current levels of elk within the herd unit however, one landowner is concerned with the number of elk on the north central portion of the herd unit. We issuing a Type 7 licenses to address those concerns and decrease elk numbers in that portion of the herd unit.

Harvest Data and Population Indications

Hunter success over the last 3 years (average = 71%) is higher than the previous 10 year average (55%) with days to harvest similar (3 year average = 10 days, previous 10 year average = 12.5 days). In addition, cow harvest has steadily increased over the last 4 years with 2013 having the highest cow harvest seen in this herd. The higher success rates, trend towards fewer days to harvest and high cow harvest may be an indication that population levels are higher than they were 5 years ago.

Management Summary

It is important that we balance the management of an import resource to hunters (i.e. good opportunity for large bulls) and the extremely sensitive ecosystem found in the Petition elk herd as we move forward with the management of this herd. Currently we see very little issues between land owners and the Petition elk herd and strong support from sportsmen hunting elk within the herd. However, we need to make a better effort to survey sportsmen hunting the same areas for other species (i.e. mule deer). Our current management strategy is to maintain harvest rates across most of the area, with the exception of increasing cow licenses to deal with a specific landowner concern.


Petition Elk Herd Seasonal Ranges
N
W
E
S
Petition Elk Herd Seasonal Range
Undetermined/Undocumented
Crucial Winter/Year long
Year long
Winter/ Year long
0 5 10 20 Miles