2013 - JCR Evaluation Form

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

HERD: MO313 - BIGHORN

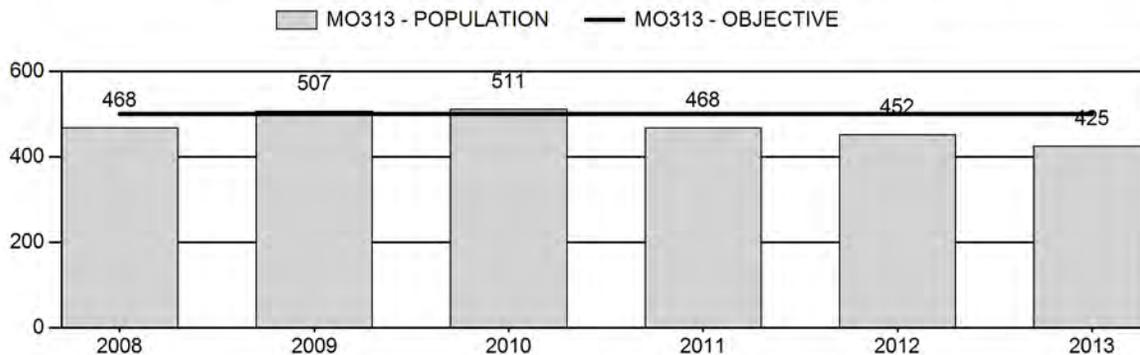HUNT AREAS: 1, 34, 42   PREPARED BY: TIM THOMAS

		2013	2014 Proposed
Population:	481	425	400
Harvest:	67	71	55
Hunters:	77	79	60
Hunter Success:	87%	90%	92%
Active Licenses:	77	79	60
Active License Percent:	87%	90%	92%
Recreation Days:	496	453	375
Days Per Animal:	7.4	6.4	6.8
Males per 100 Females	91	77	
Juveniles per 100 Females	45	69	

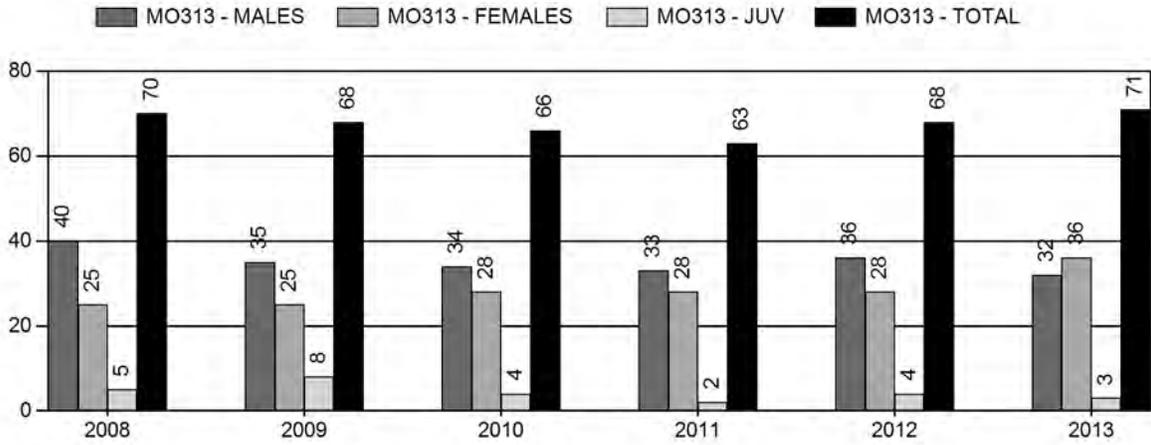|	
Population Objective:	500
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-15%
Number of years population has been + or - objective in recent trend:	2
Model Date:	None

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

	JCR Year	Proposed
Females ≥ 1 year old:	14%	10%
Males ≥ 1 year old:	23%	20%
Juveniles (< 1 year old):	3%	2%
Total:	14%	12%
Proposed change in post-season population:	-2%	0%

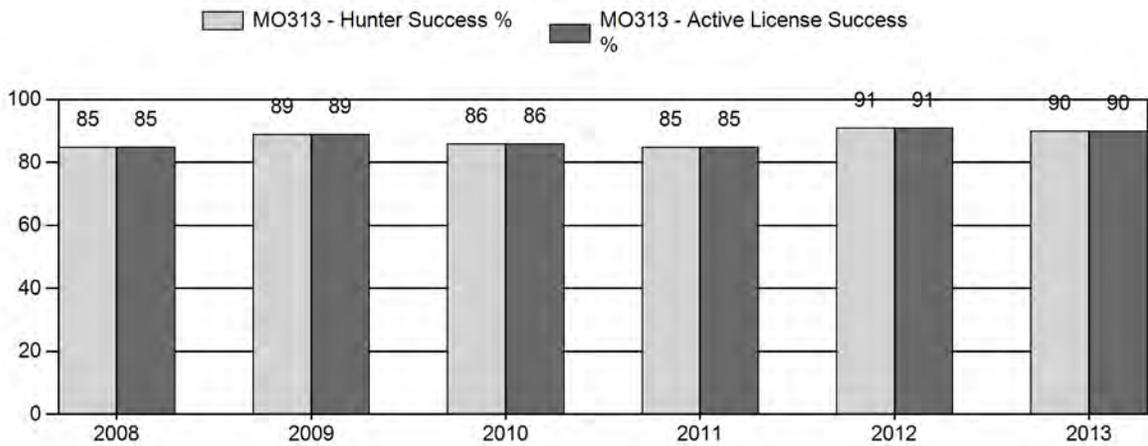# Population Size - Postseason

MO313 - POPULATION   MO313 - OBJECTIVE

Harvest

Number of Hunters
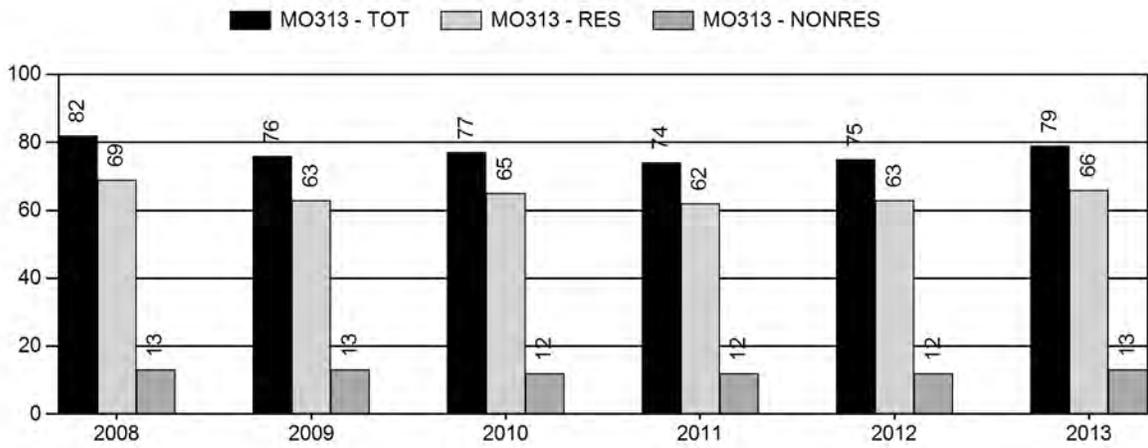
Harvest Success

Active Licenses

☐ MO313 - Active Licenses

Year	Value
2008	82
2009	76
2010	77
2011	74
2012	75
2013	79
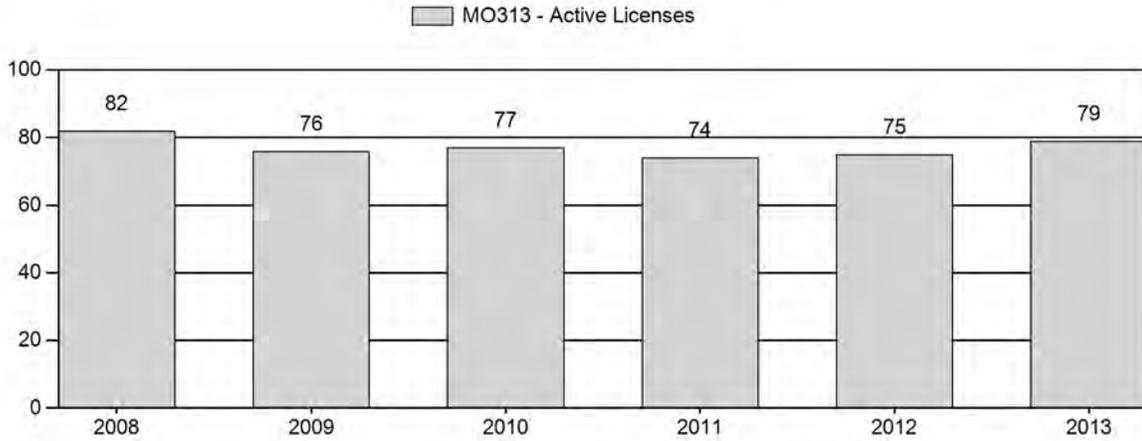
Days per Animal Harvested

☐ MO313 - Days

Year	Value
2008	7.4
2009	8
2010	6.5
2011	7.4
2012	7.8
2013	6.4
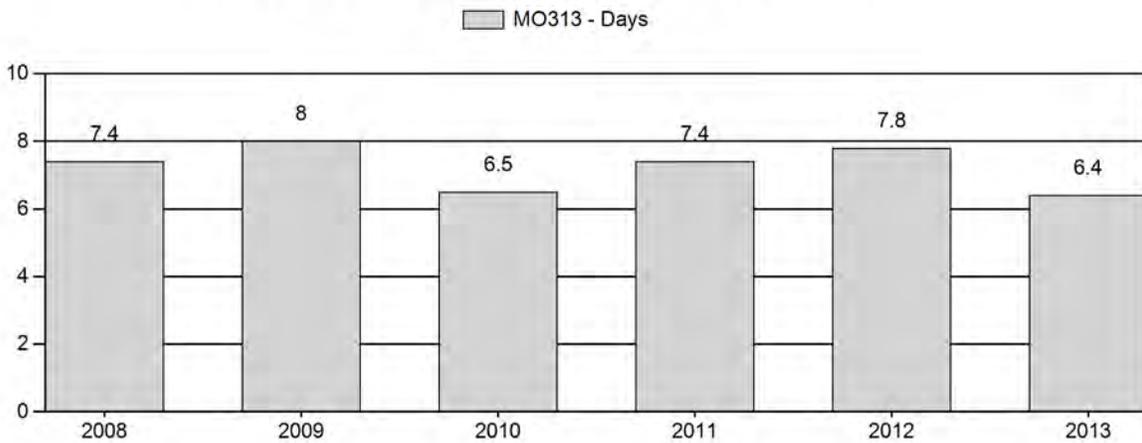
Postseason Animals per 100 Females

■ MO313 - Males   ☐ MO313 - Juveniles

Year	Males	Juveniles
2008	77	55
2009	141	47
2010	95	42
2011	90	55
2012	68	28
2013	77	69
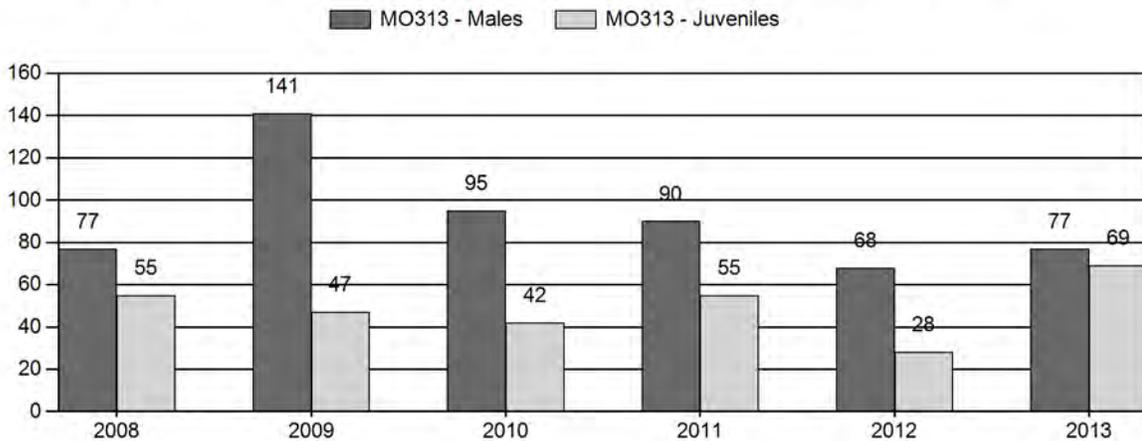
Age Structure of Field Checked Males

Legend: □ MO313 - JUV   ▦ MO313 - YRLG   ■ MO313 - 2+

Bar chart (y-axis 0 to 10):
- 2008: JUV 0, YRLG 0, 2+ 7
- 2009: JUV 1, YRLG 1, 2+ 8
- 2010: JUV 1, YRLG 0, 2+ 7
- 2011: JUV 0, YRLG 1, 2+ 6
- 2012: JUV 0, YRLG 0, 2+ 2

Age Structure Data (Field and Laboratory) - Male

Legend: □ MO313 - JUV   ▦ MO313 - YLG   ■ MO313 - ADLT

Bar chart (y-axis 0 to 25):
- 2008: JUV 0, YLG 0, ADLT 7
- 2009: JUV 1, YLG 1, ADLT 8
- 2010: JUV 1, YLG 0, ADLT 7
- 2011: JUV 0, YLG 1, ADLT 6
- 2012: JUV 0, YLG 0, ADLT 2
- 2013: JUV 0, YLG 2, ADLT 24
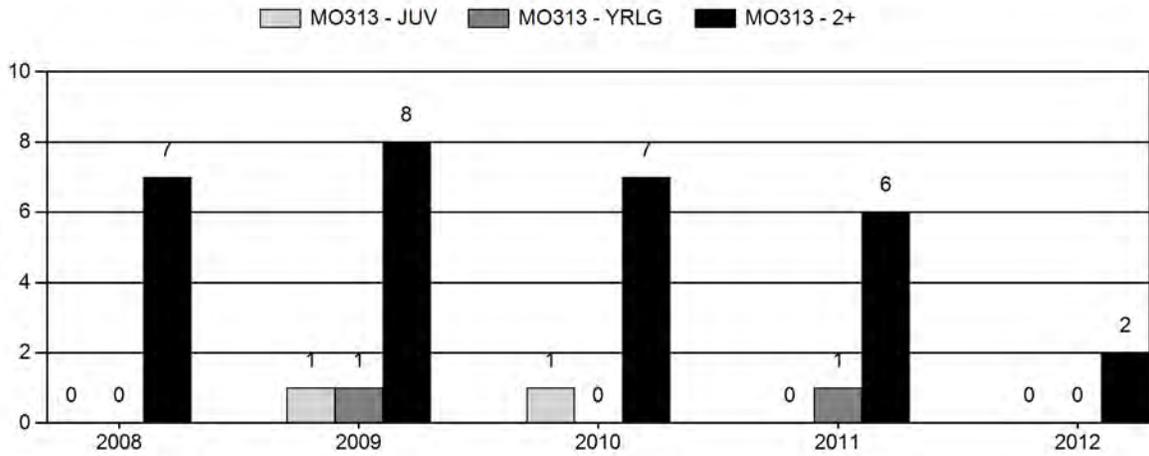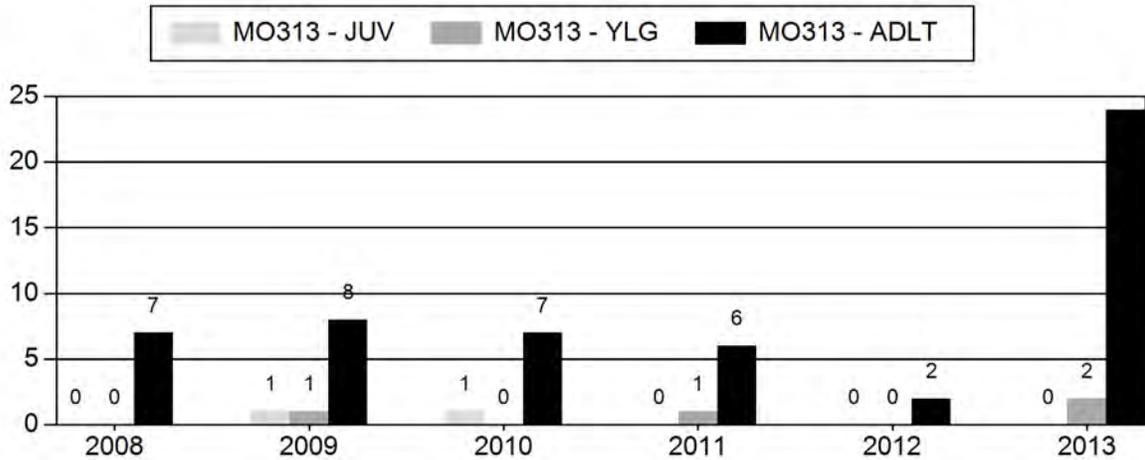
Age Structure Data (Field and Laboratory) - Female

Legend: □ MO313 - JUV   ▦ MO313 - YLG   ■ MO313 - ADLT

Bar chart (y-axis 0 to 20):
- 2008: JUV 0, YLG 0, ADLT 5
- 2009: JUV 1, YLG 0, ADLT 4
- 2010: JUV 1, YLG 0, ADLT 8
- 2011: JUV 0, YLG 0, ADLT 10
- 2013: JUV 0, YLG 4, ADLT 18

250
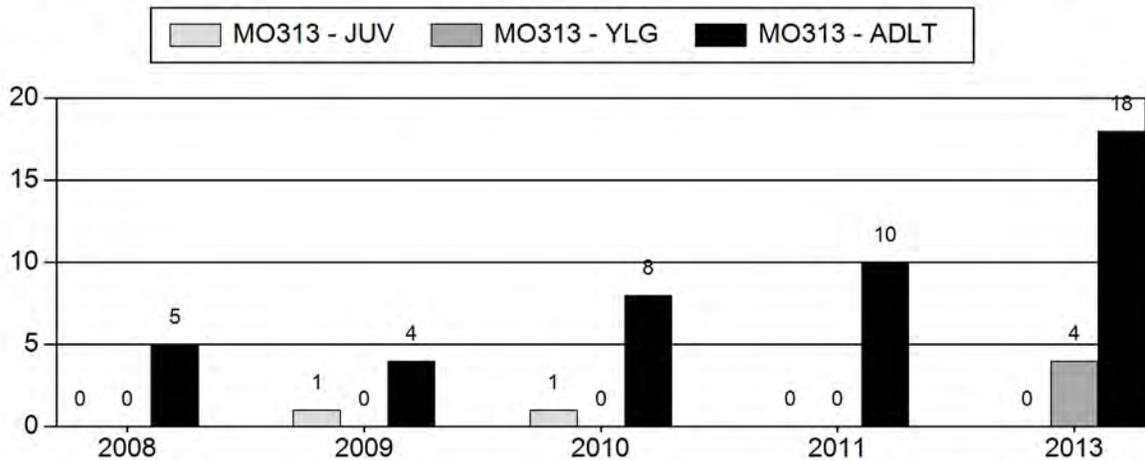
2008 - 2013 Postseason Classification Summary

for Moose Herd MO313 - BIGHORN

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	468	0	6	17	33%	22	43%	12	24%	51	0	0	27	77	± 0	55	± 0	31
2009	507	3	18	24	49%	17	35%	8	16%	49	0	18	106	141	± 0	47	± 0	20
2010	511	4	14	18	40%	19	42%	8	18%	45	0	21	74	95	± 38	42	± 22	22
2011	468	1	17	18	37%	20	41%	11	22%	49	0	5	85	90	± 35	55	± 25	29
2012	452	1	16	17	35%	25	51%	7	14%	49	0	4	64	68	± 26	28	± 14	17
2013	425	2	8	10	31%	13	41%	9	28%	32	0	15	62	77	± 40	69	± 37	39

2014 HUNTING SEASONS
BIGHORN MOOSE HERD (MO313)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	Limitations
1	1	Oct. 1	Oct. 31	15	Limited quota licenses; any moose, except cow moose with calf at side
	4	Oct. 1	Oct. 31	10	Limited quota licenses; antlerless moose, except cow moose with calf at side
34	1	Oct. 1	Oct. 31	10	Limited quota licenses; any moose, except cow moose with calf at side
	4	Oct. 1	Oct. 31	20	Limited quota licenses; antlerless moose, except cow moose with calf at side
42	1	Oct. 1	Oct. 31	5	
Archery		Sep. 15	Sep. 30		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2013
1	1	- 5
1	4	- 10
34	4	- 5
Herd Unit Total	**1**	**- 5**
	4	**- 15**

Management Evaluation
Current Postseason Population Management Objective: 500
Management Strategy: Special
2013 Postseason Population Estimate: ~ 425
2014 Proposed Postseason Population Estimate: ~ 400

Herd Unit Issues

The management objective for the Bighorn Moose Herd Unit is a post-season population objective of 500 moose, with a desired distribution of approximately 350 in Hunt Area 1, 70 moose in Hunt Area 34, and 80 moose in Hunt Area 42. The management strategy for all moose herds is special management, emphasizing trophy quality opportunities. The objective and management strategy were last revised in 1996.

Weather

The spring and summer of 2013 was relatively cool and wet, resulting in near normal conditions in the Bighorn Mountains. The winter of 2013-14 started in late September with significant snow fall that continued through most of the winter. Temperatures have been below average, often dropping well below zero for up to a week at a time. We have not seen temperatures this low, as often, or for extended periods of time since the 1980s.

Moose appear to be sensitive to warmer temperatures, showing signs of increased metabolic rates or heat stress at about 23° F during winter months and 57° F during summer months. Recent research conducted in Massachusetts suggest moose move to thermal cover to avoid heat stress. This can alter feeding and movement patterns. Long-term consequences or effects on fitness are not currently understood.

Habitat

Field Data

Field personnel classify moose in Hunt Areas 1 and 34 annually. In recent years, these surveys were conducted using a Bell 206B JetRanger III. Area 1 is generally surveyed in mid-late August and Area 34 is surveyed during late November – mid-January, depending on survey conditions, snow cover, and aircraft availability. Classification counts are collected occasionally in Area 42, usually incidental to other duties during July and August. Survey results can vary significantly between years, often without easily discernible rational, making interpretation of data difficult at best (Fig.1). Over time, trends in survey counts can be observed and can provide insight to general population dynamics.
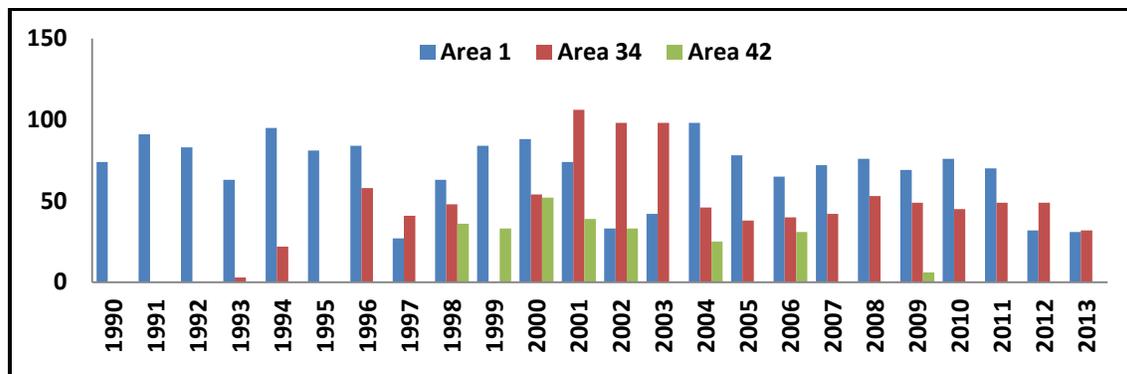

Figure 1. Moose classification/trend counts in Bighorn Herd Unit 1990 – 2013. Area 1 is surveyed in August of each year. Area 34 is surveyed in later November – January of each year. Areas 42 is periodically surveyed during late summer.

During 2013, we classified only 31 moose in Area 1, the lowest count since 1997 (n=27). This is the second year in a row with a very low classification count. We observed only 7 moose in the Goose Creek drainage the past 2 years (n=3 in 2012; n=4 in 2013). We observed 43 bulls and 50 calves per 100 cows. In Area 34, we classified 32 moose, the lowest count since 1998 (n=30). We observed 77 bulls and 69 calves 100 cows. Post-season calf to cow ratio may be skewed upward due to selective harvest of barren cows (i.e. cow without calf at side). The ratio of 50 calves:100 cows in Area 1 may not be sufficient to maintain or grow this population. Low sample size for both areas makes it difficult to have to confidence in these ratios.
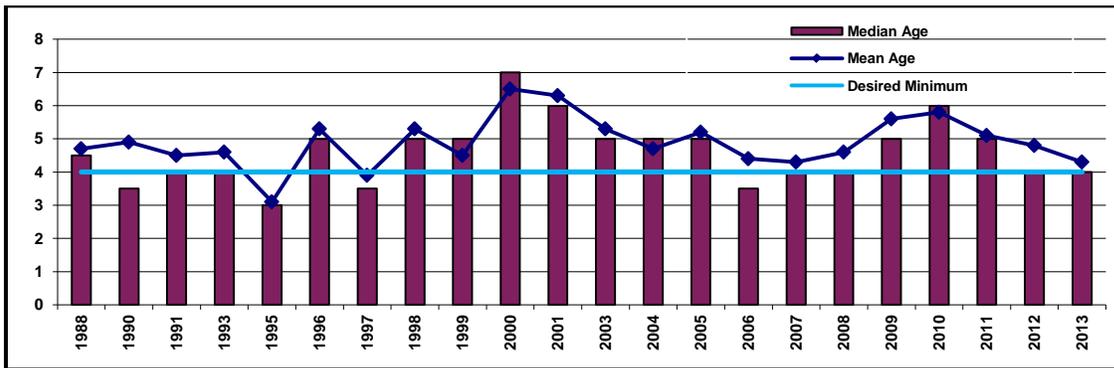

Figure 2. Median and mean age of harvested bull moose in Bighorn Herd Unit. Teeth aged by cementum analyses. Male moose ≥ 1 year old included in analysis.
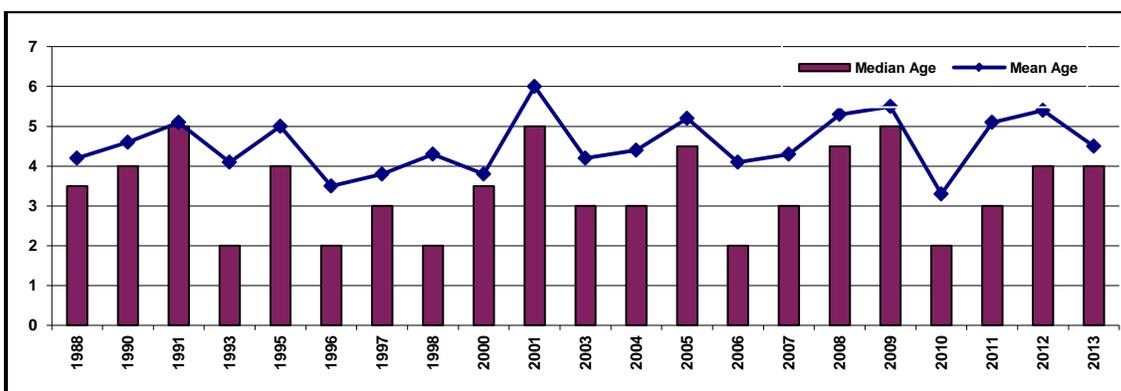

Figure 3. Median and mean age of harvested cow moose in Bighorn Herd Unit. Teeth aged by cementum analyses. Female moose ≥ 1 year old included in analysis. There is no desired minimum threshold established for female moose age data.
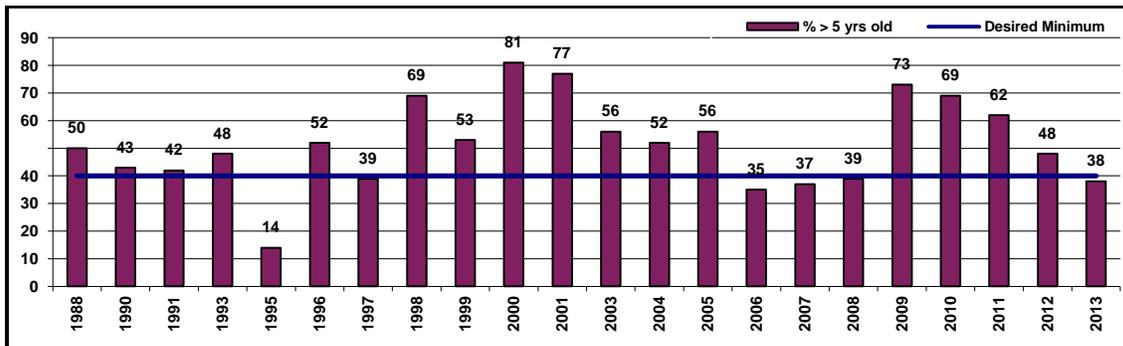
Figure 4. Percentage of harvested bull moose ≥ 5 years old by year.

Harvest Data

Hunters harvested an estimated 71 moose in 2013, similar to the past 5 years. Hunter success was 90% and effort, as measured by days hunted per moose harvested, was 6.4 days/harvest. Effort can vary between years for no discernible reason. Unless there is a significant change in reported effort, it is difficult to use this metric for management decisions. Since moose licenses are often a once-in-a-lifetime opportunity, especially in this herd unit, we try to maintain a sufficient population to assure high (i.e. 85%+) success rates for license holders.

Most hunters checked in the field seemed satisfied with their hunting experience in this herd unit. Most comments submitted with the harvest survey suggested hunters were satisfied with their hunting experience.

Population

We have not developed a spreadsheet model for moose at this time. Population estimates for this herd unit are based on classification counts (Fig. 1), corrected for an estimated sightability bias. The correction factors are based on the observer's perceived idea of survey conditions and results, and have not been calibrated with independent sightability studies specific to this herd unit or habitat type. While the estimated correction factor has not been calibrated, we do obtain a known minimum population from classification surveys which can be viewed as a trend count.

We believe this moose population to be below the post-season objective at this time, at or below 400 moose. We believe the population to be trending slightly downward. Moose no longer occupy several areas along major forest service roads that were occupied 5-10 years ago.

Management Summary

Moose licenses are by limited draw in all hunt areas. The Bighorn Herd Unit is very popular based on the number of applications for licenses available. The regular hunting season runs October 1 – 31 in all hunt areas, with an archery pre-season from September 15 – 30. Archers often harvest up to 50% of the bulls harvested in any given year. Most moose hunting in this herd unit is on the Bighorn National Forest with good access for hunters. Snow can limit access into some areas as the season progresses.

We are concerned that this population may be decreasing faster than desired and lower than desired. Moose no longer use some areas where they were common just 5-10 years ago. Reports of fewer moose, from both hunters and general wildlife viewers, have increased in recent years. Classification counts in 2013 were the lowest in years. We are at or below desired male harvest indices, suggesting we may be harvesting more males then is desired. As such, we reduced licenses in both Areas 1 and 34 this year.

We estimate a harvest of 55 moose in 2014, a decrease from recent years. This should keep the population near the current level. Wyoming Governor's Complimentary moose licenses (n=5) are valid in Hunt Area 1 (i.e. hunt areas with greater than 10 Type 1 licenses), where 1-2 of these licenses are used most years.

This herd unit provides quality wildlife viewing opportunities, with moose visible from U.S. Highways 14, 14A and 16, as well as main forest service roads, throughout the spring and summer. During a recent trip along Highways 14 and 14A in late May, the Sheridan Wildlife Biologist observed 22 moose. In this past, this same trip would result in an observation of 40+ moose.

Habitat, especially riparian and aspen communities, remain a concern on the Bighorn Mountains. We will continue to work with the Bighorn National Forest to address these concerns.
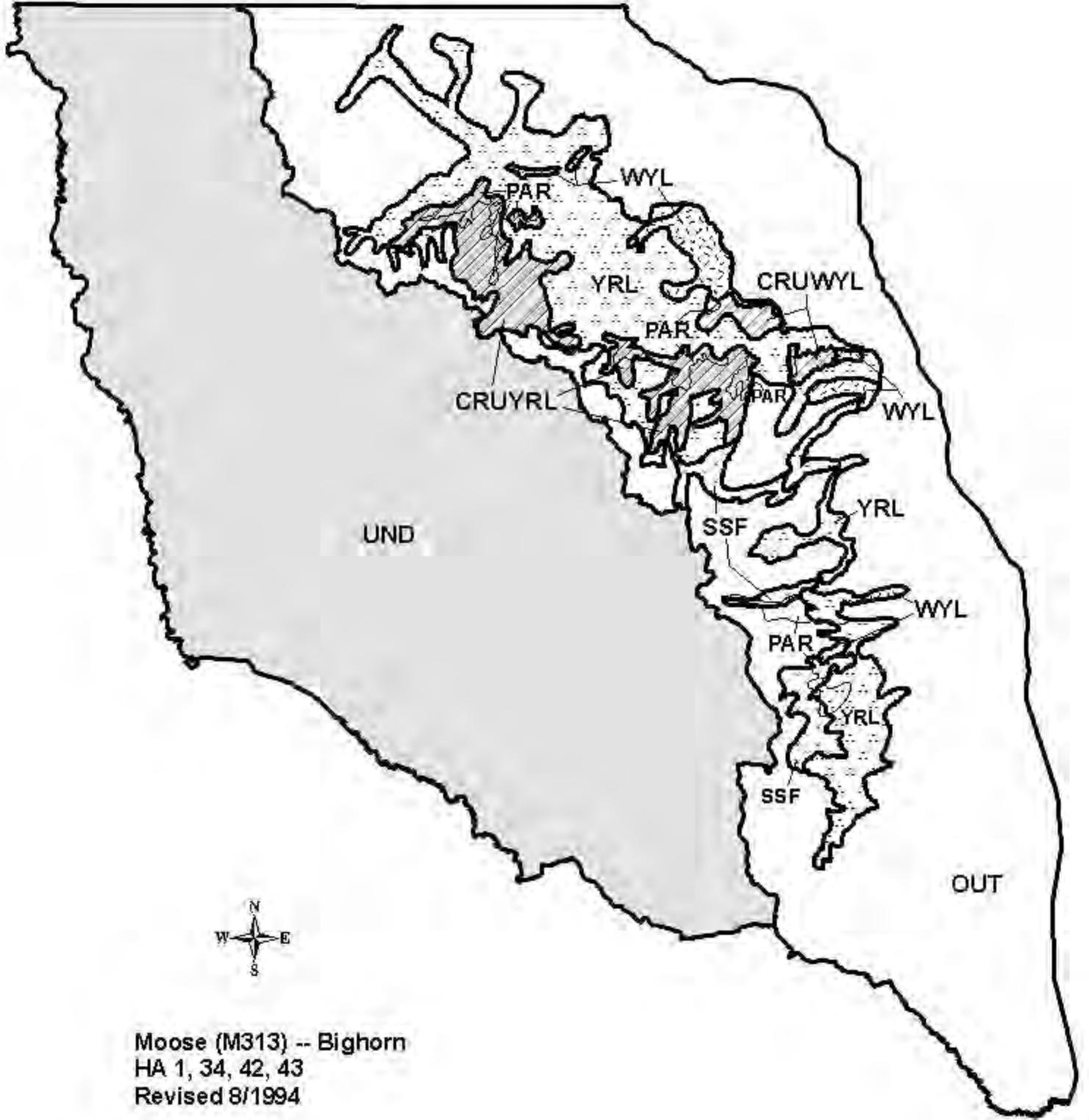
Moose (M313) -- Bighorn
HA 1, 34, 42, 43
Revised 8/1994

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