

2013 - JCR Evaluation Form

SPECIES: Mule Deer
 HERD: MD642 - DUBOIS
 HUNT AREAS: 128, 148

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

PREPARED BY: GREG
 ANDERSON

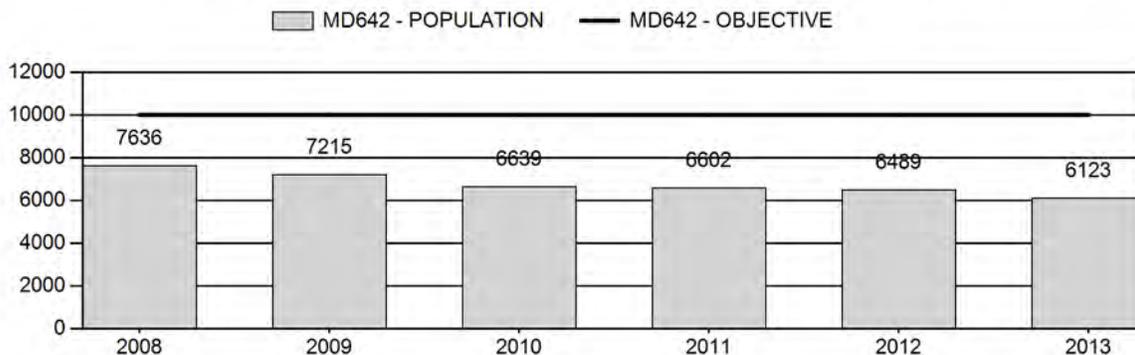
	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	6,916	6,123	7,111
Harvest:	520	727	275
Hunters:	1,246	1,341	1,200
Hunter Success:	42%	54%	23 %
Active Licenses:	1,329	1,389	1,200
Active License Percent:	39%	52%	23 %
Recreation Days:	7,532	6,913	5,000
Days Per Animal:	14.5	9.5	18.2
Males per 100 Females	25	29	
Juveniles per 100 Females	59	65	

Population Objective: 10,000
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: -38.8%
 Number of years population has been + or - objective in recent trend: 10
 Model Date: 2/21/2014

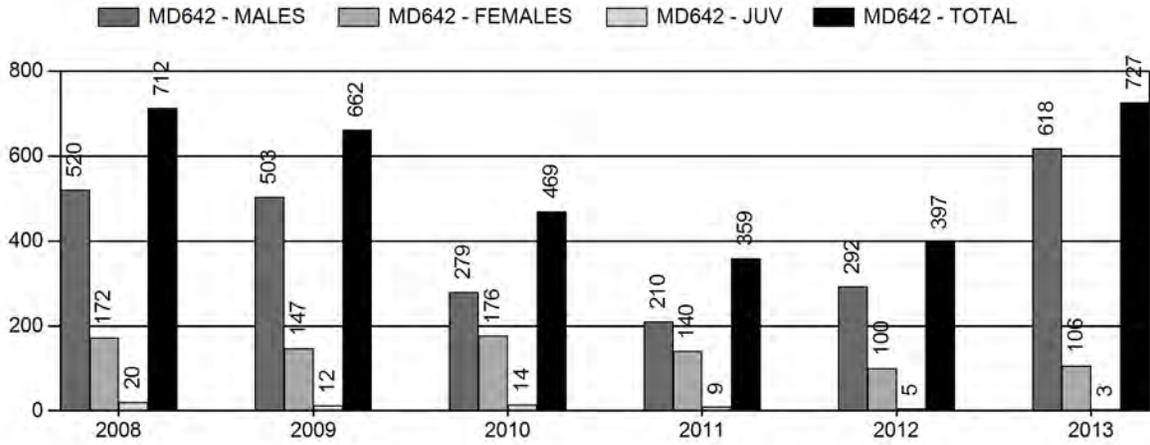
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	3%	1%
Males ≥ 1 year old:	48%	18%
Juveniles (< 1 year old):	1%	1%
Total:	10%	4%
Proposed change in post-season population:	-6%	+16%

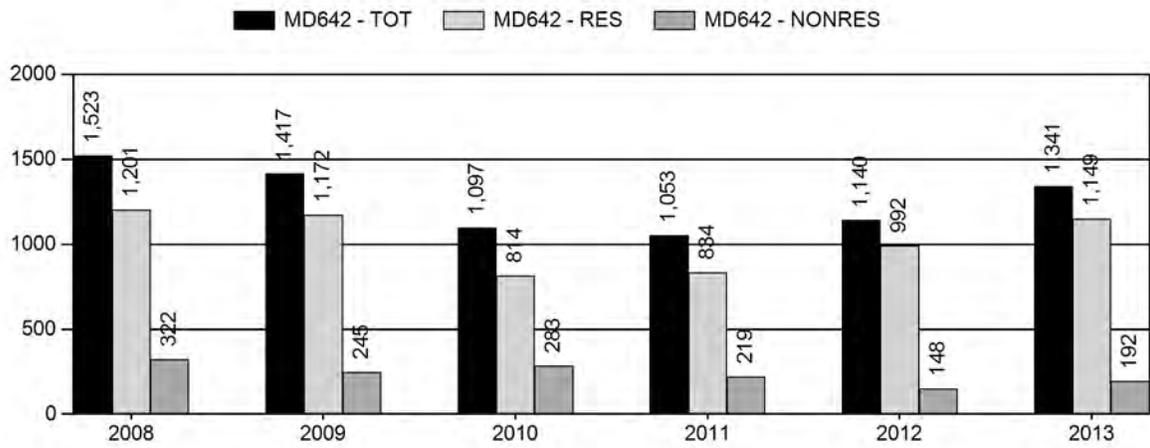
Population Size - Postseason



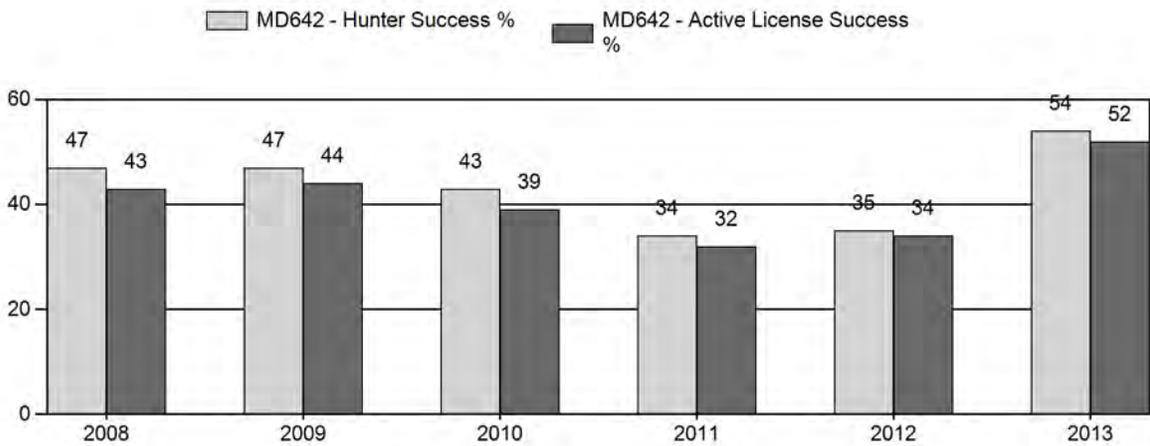
Harvest



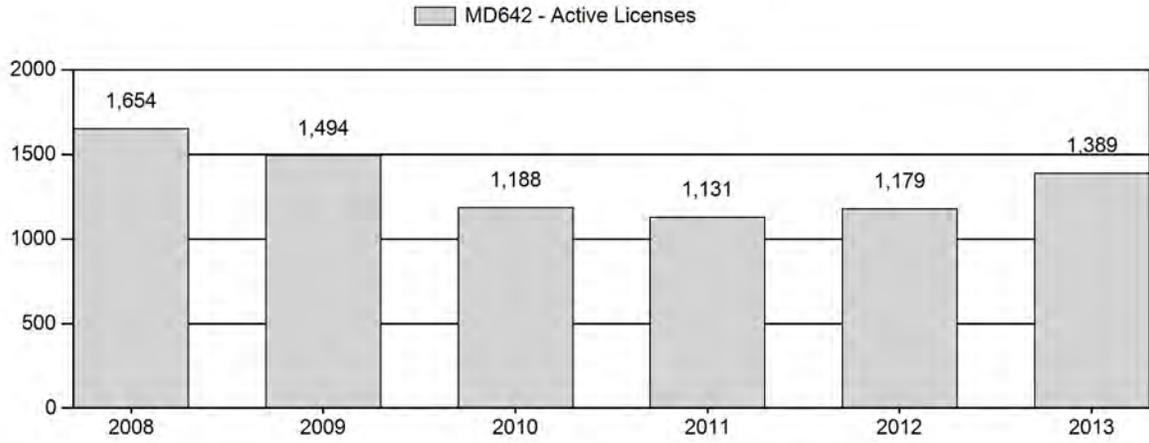
Number of Hunters



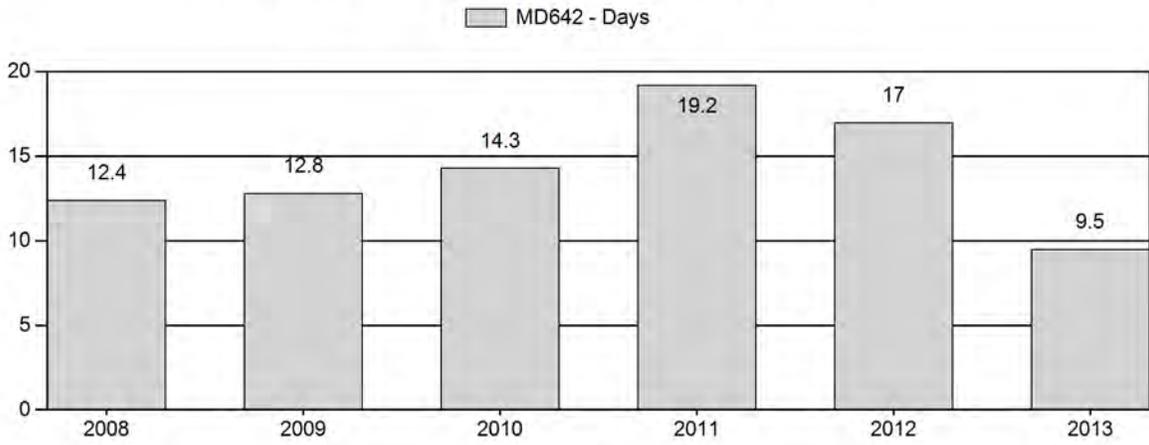
Harvest Success



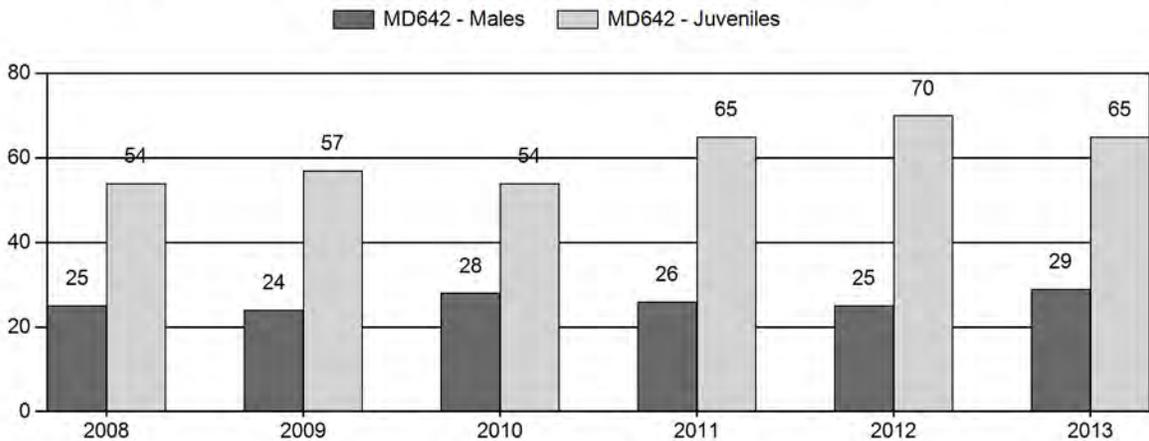
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2008 - 2013 Postseason Classification Summary

for Mule Deer Herd MD642 - DUBOIS

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	7,636	54	86	140	14%	556	56%	302	30%	998	852	10	15	25	± 3	54	± 5	43
2009	7,215	64	117	181	13%	765	55%	434	31%	1,380	928	8	15	24	± 2	57	± 4	46
2010	6,639	61	128	189	15%	683	55%	370	30%	1,242	876	9	19	28	± 3	54	± 4	42
2011	6,602	36	52	88	14%	340	52%	221	34%	649	1,073	11	15	26	± 4	65	± 7	52
2012	6,489	26	78	104	13%	415	51%	291	36%	810	1,232	6	19	25	± 3	70	± 6	56
2013	6,123	73	102	175	15%	605	51%	395	34%	1,175	1,117	12	17	29	± 3	65	± 5	51

**2014 HUNTING SEASONS
DUBOIS MULE DEER (MD 642)**

Hunt Area	Type	Season Dates		Quota	Limitations
		Opens	Closes		
128		Oct. 1	Oct. 15		General; antlered mule deer or any white-tailed deer
	1	Nov. 1	Nov. 20	50	Limited quota; any deer
	3	Nov. 1	Nov. 20	50	Limited quota; any white-tailed deer
	7	Nov. 1	Nov. 20	25	Limited quota; doe or fawn valid on private land
148		Sep. 15	Oct. 25		General; antlered deer
Archery					
128		Sep. 1	Sep. 30		General; any deer. Limited quota; refer to license type.
148		Sep. 1	Sep. 14		General; any deer

Hunt Area	Type	Quota change from 2013
128	6	-25
	7	-75
Total	6	-25
	7	-75

Management Evaluation

Current Management Objective: 10,000

Management Strategy: Recreational

2013 Postseason Population Estimate: ~6,100

2014 Proposed Postseason Population Estimate: ~7,100

Management Issues

The Dubois mule deer herd has an objective of 10,000 and a recreational management strategy. The objective has been in place since 1994.

Deer in this herd unit winter in hunt area 128. It is known many of the deer migrate out of the herd unit in late spring and do not return until early winter. Migration routes and the extent of summer range are unknown. Deer that do remain in the herd unit generally spend summers at high elevation sites. Much of the winter range utilized by deer overlaps elk and bighorn sheep winter range and remains relatively untouched by development.

Habitat/Weather

The past year was characterized by extreme drought throughout the herd unit. Vegetation transects monitored to determine the amount of forage available on elk winter range revealed herbaceous vegetation production was approximately 55% of the previous 5 year average. Herbaceous production was even lower than in 2012 which was also a very dry year. No shrub data is collected in the herd unit, but the dry conditions undoubtedly resulted in poor browse production. Casual observations of shrub conditions in the herd unit did indicate growth was poor. Although no vegetation data is collected at high elevation summer range, observations suggest vegetation growth was low on summer range as well. Given the low forage production, deer entered the winter in poor body condition. In contrast to low precipitation during the growing season, there was unusually high precipitation throughout the herd unit starting in September. Much of the precipitation was snow and forced deer onto winter range nearly 2 months earlier than normal. The early presence of deer on winter range resulted in unusually high deer harvest during the general season in October. With average winter conditions, overwinter deer mortality may be higher than normal due to the poor condition of animals entering winter.

Field/Harvest Data/Population

Despite poor feed conditions, the fawn/doe ratio in 2013 was typical for the herd at 65/100. This was slightly higher than the 5 year average of 59/100. The buck/doe ratio in the herd has been remarkably stable for many years. In 2013 the buck/doe ratio was 29/100. This was also slightly higher than the 5 year average of 25/100. Both the fawn/doe and buck/doe ratios were within the usual range of variability in the herd. The population is suspected to have declined steadily over the past several years. The 2013 population estimate is approximately 6,100 deer.

Hunter success during the general, October season tends to be quite low and is related to the fact many deer are not in the herd unit during that period. Deer typically migrate into the herd unit in late October and are present for the limited quota season in November. Due to the extensive immigration, success rates for November license holders are usually quite high.

In 2013, hunter success during the general, October season was well above any level seen during the past 30 years. General hunters had a 53% success rate in hunt area 128. This was nearly double the previous 10 year average. In conjunction with the high success, the days/animal was the lowest on record for the past 30 years. Both these statistics indicate hunters had an exceptionally easy time harvesting buck deer during the general season. Observations from field personnel during the hunting season also indicate harvest in October was unusually high.

Observations in September and October unequivocally indicate large numbers of deer migrated into the herd unit from dispersed summer range as much as 2 months earlier than normal. The early migration is directly attributable to unprecedented, early snowfall in the high country. The historically high buck harvest in October is thus directly linked to environmental conditions and early migration onto winter range and in no way attributable to population growth in the herd.

A new spreadsheet model was developed for the population in 2012. The model did not exhibit any erratic behavior with the addition of data in 2013. For 2013, the TSJ/CA version of the model was selected to track the population. The model AIC value was higher than the other 2 comparative models but the fit was also much better. Also the other 2 models produce estimates nearly 3 times as high as the TSJ/CA or other historical models for the herd. The selected model simulates a significant population decline over the past 5 years. The modeled decline is supported by the harvest statistics from the previous 5 years with the exception of 2013 for reasons mentioned above. The model appears to offer a fair approximation of the population given parameters selected by the model seem reasonable and it tracks suspected population trends closely up to 2013. It should be noted the model predicts 16% growth in 2014 to 7,100 deer. Given poor habitat conditions and average recruitment growth seems unlikely. It is possible the model projects a higher population in response to the abnormally high buck harvest in 2013. As explained above, the buck harvest was related to environmental conditions and should not be taken as an indication of population growth.

Management Summary

The 2014 hunting season is designed to maintain recreational opportunity at the same level as the 2013 season. Regardless of the season structure, harvest in 2014 is expected to decline significantly since 2013 environmental conditions were an anomaly that significantly increased deer vulnerability. Due to the extended population decline indicated in the model, minimal doe/fawn harvest is warranted in 2014. Thus, Type 6 licenses are eliminated and Type 7 licenses are reduced. Type 7 licenses are also restricted to use on private lands in 2014. Given restricted use to private lands, a minimal number of Type 7 licenses will be issued in 2014. Given average winter conditions, the population model predicts the population will increase some but remain below objective at 7,100 deer in 2014.

INPUT	
Species:	Mule Deer
Biologist:	Greg Anderson
Herd Unit & No.:	Dubois Mule Deer
Model date:	02/21/14

MODELS SUMMARY			Relative AICc	Fit	Notes
CJ,CA	Constant Juvenile & Adult Survival		108	99	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival		108	99	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival		130	19	

Year	Population Estimates from Top Model										Objective
	Posthunt Population Est.		Trend Count		Predicted Prehunt Population			Predicted Posthunt Population			
	Field Est	Field SE	Juveniles	Total	Juveniles	Total Males	Females	Juveniles	Total Males	Females	
1993			2061	1236	3670	6967	1975	734	3022	5731	10000
1994			2264	1517	3474	7255	2251	636	3395	6282	10000
1995			2324	1415	3775	7514	2320	1064	3709	7094	10000
1996			2654	1462	3725	7841	2648	790	3650	7087	10000
1997			2292	1205	3652	7149	2285	878	3553	6716	10000
1998			2443	1208	3496	7148	2438	842	3469	6749	10000
1999			2235	1298	3545	7077	2235	820	3473	6528	10000
2000			2298	1613	3883	7794	2295	936	3798	7030	10000
2001			1952	1380	3829	7161	1950	728	3742	6420	10000
2002			1698	1193	3771	6662	1693	747	3669	6109	10000
2003			1893	1066	3566	6524	1882	661	3461	6004	10000
2004			2064	1412	3808	7284	2056	845	3734	6635	10000
2005			2256	1648	4120	8024	2254	947	4060	7261	10000
2006			2691	1688	4352	8731	2687	984	4282	7954	10000
2007			2407	1380	4201	7987	2392	760	4034	7186	10000
2008			2333	1643	4443	8419	2311	1071	4254	7636	10000
2009			2296	1462	4185	7943	2283	909	4024	7215	10000
2010			2022	1234	3899	7155	2007	927	3705	6639	10000
2011			2231	1195	3571	6996	2221	964	3417	6602	10000
2012			2290	1269	3367	6925	2284	947	3257	6489	10000
2013			2135	1406	3382	6923	2132	726	3265	6123	10000
2014			2270	1486	3658	7414	2264	1211	3636	7111	10000
2015											10000
2016											10000
2017											10000
2018											10000
2019											10000
2020											10000
2021											10000
2022											10000
2023											10000
2024											10000
2025											10000

Survival and Initial Population Estimates

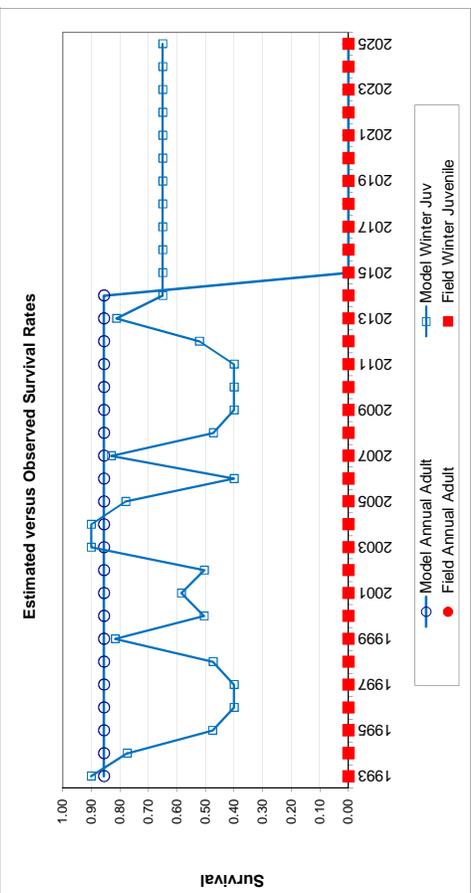
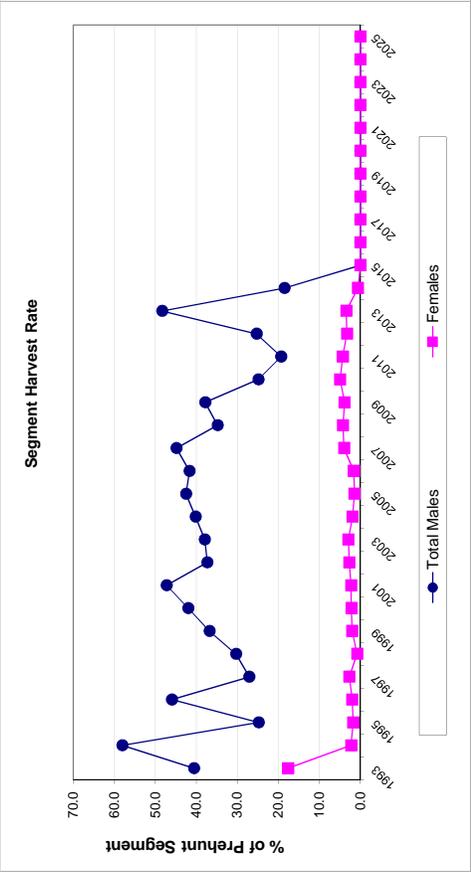
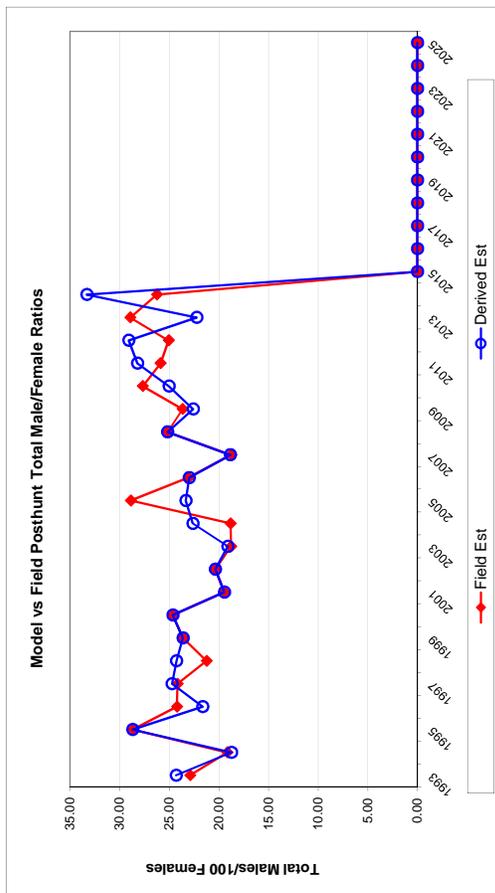
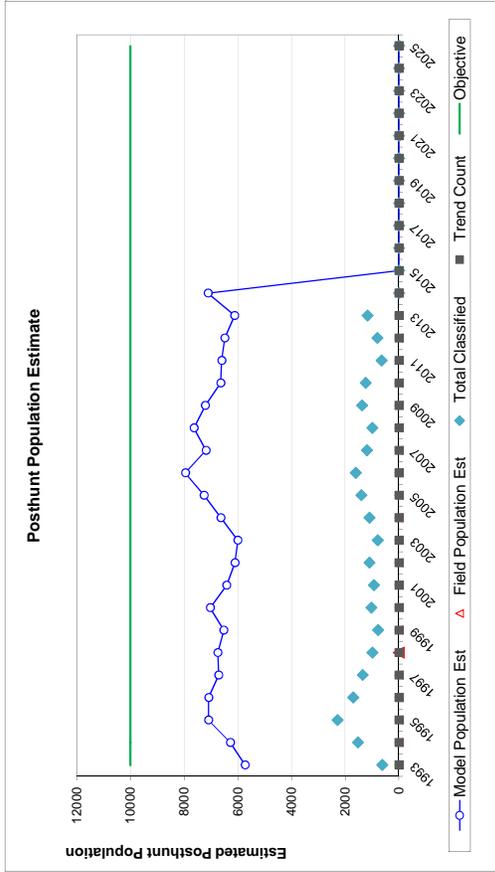
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est SE	Model Est	Field Est SE
1993	0.90		0.86	
1994	0.77		0.86	
1995	0.48		0.86	
1996	0.40		0.86	
1997	0.40		0.86	
1998	0.47		0.86	
1999	0.82		0.86	
2000	0.50		0.86	
2001	0.58		0.86	
2002	0.50		0.86	
2003	0.90		0.86	
2004	0.90		0.86	
2005	0.78		0.86	
2006	0.40		0.86	
2007	0.83		0.86	
2008	0.47		0.86	
2009	0.40		0.86	
2010	0.40		0.86	
2011	0.40		0.86	
2012	0.52		0.86	
2013	0.81		0.86	
2014	0.65		0.86	
2015	0.65		0.86	
2016	0.65		0.86	
2017	0.65		0.86	
2018	0.65		0.86	
2019	0.65		0.86	
2020	0.65		0.86	
2021	0.65		0.86	
2022	0.65		0.86	
2023	0.65		0.86	
2024	0.65		0.86	
2025	0.65		0.86	

Parameters:		Optim cells
Adult Survival =		0.855
Initial Total Male Pop/10,000 =		0.073
Initial Female Pop/10,000 =		0.302

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%

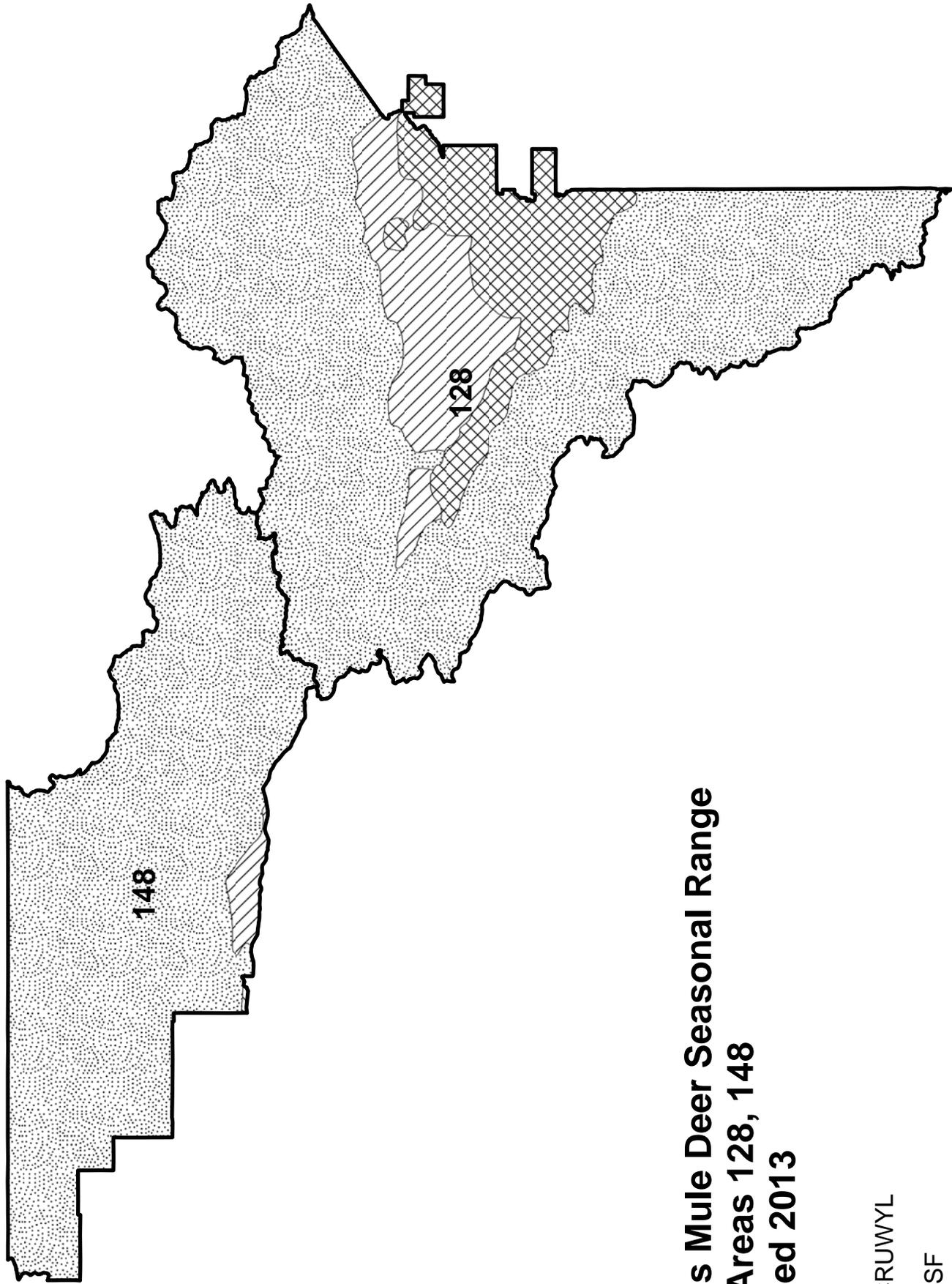
Year	Classification Counts										Harvest		
	Juvenile/Female Ratio					Total Male/Female Ratio					Segment Harvest Rate (% of		
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/o bull adj	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females	
1993		65.36	5.71	24.30	22.89	2.91	78	456	589	1123	40.6	17.7	
1994		66.30	3.66	18.73	19.15	1.66	12	801	72	885	58.1	2.3	
1995		62.55	2.91	28.69	28.69	1.75	3	319	60	382	24.8	1.7	
1996		72.55	3.80	21.64	24.22	1.86	6	611	68	685	46.0	2.0	
1997		64.31	3.83	24.72	24.17	2.04	7	297	90	394	27.1	2.7	
1998		70.27	4.81	24.28	21.24	2.23	5	333	25	363	30.3	0.8	
1999		64.34	5.05	23.61	23.61	2.65	0	434	65	499	36.8	2.0	
2000		60.43	4.18	24.64	24.64	2.35	2	616	77	695	42.0	2.2	
2001		52.11	3.81	19.45	19.45	2.06	2	593	79	674	47.3	2.3	
2002		46.15	3.19	20.36	20.36	1.92	4	405	93	502	37.4	2.7	
2003		54.37	4.28	19.10	18.78	2.21	10	368	95	473	38.0	2.9	
2004		55.06	3.68	22.63	18.83	1.88	7	516	67	590	40.2	1.9	
2005		55.51	3.37	23.33	28.87	2.21	2	637	54	693	42.5	1.4	
2006		62.75	3.43	22.99	23.07	1.81	4	640	63	707	41.7	1.6	
2007		59.31	3.75	18.85	18.78	1.82	13	563	152	728	44.9	4.0	
2008		54.32	3.88	25.18	25.18	2.38	20	520	172	712	34.8	4.3	
2009		56.73	3.41	22.59	23.66	1.96	12	503	147	662	37.8	3.9	
2010		54.17	3.50	25.03	27.67	2.27	14	279	176	469	24.9	5.0	
2011		65.00	5.62	28.20	25.88	3.10	9	210	140	359	19.3	4.3	
2012		70.12	5.36	29.08	25.06	2.75	5	292	100	397	25.3	3.3	
2013		65.29	4.22	22.23	28.93	2.48	3	618	106	727	48.4	3.4	
2014		62.26	4.42	33.30	26.24	2.51	5	250	20	275	18.5	0.6	
2015													
2016													
2017													
2018													
2019													
2020													
2021													
2022													
2023													
2024													
2025													

FIGURES

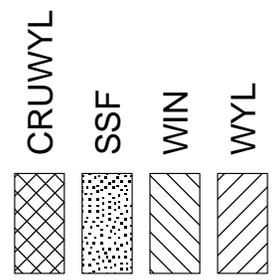


Comments:

END



**Dubois Mule Deer Seasonal Range
Hunt Areas 128, 148
Updated 2013**



2013 - JCR Evaluation Form

SPECIES: Mule Deer

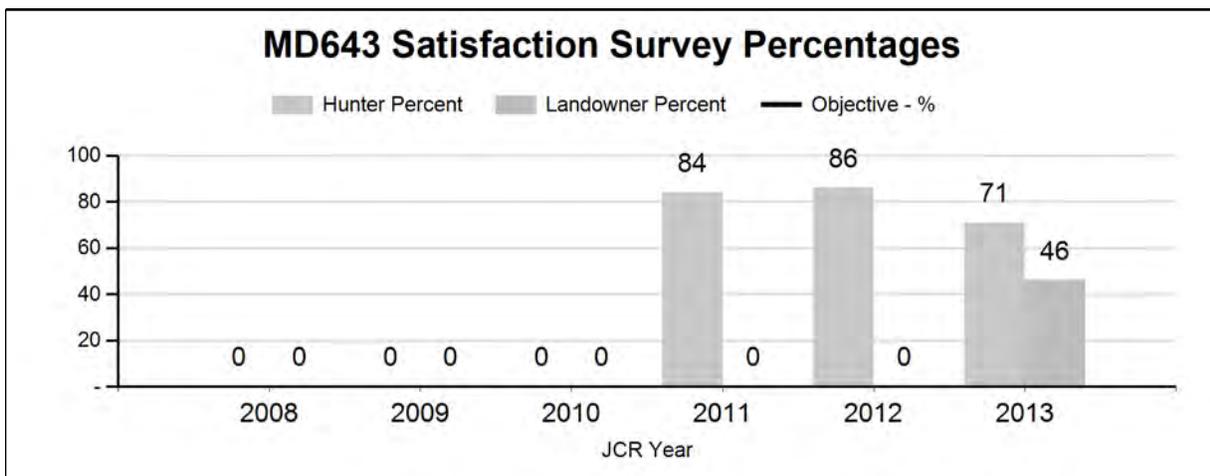
PERIOD: 6/1/2013 - 5/31/2014

HERD: MD643 - PROJECT

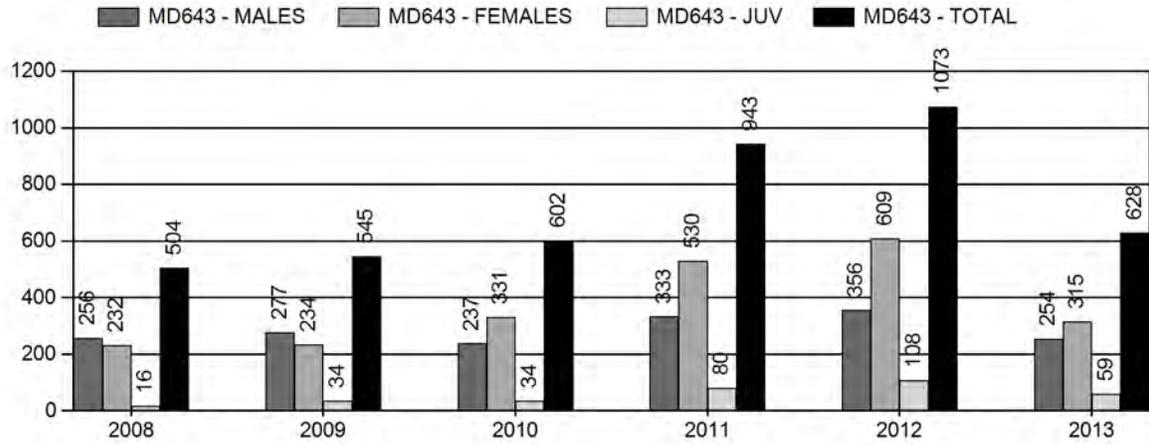
HUNT AREAS: 157, 170-171

PREPARED BY: GREG ANDERSON

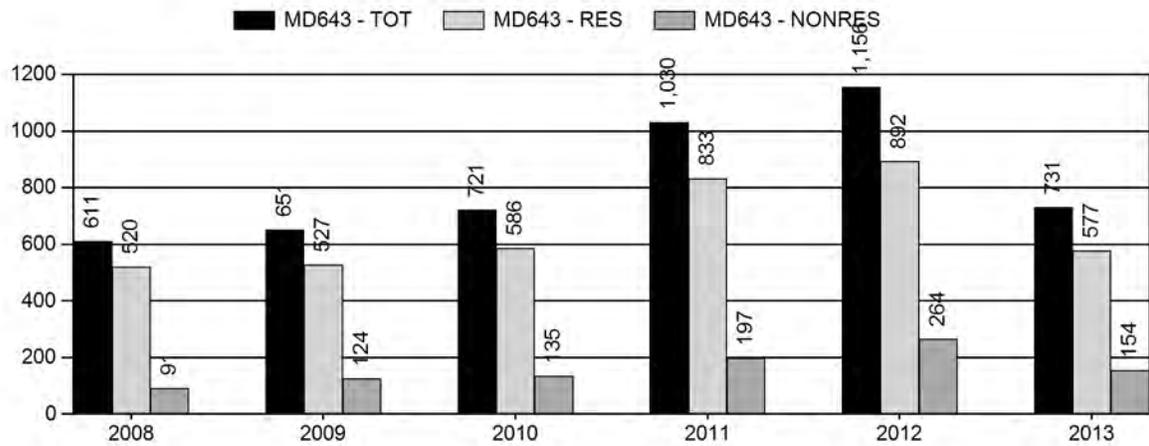
	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Hunter Satisfaction Percent	85%	71%	70%
Landowner Satisfaction Percent	0%	46%	60%
Harvest:	733	628	630
Hunters:	834	731	740
Hunter Success:	88%	86%	85%
Active Licenses:	945	71%	890
Active License Percentage:	78%	71%	71%
Recreation Days:	3,541	3,561	3,600
Days Per Animal:	4.8	5.7	5.7
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			-2%
Number of years population has been + or - objective in recent trend:			1



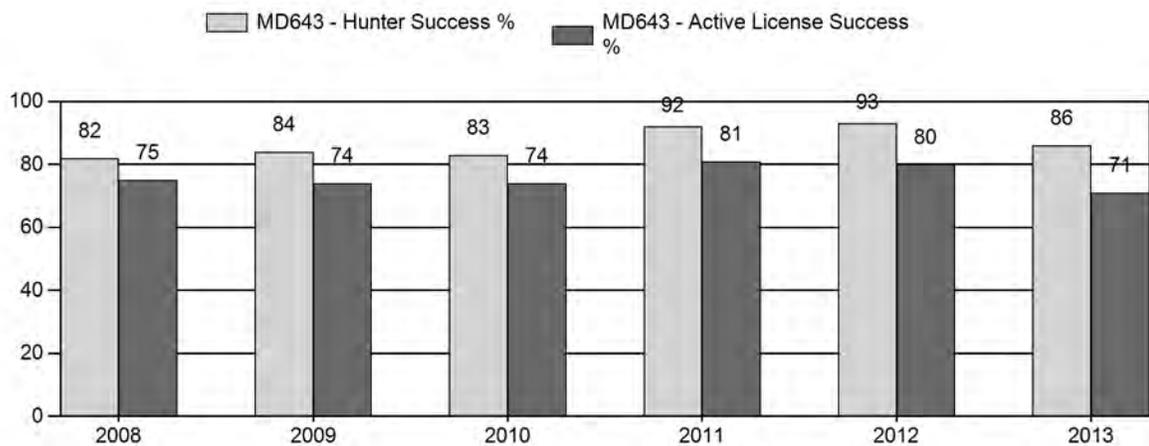
Harvest



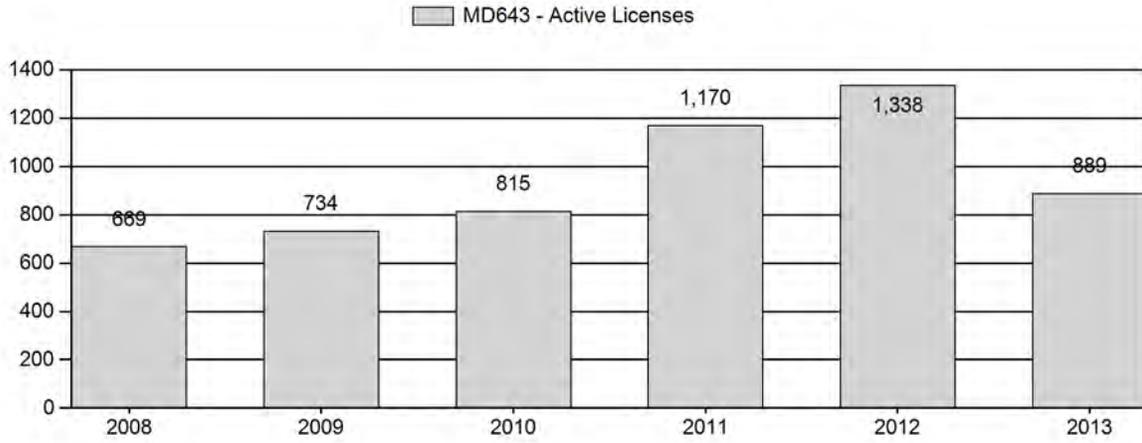
Number of Hunters



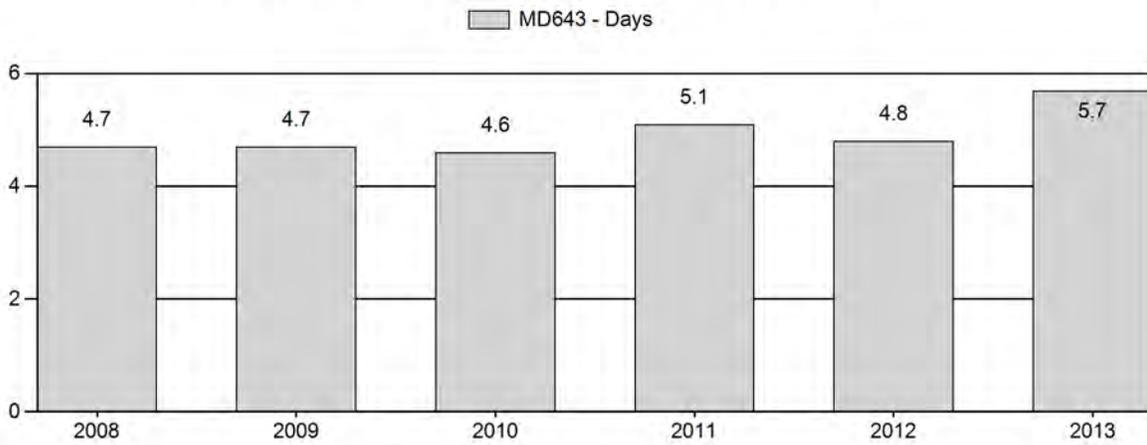
Harvest Success



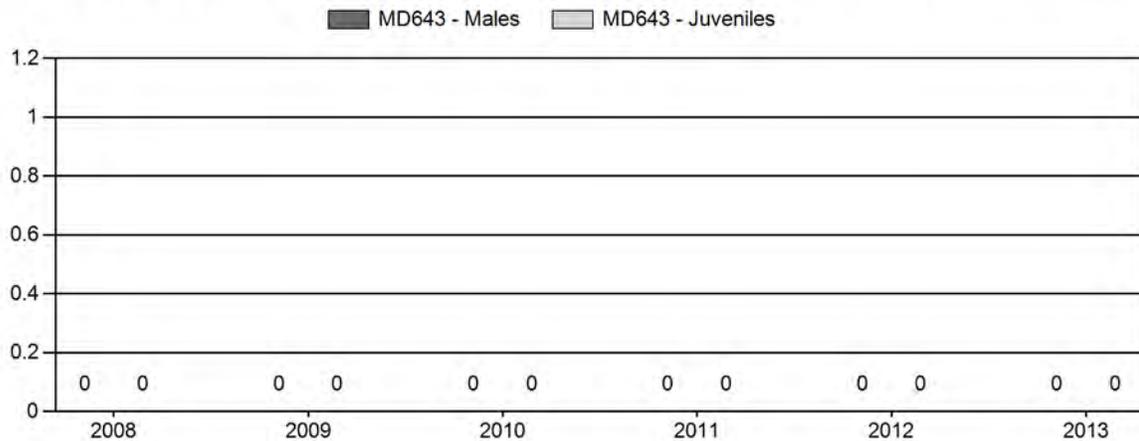
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



**2014 HUNTING SEASONS
PROJECT MULE DEER (MD 643)**

Hunt Area	Type	Season Dates		Quota	Limitations
		Opens	Closes		
157, 170	1	Oct. 1	Oct. 31	300	Limited quota; any deer
	3	Nov. 1	Nov. 30	75	Limited quota; any white-tailed deer
	6	Oct. 1	Nov. 10	400	Limited quota; doe or fawn
	8	Oct. 1	Oct. 31	75	Limited quota; doe or fawn white-tailed deer
			Nov. 1	Nov. 30	
171		Oct. 1	Oct. 31		General; any deer
	3	Nov. 1	Nov. 30	75	Limited quota; any white-tailed deer
	6	Oct. 1	Nov. 30	250	Limited quota; doe or fawn
Archery 157, 170 171		Sep. 1	Sep. 30		Refer to section 3 of this chapter General; any deer. Limited quota; refer to section 3 of this chapter
		Sep. 1	Sep. 30		

Hunt Area	Type	Quota change from 2013
157, 170	3	-125
	8	-250
Total	3	-125
	8	-250

Management Evaluation

Current Management Objective: Hunter/Landowner Satisfaction 60%

Management Strategy: Recreational

2013 Hunter Satisfaction: 71%

2013 Landowner Satisfaction: 46% (65% very satisfied, satisfied, or neutral)

3 Year Average Hunter Satisfaction: 80%

3 Year Average Landowner Satisfaction: unknown

Management Issues

In 2013 the Department conducted an objective review for the Project mule deer herd unit. Previously the herd had a population objective of 500 mule deer. The population objective was impractical because personnel were unable to collect adequate demographic data due to extensive interchange with the neighboring Wind River Reservation (WRR). Following an internal review, a public meeting and contact with numerous landowners the objective was changed in 2013 to manage for 60% hunter and 60% landowner satisfaction. Hunter satisfaction is taken directly from the harvest survey while landowner satisfaction in 2013 was determined by mailing a survey (Appendix A) to a number of landowners in the herd unit.

Habitat/Weather

This population inhabits a heavily agricultural area in central Wyoming as well as lands interspersed throughout the WRR. Land ownership patterns make it difficult and cost prohibitive to collect demographic data in the herd. Over the past couple of decades, residential and industrial development have impacted habitat in portions of the herd unit. Despite the development, the deer population has thrived due to abundant feed resources associated with agriculture throughout the area. A harsh winter in 2010 and extreme drought in 2012 and 2013 had less impact in this herd than on surrounding populations, again due to abundant feed associated with irrigated fields and pasture.

Field/Harvest Data/Population

Classification data have never been collected in this herd unit due to access issues throughout much of the herd unit. Personnel observations as well as numerous comments from landowners throughout the herd unit indicate this population grew significantly from the mid-2000's through 2012. In response to perceived growth and increased damage claims, harvest pressure increased steadily from 2000 through 2012. In 2012, an historic high number of licenses were issued in hunt area 157 where the majority of harvest in the herd unit occurs (Fig. 1). That year, over 1,000 mule deer were harvested in the herd unit. In 2013 harvest pressure was reduced, but harvest was still the third highest on record over the past 20 years at over 600 mule deer. Following 4 consecutive years of historically high harvest in the herd unit, the mule deer population appears to have declined. While no demographic data is available for the population, harvest statistics in 2013 indicate hunters had a harder time harvesting deer. Type 1 license success was 78% in 2013 in area 157. That was a decline from 85% in 2012 and below the 5 year average of 81%. Concurrently, the days/animal increased to 7.8 in 2013 from 5.6 in 2012 and was well above the 5 year average of 5.2.

Along with the decreased Type 1 license success, hunter satisfaction declined from 86% in 2012 to 71% in 2013. Comments from hunters in the field indicated they were generally seeing fewer

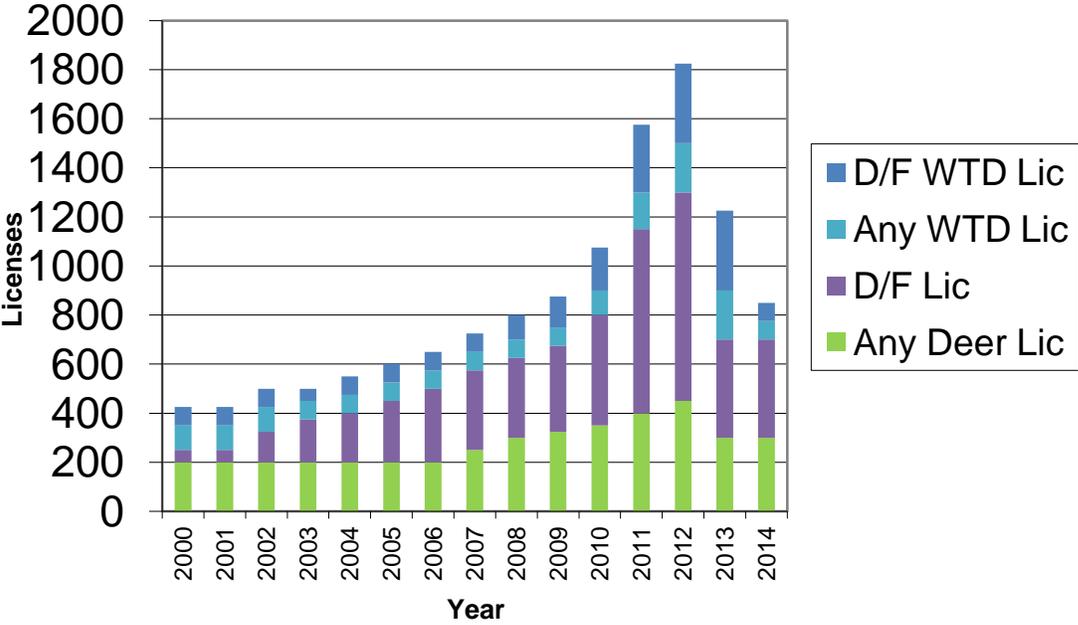
deer than in previous years. Forty six landowners responded to the satisfaction survey. Of the 46 responders, 46% were very satisfied or satisfied with mule deer numbers. Sixty five percent were very satisfied, satisfied or neutral regarding mule deer numbers. Of the 35% who were dissatisfied with mule deer numbers, 71% wanted fewer deer and 29% wanted more deer.

While mule deer numbers have declined in response to high harvest over the past several years, anecdotal information suggests white-tailed deer numbers continued to increase through 2012. Indications are the white-tailed deer population was reduced significantly in 2013 due to an EHD outbreak. A number of landowners reported finding dead white-tailed deer throughout the fall and hunters commented they saw very few white-tailed deer by the time the November season began. Similar to hunter comments, Type 3 license success indicated far fewer white-tailed deer in the herd unit. Type 3 license success was 47% in 2013, down from 59% in 2012 and well below the 5 year average of 73%.

Management Summary

Perceptions of hunters, landowners, and Department personnel are that the past 4 years' liberal seasons effectively reduced the deer population in the herd unit. Despite a significant reduction in the mule deer population, a number of landowners would like to have less deer. Given 71% of hunters are satisfied with deer numbers and 65% of landowners are satisfied or neutral regarding deer numbers, the population is considered at objective. In response to the landowners still displeased with the number of mule deer, the 2014 hunt season will remain unchanged from 2013. This still provides relatively high harvest pressure compared to historical levels in the herd unit and should result in an adequate number of hunters deer on properties where the population is undesirably high. In contrast, harvest pressure on white-tailed deer will be reduced significantly in response to EHD mortality in 2013. The true extent of the disease die-off is unknown, but hunter and landowner comments indicate loss to disease was substantial.

Figure 1. Deer area 157 historic license issuance



Appendix A

2013 landowner letter and satisfaction survey

December 12, 2013

Dear Landowner,

Starting in 2014, the Wyoming Game and Fish Department (Department) will begin utilizing landowner and hunter satisfaction surveys to manage deer (mule deer and white-tailed deer) in hunt areas 157 and 170 and antelope hunt areas 97 and 117.

You are being asked to participate in this survey because you have allowed deer or antelope hunting on your property in the past (as indicated by your submission of landowner coupons). If you have an interest in deer and antelope management in these hunt areas, please take a minute to complete the survey below. Your answers, in combination with other landowners and hunters, will be considered when we develop hunt season structure for the coming year. If surveys indicate a majority of respondents are satisfied with deer and antelope numbers, it is likely upcoming hunting seasons will be very similar to last year's. If the majority of respondents feel there are too many or too few deer or antelope, we will likely recommend the Wyoming Game and Fish Commission consider issuing more or fewer licenses respectively.

Finally, if you have too many deer or antelope on your property and would like to see some reduction in numbers through doe/fawn harvest, please let us know and the Department will contact you to discuss potential options. If you have any questions, please contact your local game wardens, Allen Deru (856-4982) or Brad Gibb (856-9005), or wildlife biologist Greg Anderson (332-2688).

Please help us manage mule deer and white-tailed deer in hunt areas 157 and 170 and antelope in hunt areas 97 and 117 by filling out the enclosed survey and returning it in the self-addressed envelope by **January 31, 2014**.

The Department sincerely values your input, and we thank you for your time.

Sincerely,

Greg Anderson

Wildlife Biologist, North Lander

Mule Deer and White-tailed Deer – Hunt Areas 157 and 170 Antelope - Hunt Areas 97 and 117

1. What is your level of satisfaction with mule deer numbers?
 Very satisfied Satisfied Neutral Unsatisfied Very unsatisfied
2. If you are not satisfied with mule deer numbers, what would you like to see?
 Significantly more A few more Significantly fewer A few less
3. What is your level of satisfaction with white-tailed deer numbers?
 Very satisfied Satisfied Neutral Unsatisfied Very unsatisfied
4. If you are not satisfied with white-tailed deer numbers, what would you like to see?
 Significantly more A few more Significantly fewer A few less
5. What is your level of satisfaction with antelope numbers?
 Very satisfied Satisfied Neutral Unsatisfied Very unsatisfied
6. If you are not satisfied with antelope numbers, what would you like to see?
 Significantly more A few more Significantly fewer A few less
7. Would you like to be contacted by the Department to discuss hunter access and increased doe/fawn deer or antelope harvest for the 2014 hunting season?
 Yes No

If YES, please list your name, phone number, what hunt areas you own property in, and indicate the species you are interested in:

Antelope White-tailed Deer Mule Deer

Name _____

Phone number _____

In what antelope hunt area(s) is your property? _____

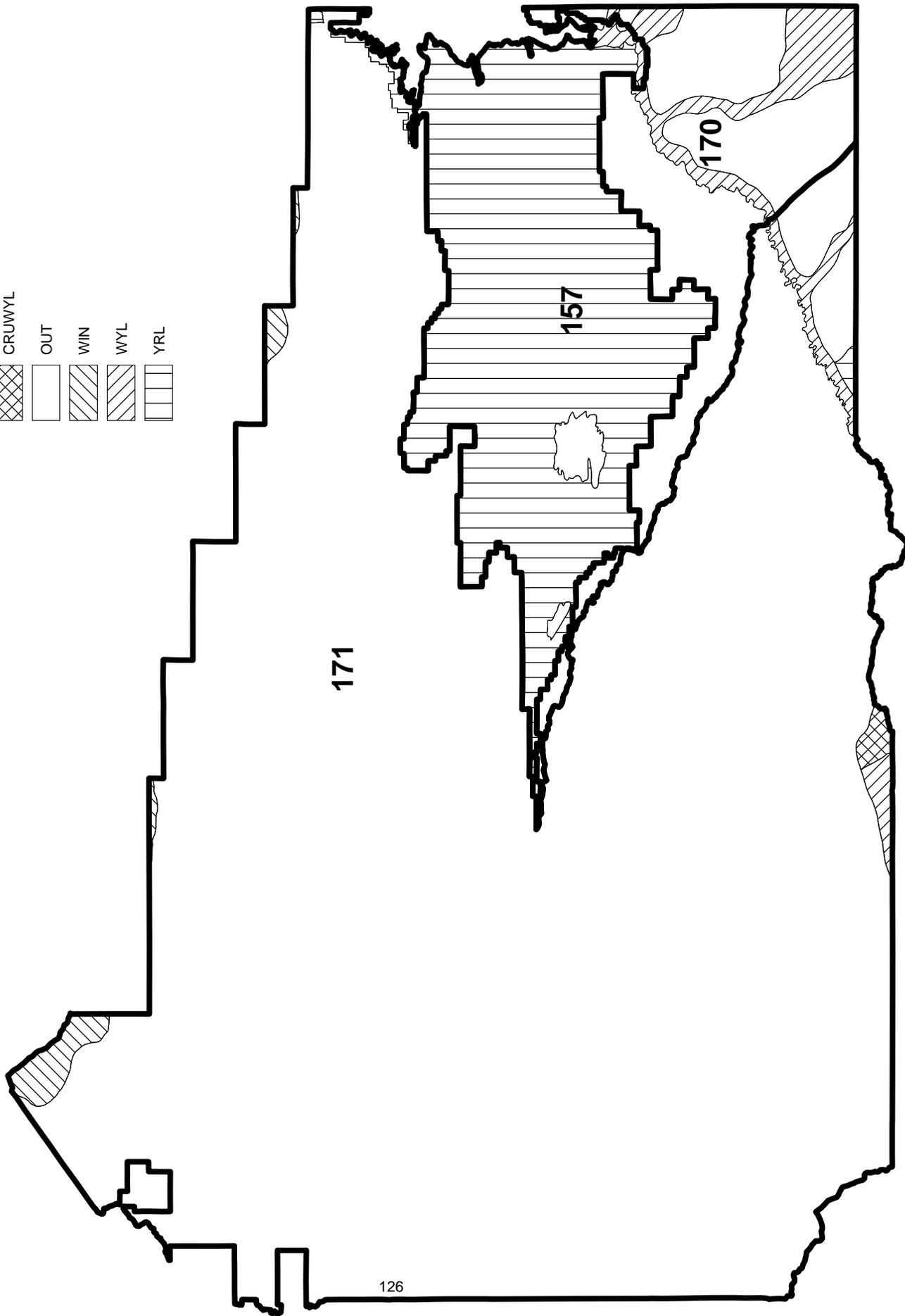
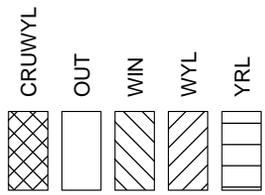
In what deer hunt area(s) is your property? _____

In future years, we plan to conduct this survey electronically to reduce costs. Accordingly, if you have an interest in future participation, please provide us with an e-mail address. We will not share your e-mail address with any other entity.

Name _____

E-mail _____

**Project Mule Deer Seasonal Range
Hunt Areas 157, 170, 171
Updated 2013**



2013 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD644 - SOUTH WIND RIVER

HUNT AREAS: 92, 94, 160

PREPARED BY: STAN HARTER

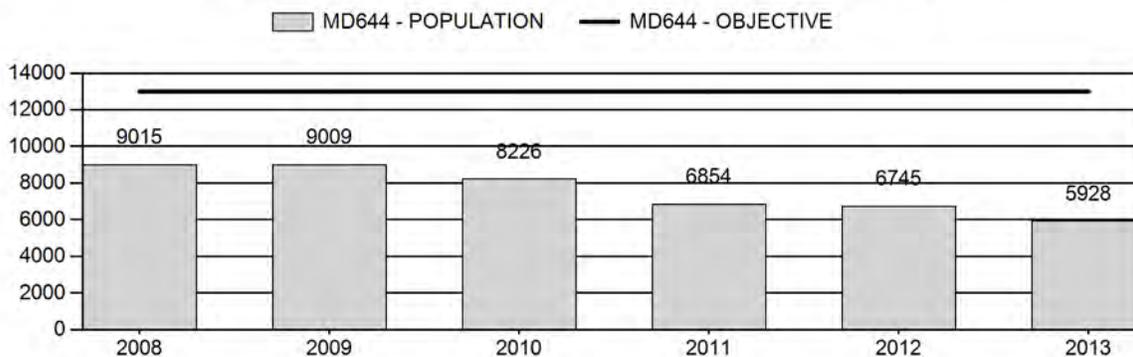
	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	7,970	5,928	5,969
Harvest:	756	394	430
Hunters:	1,659	1,226	1,200
Hunter Success:	46%	32%	36%
Active Licenses:	1,770	1,231	1,200
Active License Percent:	43%	32%	36%
Recreation Days:	6,806	5,382	5,500
Days Per Animal:	9.0	13.7	12.8
Males per 100 Females	26	23	
Juveniles per 100 Females	77	63	

Population Objective:	13,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-54.4%
Number of years population has been + or - objective in recent trend:	5
Model Date:	3/3/2014

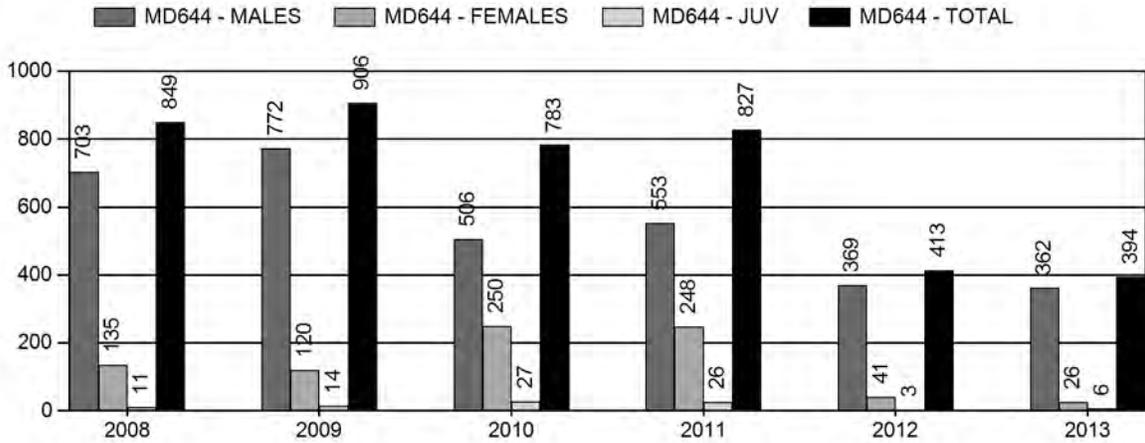
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.9%	0.9%
Males ≥ 1 year old:	34.5%	34.9%
Juveniles (< 1 year old):	0.0%	0.0%
Total:	6.2%	6.7%
Proposed change in post-season population:	-12.1%	+0.7%

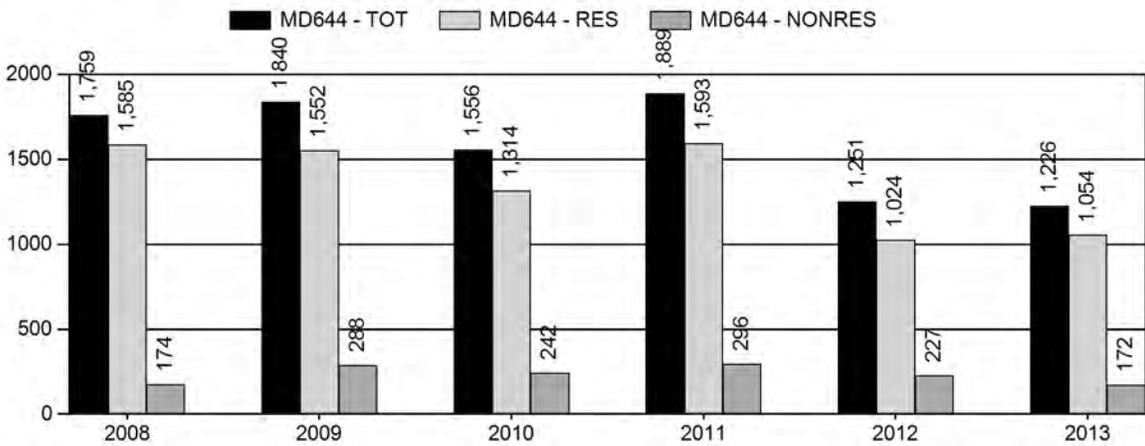
Population Size - Postseason



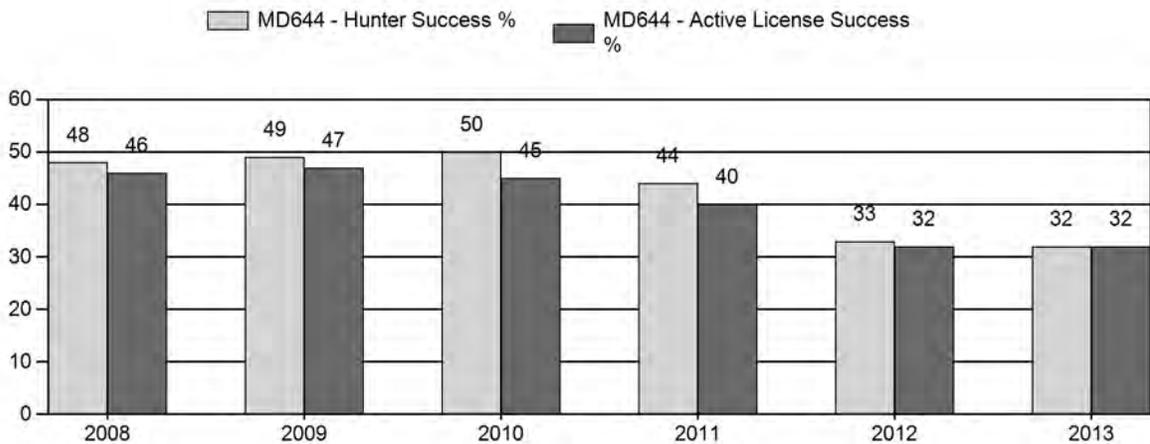
Harvest



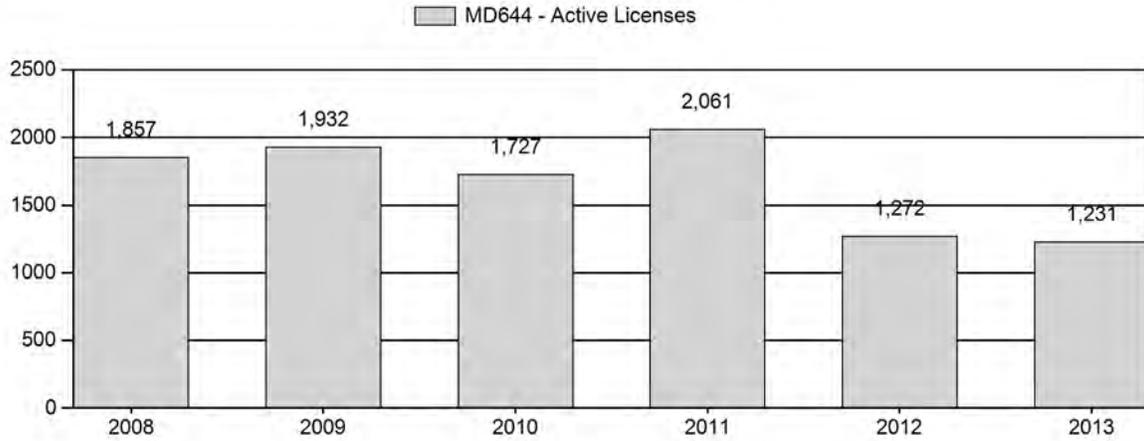
Number of Hunters



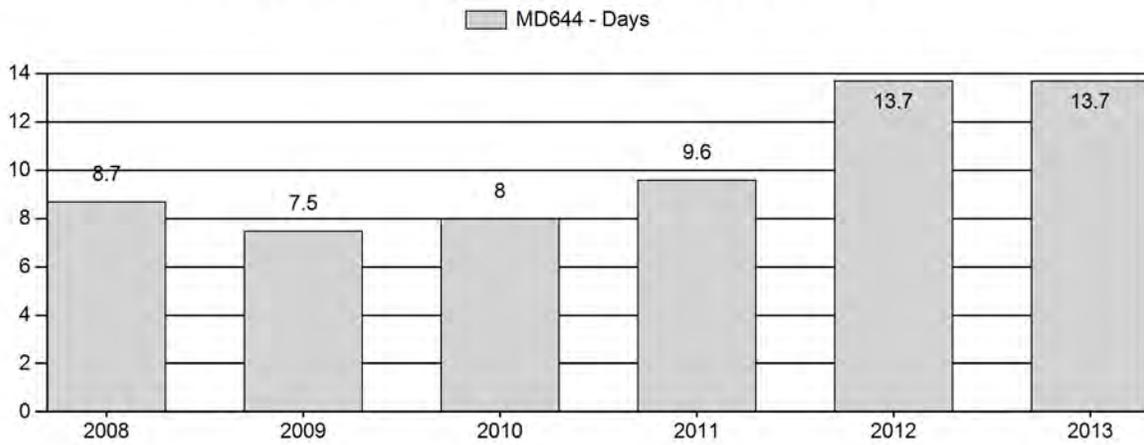
Harvest Success



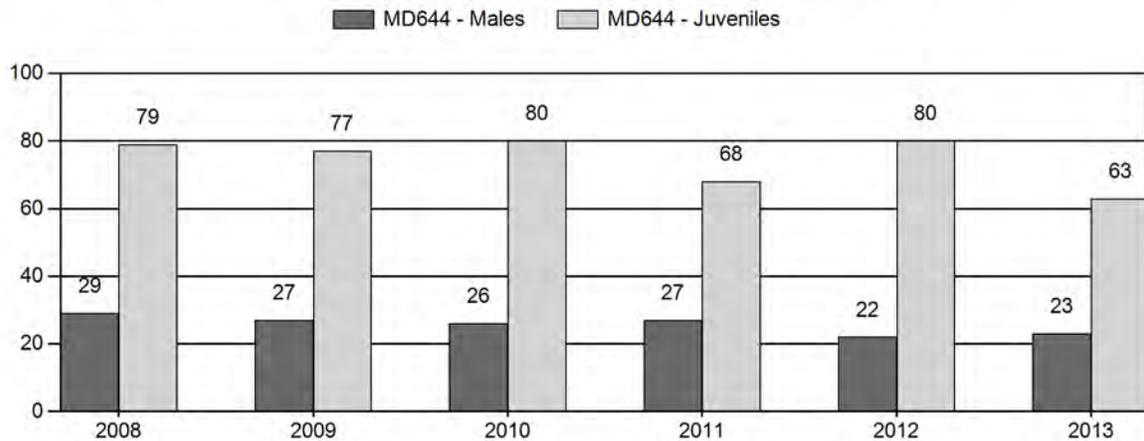
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2008 - 2013 Postseason Classification Summary

for Mule Deer Herd MD644 - SOUTH WIND RIVER

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	9,015	212	259	471	14%	1,650	48%	1,300	38%	3,421	1,654	13	16	29	± 2	79	± 3	61
2009	9,009	271	276	547	13%	2,007	49%	1,548	38%	4,102	1,587	14	14	27	± 1	77	± 2	61
2010	8,226	198	191	389	12%	1,512	49%	1,214	39%	3,115	1,695	13	13	26	± 1	80	± 3	64
2011	6,854	154	199	353	14%	1,319	51%	892	35%	2,564	1,277	12	15	27	± 2	68	± 3	53
2012	6,745	102	149	251	11%	1,129	49%	908	40%	2,288	1,543	9	13	22	± 2	80	± 4	66
2013	5,928	146	220	366	12%	1,581	54%	1,003	34%	2,950	1,036	9	14	23	± 1	63	± 2	52

**2014 HUNTING SEASONS
South Wind River Mule Deer Herd Unit (MD 644)**

HUNT AREA	TYPE	Season Dates		Limited	LIMITATIONS
		OPENS	CLOSES	Quota	
92		Oct. 15	Oct. 22		General; antlered mule deer three (3) points or more on either antler or any white-tailed deer
92		Oct. 1	Oct. 22		General youth license; any deer
92, 94, 160	3	Nov. 1	Nov. 20	25	Limited quota licenses; any white-tailed deer
92, 94, 160	8	Nov. 1	Nov. 20	25	Limited quota licenses; doe or fawn white-tailed deer
94		Oct. 15	Oct. 22		General; antlered mule deer three (3) points or more on either antler or any white-tailed deer
94		Oct. 1	Oct. 22		General youth license; any deer
160		Oct. 15	Oct. 22		General; antlered mule deer three (3) points or more on either antler or any white-tailed deer
160		Oct. 1	Oct. 22		General youth license; any deer
	6	Oct. 1	Oct. 22	25	Limited quota licenses; doe or fawn valid on private land

Region E Non-Resident Quota: 600

Hunt Area	Type	Change from 2013
92, 94, 160	3	-25
92, 94, 160	8	-75
	3	-25
	8	-75
Total MD644		-100

MANAGEMENT EVALUATION

Current Management Objective: 13,000

Management Strategy: Recreation (20-29 bucks/100 does)

2013 Post-season Population Estimate: ~5,900

2013 Post-season Population Estimate: ~6,000

Herd Unit Issues

This population declined dramatically in the early 1990s following a series of drought years and a harsher than normal winter in 1992. Mule deer numbers fluctuated greatly throughout the 1990s and 2000s, with peaks in 1998 and 2008-09. However, mule deer populations have declined noticeably in the South Wind River Mule Deer Herd Unit and elsewhere in their range in the past several years. The 2013 post-season population estimate for South Wind River Mule Deer is about 5,900 animals and 55% below objective.

Weather/Habitat

Drought conditions were extreme to exceptional for most of the past two years, beginning with minimal snowfall in winter 2011-12 and continuing with almost no precipitation during spring and summer 2012. In April 2013, a series of several late winter/early spring snow storms produced over 50" of snow through early May (the equivalent of nearly 4" precipitation) in Lander, with more snow reported in Sinks Canyon (up to 78") and other locations along the east slope of the Wind River Range. These storms were extremely helpful in lessening the effects of drought, yet they only helped change the drought status from Extreme to Severe. Drought returned in summer 2013, with only 0.34 inches of precipitation recorded in Lander from June 1 to September 1. This reduced forage production in herbaceous and browse species across the herd unit, although some improvement over 2012 conditions was noted. Thus, poor body condition was observed in many mule deer by late-summer, especially lactating females attempting to raise fawns into fall. Many does were observed in late-August and September with backbones and ribs showing. Rain and snow returned to the area in September and October 2013, with as much as 300% of normal precipitation recorded in Lander with warm temperatures between early storms. This led to improvement in vegetation condition, primarily grasses. Consequently, many mule deer were observed with apparent improvement in body condition in fall and early-winter compared with those observed in late-summer. In spite of fairly mild winter conditions in 2013-14, late winter mortality may still be above average due to the poor condition of winter range shrubs following long-term drought.

Field Data

Sufficient flight budget and good flying conditions allowed us to survey winter ranges thoroughly using a Bell 206 Jet Ranger helicopter in mid-November 2013, but deer were difficult to see due to lack of snow cover and widely scattered distribution on early-winter ranges. Despite these conditions and declining trends in population, we observed about 29% more deer than in 2012, with increased sample size in Hunt Area 92, and reduced sample sizes in Areas 94 and 160. The 2013 post-season observed total buck/doe ratio increased slightly to 23M/100F. Three (3) point antler restrictions were implemented for the 2013 hunting season to reduce hunting pressure and buck harvest, which occurred. However, the buck/doe ratio did not increase as expected, likely the result of poor fawn production/recruitment in 2012. Despite protecting yearling bucks with this harvest restriction, the yearling buck/doe ratio remained at 9YM/100F. The fawn/doe ratio dropped to 63J/100F in 2013, again related to drought and poor habitat conditions.

Antler width class data have been collected (Figure 1) during classification surveys the past 2 years. About 84% of the mule deer bucks in the South Wind River Herd Unit are either yearlings or have Class 1 antler widths (an adult buck up to 18" wide), indicating the absence of older age-class bucks despite reduced harvest levels experienced with APRs.

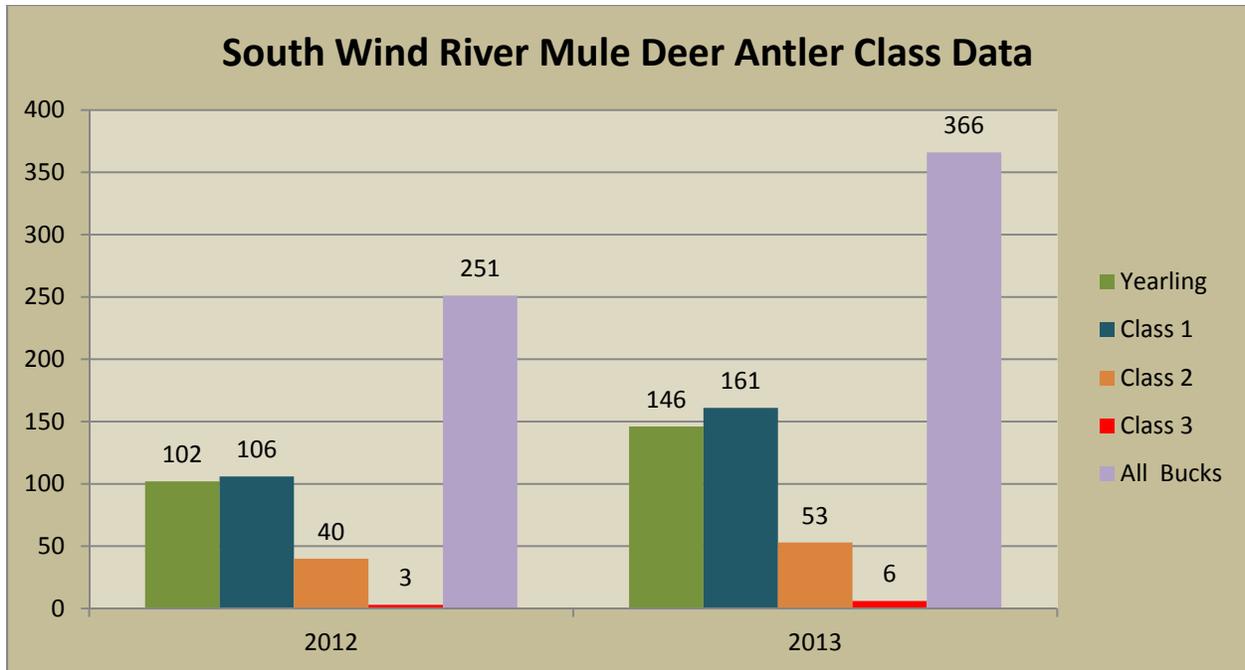


Figure 1. Antler class data from classification surveys in the South Wind River Mule Deer Herd Unit, 2012-2013.

Harvest Data

Weather during fall 2013 was quite variable in the South Wind River Herd Unit. Rainfall in early September along with heavy snows in late-September and early-October created major shifts in mule deer distribution; many deer were at much lower elevations during the hunting season than in the past. Hunters reported fewer and lower “quality” bucks and fewer mule deer overall, but where doe and fawn groups were found, they felt there were good numbers of fawns. In response to public desire to reduce hunter densities and reduce buck harvest, we continued three (3) point antler restrictions in 2013 and reduced the non-resident Region E general license quota from 800 to 600. Nearly identical numbers of general license hunters and bucks harvested were reported in the 2013 deer harvest survey as compared with 2012 levels. General license hunter success was stable at 32%. The “days per animal harvested” statistics for general licenses, as an indicator of hunter effort, remained at 13.7 days in 2013. Doe/fawn mule deer hunting in response to damage issues in Hunt Areas 160 and youth and archery hunters allowed to hunt for “Any” deer, resulted in minimal harvest of 26 does and 6 fawns.

Population

A spreadsheet model was developed for this population in 2012, and updated utilizing 2013 post-season classification and harvest data. The TSJ, CA model was again selected as the best fit model, with the lowest Relative AICc value and producing population estimates aligned with trends observed in buck harvest, fawn recruitment, and buck/doe ratios. It also matches the professional perceptions of field personnel and public opinion about mule deer population trends. The post-hunt population estimates created by this model are lower (~20%) than those produced by POP-II, but with very similar trends. This spreadsheet model (TSJ, CA) is considered FAIR, and should be used for bio-year 2013 with a post-season estimate of about 5,900 mule deer. The initial model in 2012 showed a much higher population throughout the past decade than the 2013

version; therefore the population data in the JCR database has been changed from 2008-13 to reflect the current model. We predict this model to “settle in” and don’t anticipate such dramatic changes will be needed in the future. However, the South Wind River Mule Deer Herd Unit has been selected to conduct sightability surveys in bio-year 2014, which could require adjustments to the model based on the results of those surveys.

Management Summary

Management changes have included implementation of antler point restrictions (4-point in 2004 and 2005 and 3-point in 2012 and 2013), in response to declines in buck/doe ratios and population trends, and perceived increases in hunter numbers. Expectedly, both APR types resulted in lower hunter numbers and reduction of overall buck harvest. The 4-point APR implemented in 2004 and 2005 coincided with improved buck/doe ratios as a result of improved fawn survival/yearling buck recruitment with favorable weather patterns and improved, albeit short-term, habitat conditions. However, the recent 3-point APR seasons have not led to improved buck/doe ratios, due to concurrent poor fawn survival/yearling buck recruitment and overall population decline as drought has reduced habitat quality and untimely spring snowstorms in 2013 led to elevated late-winter mortality.

Epizootic Hemorrhagic Disease (EHD) was present in the Lander Region in late summer 2013, especially in white-tailed deer and pronghorn. Recently, evidence of impacts to mule deer has been observed in a number of animals on Table Mountain and the Lander Foothills with hoof and antler abnormalities indicating exposure to EHD. The long range impacts of EHD on mule deer populations are not as well known as for white-tailed deer or pronghorn, but due to the presence of EHD in the area, it is possible this has been directly or indirectly affecting the decline in mule deer numbers across Wyoming, and exacerbates problems related to habitat conditions.

The 2013 seasons resulted in considerable decreases in hunter numbers and mule deer harvest, due largely to the use of a 3-point antler restriction for mule deer, as designed. This was the second of a 2-year evaluation period as was presented to the public in the 2012 season setting process. Our plan was to re-evaluate this season structure following the 2013 season based on whether:

1. Population improves toward objective.
2. Hunter success improves to $\geq 50\%$ for general license hunters by 2013.

This population continues to decline and general license hunter success was 32%. With low fawn/doe ratios and yearling buck recruitment, it is not expected this population will move toward objective soon. Fewer mule deer equates to fewer bucks, thereby making the likelihood of reaching 50% hunter success an unlikely prospect with a general license season structure well into the foreseeable future. Hunters were asked to rank their satisfaction with mule deer hunting in the 2013 harvest survey, with about 45% of hunters in Areas 92 and 160 (35% in Area 94) reporting they were either satisfied or very satisfied. This falls well short of the 60% satisfaction “trigger point” being used as one of the criteria for herd units where Hunter Satisfaction is being utilized as a management objective.

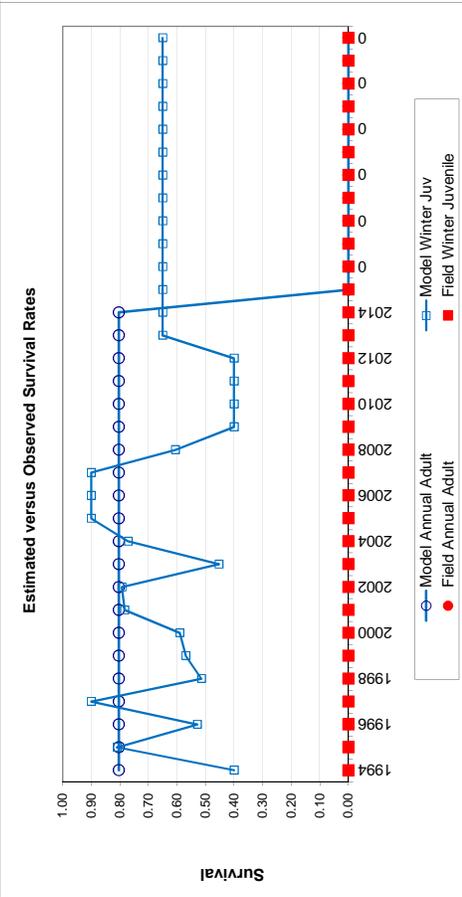
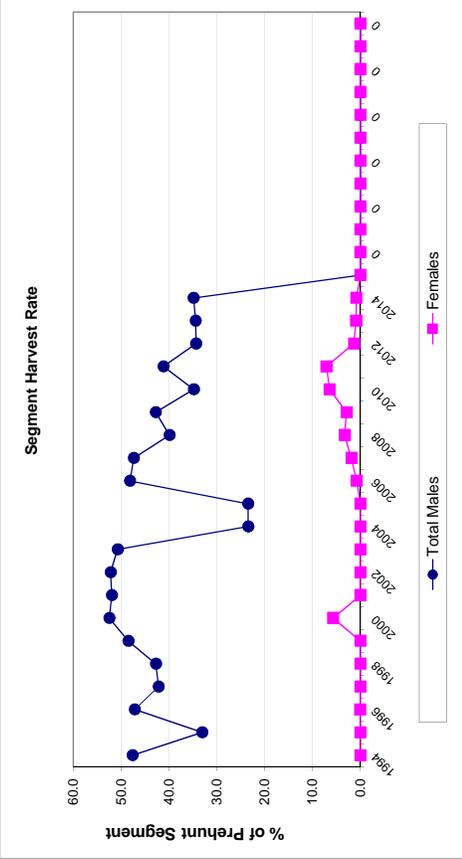
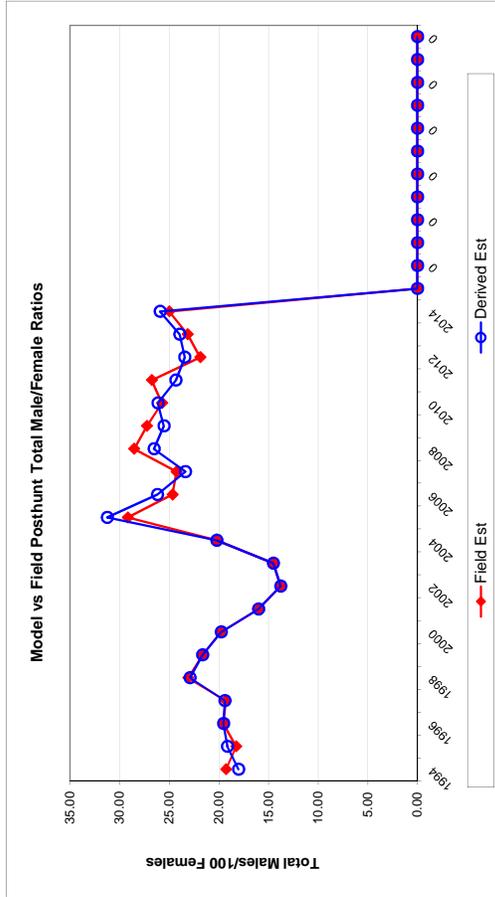
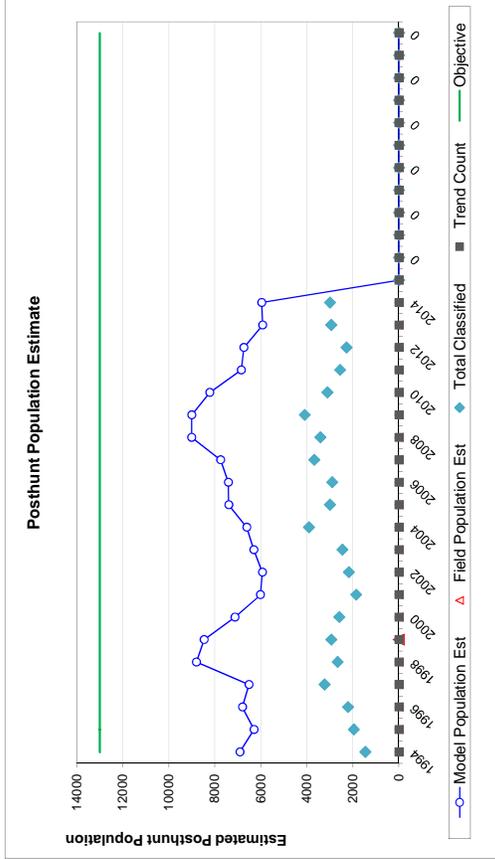
The 2014 hunting seasons continue the 3-point APR for general license hunts, to again reduce hunter densities and minimize buck harvest, in lieu of other options. Hunters, at public meetings

and during field contacts, have repeatedly asked for ways to reduce hunter crowding, improve mule deer populations, buck numbers and quality, and have increasingly asked for the Department to change to limited quota seasons for the Sweetwater and South Wind River Mule Deer Herds. Minimal numbers of doe/fawn licenses will also be available on private land in Area 160 to focus hunters into specific hayfield damage prone private lands along the Little Popo Agie River.

White-tailed deer hunts are again being offered, but with reductions to 25 Type 3 (Any white-tailed deer) and 25 Type 8 (Doe or fawnly white-tailed deer) licenses valid in Hunt Areas 92, 94, and 160 collectively in November. These license reductions are in response to very notable losses of white-tailed deer to EHD in 2013.

The 2014 season structure should result in a harvest of approximately 430 mule deer, including 400 bucks, along with 30 does and fawns. This should allow for a stable population of about 6,000 mule deer after the 2014 hunting season.

FIGURES

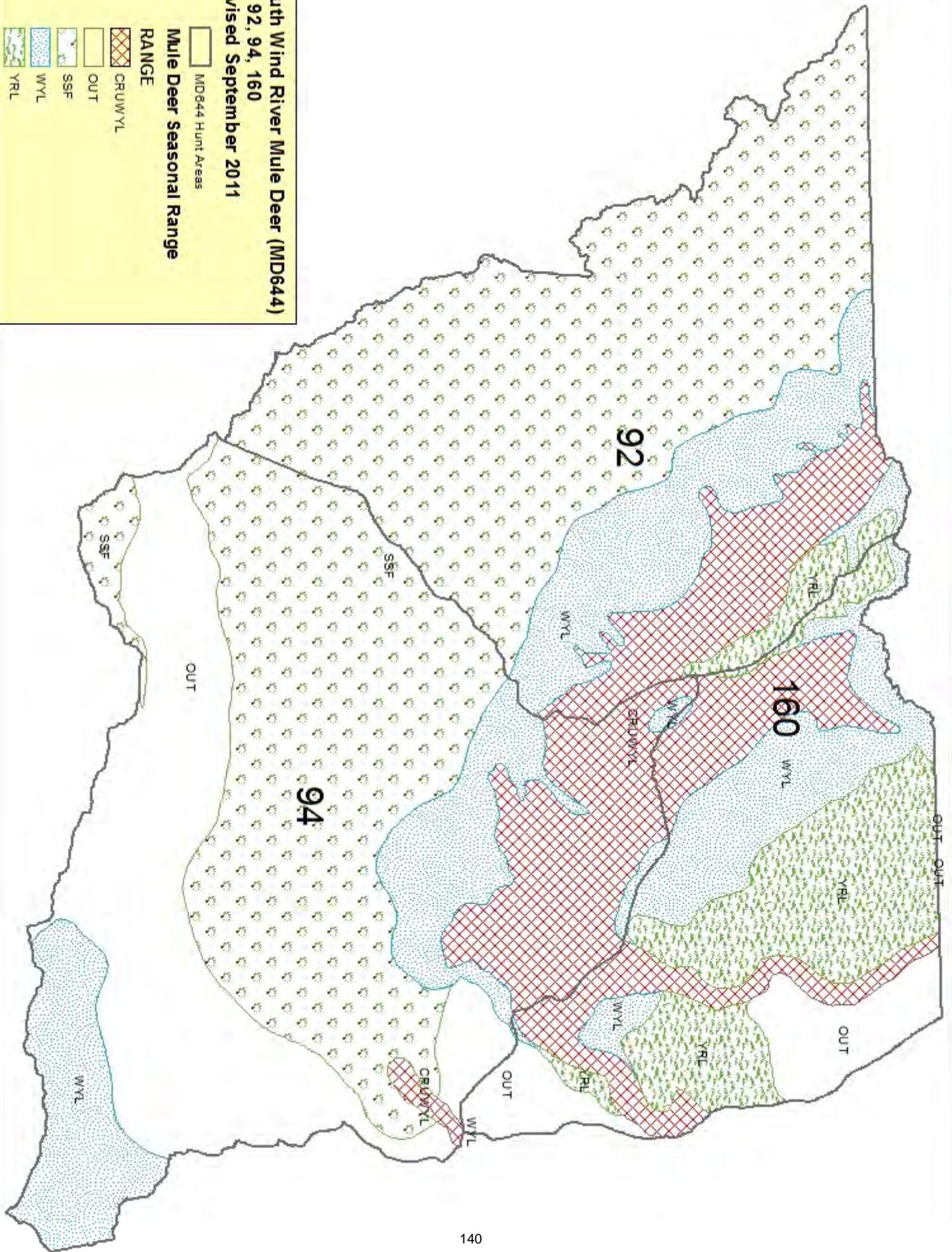


Comments:

END

South Wind River Mule Deer (MDD644)
HA 92, 94, 160
Revised September 2011

-  MDD644 Hunt Areas
- Mule Deer Seasonal Range**
- RANGE**
-  CRUWYL
-  OUT
-  SSF
-  WYL
-  YRL



2013 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD646 - SWEETWATER

HUNT AREAS: 96-97

PREPARED BY: STAN HARTER

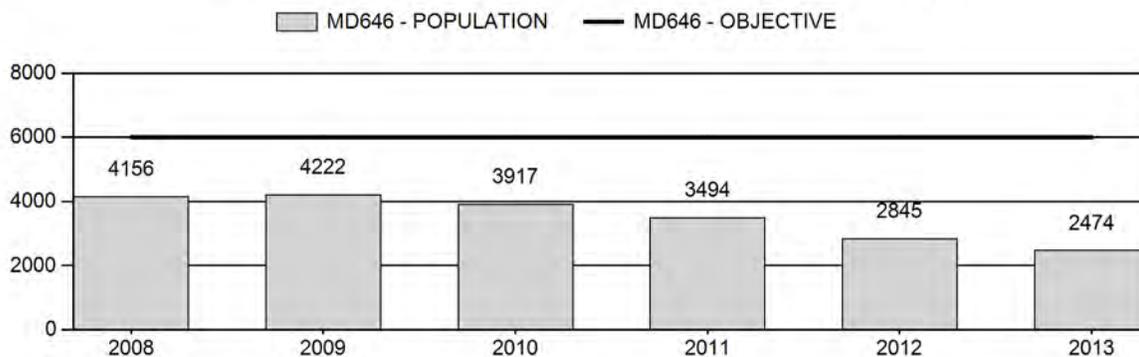
	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	3,727	2,474	2,400
Harvest:	654	191	207
Hunters:	1,257	661	650
Hunter Success:	52%	29%	32 %
Active Licenses:	1,338	661	650
Active License Percent:	49%	29%	32 %
Recreation Days:	4,588	2,806	2,800
Days Per Animal:	7.0	14.7	13.5
Males per 100 Females	25	16	
Juveniles per 100 Females	78	63	

Population Objective:	6,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-58.8%
Number of years population has been + or - objective in recent trend:	5
Model Date:	3/3/2014

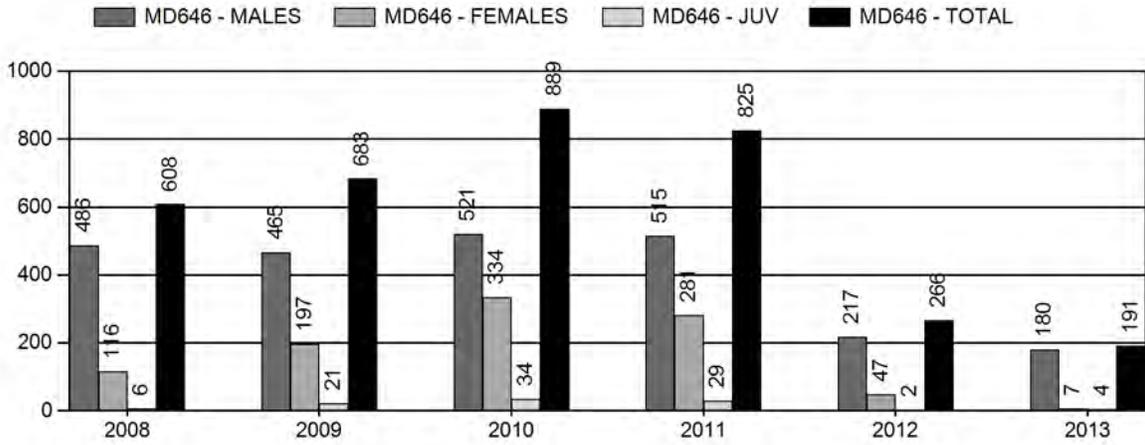
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.6%	0.4%
Males ≥ 1 year old:	44.5%	46.8%
Juveniles (< 1 year old):	0%	0%
Total:	7.1%	7.9%
Proposed change in post-season population:	-13.0%	-3.0%

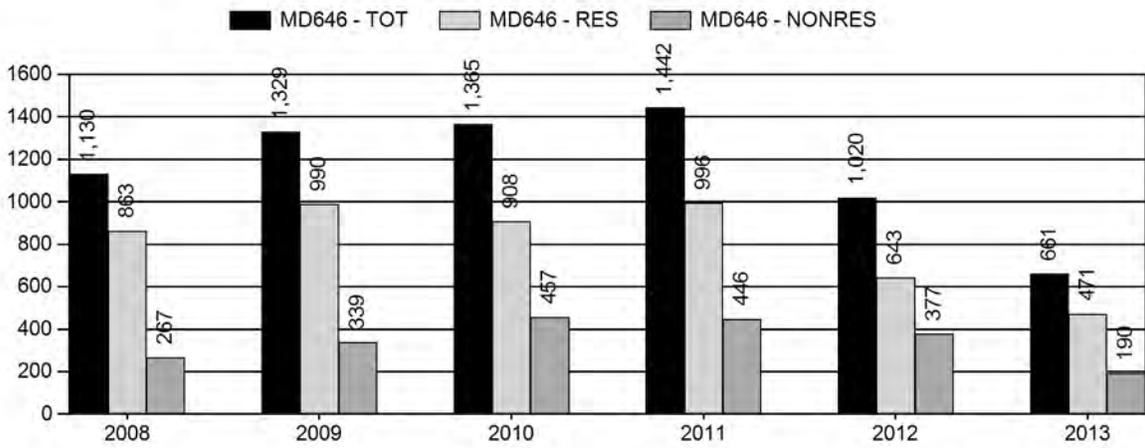
Population Size - Postseason



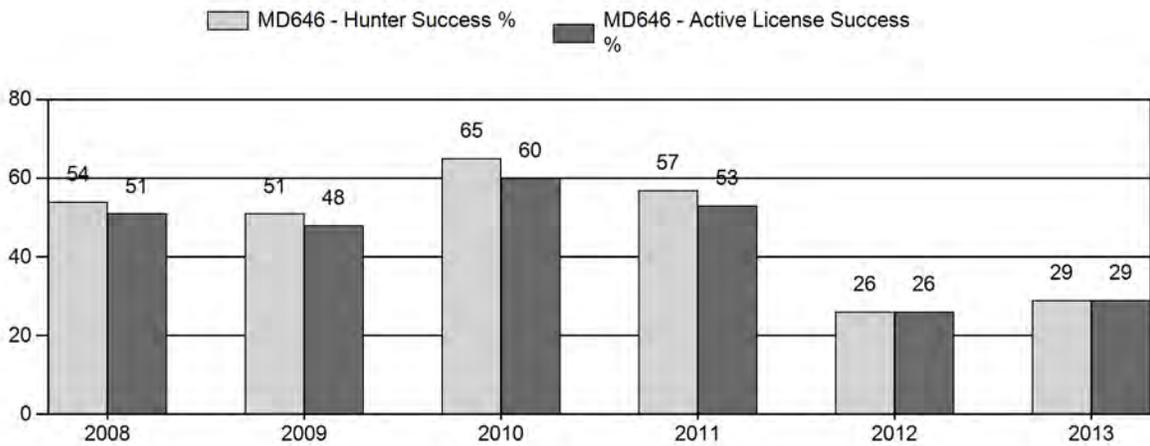
Harvest



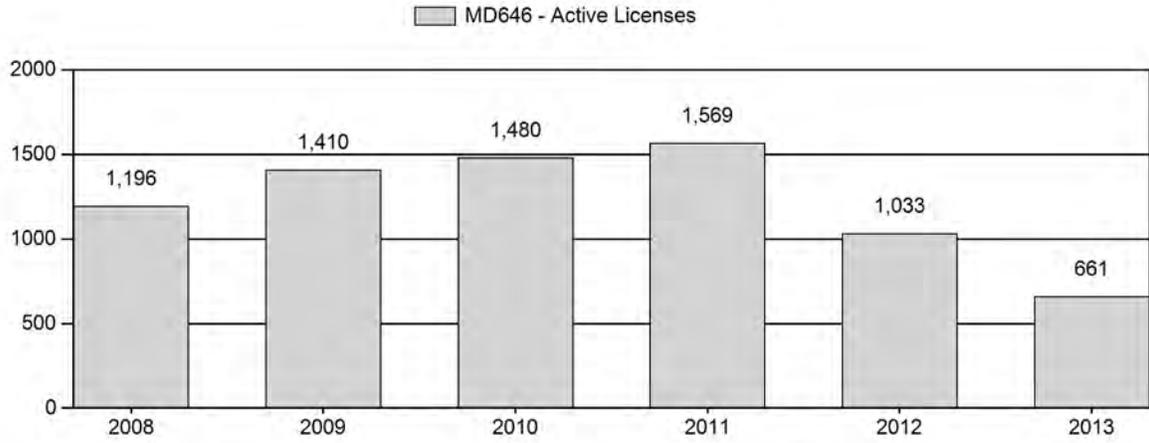
Number of Hunters



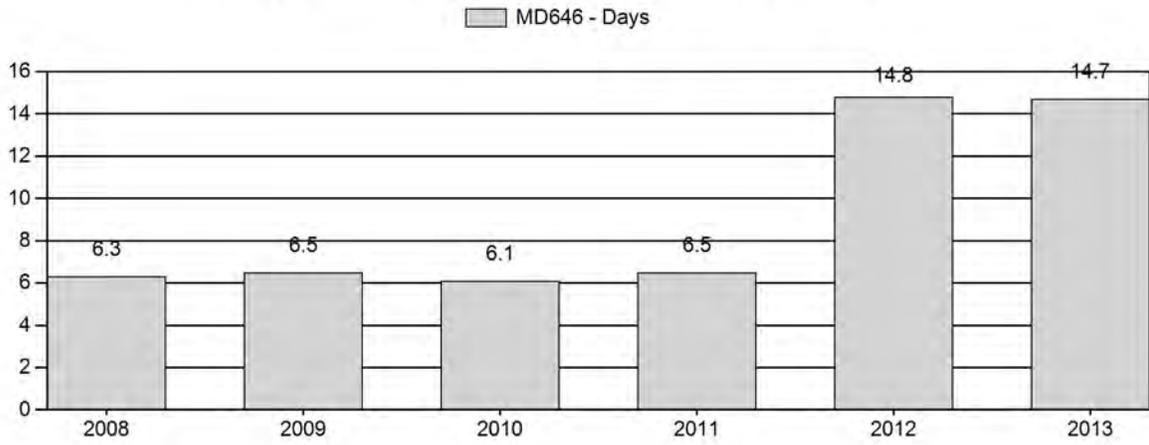
Harvest Success



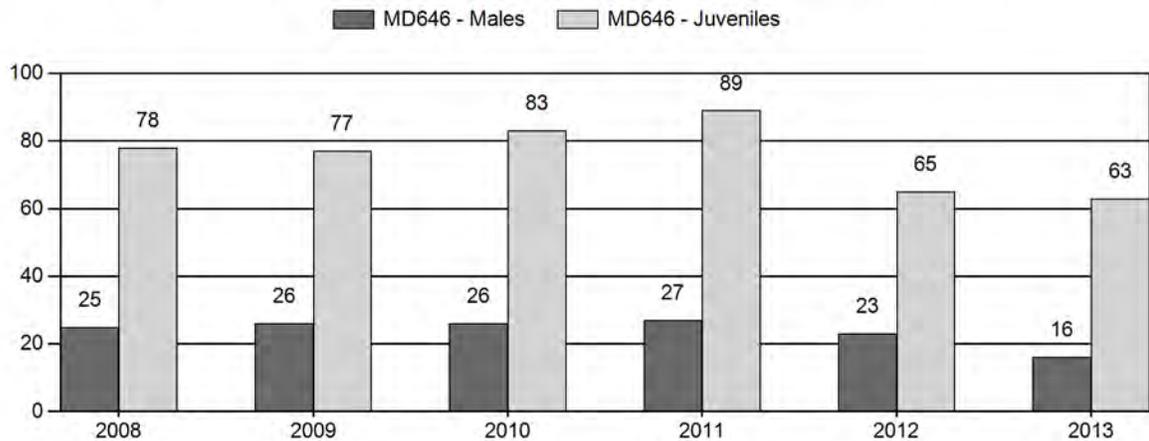
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2008 - 2013 Postseason Classification Summary

for Mule Deer Herd MD646 - SWEETWATER

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	4,156	99	126	225	12%	894	49%	701	39%	1,820	1,415	11	14	25	± 2	78	± 4	63
2009	4,222	138	167	305	13%	1,186	49%	909	38%	2,400	1,407	12	14	26	± 1	77	± 3	61
2010	3,917	72	82	154	12%	598	48%	494	40%	1,246	1,549	12	14	26	± 2	83	± 5	66
2011	3,494	49	101	150	13%	547	46%	486	41%	1,183	1,616	9	18	27	± 3	89	± 6	70
2012	2,845	48	58	106	12%	462	53%	302	35%	870	996	10	13	23	± 3	65	± 5	53
2013	2,474	67	61	128	9%	813	56%	514	35%	1,455	813	8	8	16	± 1	63	± 3	55

2014 HUNTING SEASONS
Sweetwater Mule Deer Herd Unit (MD 646)

HUNT AREA	TYPE	Season Dates		QUOTA	LIMITATIONS
		OPENS	CLOSES		
96		Oct. 15	Oct. 22		General; antlered mule deer three (3) points or more on either antler or any white-tailed deer
96		Oct. 15	Oct. 26		General youth license; any deer
97		Oct. 15	Oct. 22		General; antlered mule deer three (3) points or more on either antler or any white-tailed deer
97		Oct. 15	Oct. 26		General youth license; any deer
97	3	Nov. 1	Nov. 30	25	Limited quota; any white-tailed deer
97	8	Nov. 1	Nov. 30	25	Limited quota; doe or fawn white-tailed deer

Region E Non-Resident Quota: 600

MANAGEMENT EVALUATION

Current Management Objective: 6,000

Management Strategy: Recreation (20-29 bucks/100 does)

2013 Post-season Population Estimate: ~2,500

2014 Post-season Population Estimate: ~2,400

Herd Unit Issues

This population declined dramatically in the early 1990s following a series of drought years and a harsher than normal winter in 1992. The population fluctuated greatly throughout the 1990s and early 2000s. From 2004- 2009, fawn recruitment improved, leading to population growth. However, mule deer populations have declined noticeably in the Sweetwater Mule Deer Herd Unit and elsewhere in their range in the past several years. The 2013 post-season population estimate is about 2,500 mule deer, about 59% below objective.

Weather/Habitat

Drought conditions were extreme to exceptional for most of the past two years, beginning with minimal snowfall in winter 2011-12 and continuing with almost no precipitation during spring and summer 2012. In April 2013, a series of several late winter/early spring snow storms produced heavy snow through early May in Jeffrey City, with more at higher elevations such as Green Mountain and Beaver Rim. These storms were extremely helpful in lessening the effects of drought, yet they only helped change the drought status from Extreme to Severe. Drought returned in summer 2013, with only 0.2 inches of precipitation recorded in Jeffrey City from June 1 to September 1. This reduced forage production in herbaceous and browse species across the herd unit, although some improvement over 2012 conditions was noted. Thus, poor body condition was observed in many mule deer by late-summer, especially lactating females attempting to raise fawns into fall. Many does were observed in late-August and September with backbones and ribs showing. Rain and snow returned to the area in September and October 2013, with nearly 300% of normal precipitation recorded in Jeffrey City with warm temperatures

between early storms. This led to improvement in vegetation condition, primarily grasses. Consequently, many mule deer were observed with apparent improvement in body condition in fall and early-winter compared with those observed in late-summer. In spite of fairly mild winter conditions in 2013-14, late winter mortality may still be above average due to the poor condition of winter range shrubs following long-term drought.

Field Data

Classification flights were conducted in December 2013, with winter ranges surveyed using a Bell 206 Jet Ranger helicopter. Snow cover was minimal, and despite hunter and field personnel observations of few mule deer during the summer and fall, more deer were classified in Area 96 than in any year since 1994. The 2013 post-season fawn/doe ratio decreased to 63J/100F with a much lower total buck/doe ratio of 16M/100F. Three (3) point antler restrictions were again implemented for the 2013 hunting season along with reducing the non-resident Region E quota, to reduce hunting pressure and buck harvest, which occurred. Despite protecting yearling bucks with this harvest restriction, the yearling buck/doe ratio fell to 8YM/100F.

Antler width class data have been collected (Figure 1) during classification surveys the past 2 years. Over 80% of the mule deer bucks in the Sweetwater Herd Unit are either yearlings or have Class 1 antler widths (an adult buck up to 18” wide), indicating the absence of older age-class bucks despite reduced harvest levels experienced with APRs.

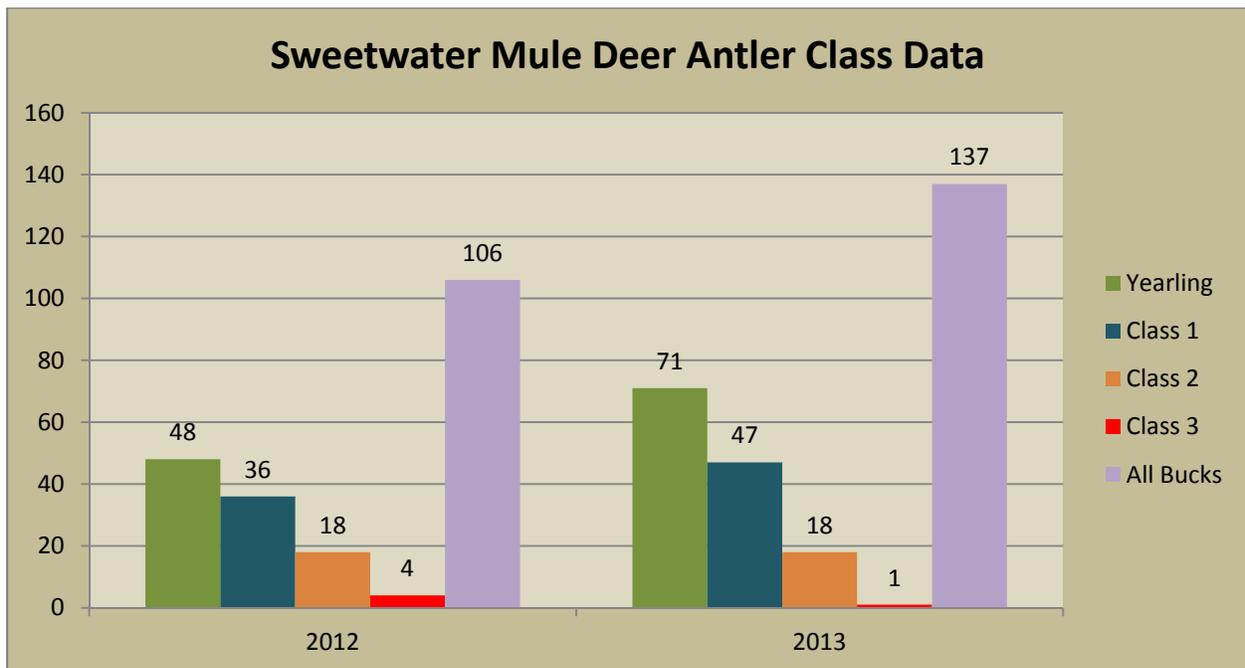


Figure 1. Antler class data from classification surveys in the Sweetwater Mule Deer Herd Unit, 2012-13.

Harvest Data

Weather during fall 2013 was quite variable in the Sweetwater Herd Unit. Rainfall in early September along with heavy snows in late-September and early-October created major shifts in mule deer distribution; many deer were at much lower elevations during the hunting season than in the past and may have left the herd unit to the south because of deep snow. Hunters reported considerably fewer mule deer overall, with almost no bucks; but where doe and fawn groups were found, they felt there were good numbers of fawns. In response to public desire to reduce hunter densities and reduce buck harvest, we continued three (3) point antler restrictions in 2013 and reduced the non-resident Region E general license quota from 800 to 600. These changes were successful in 2013, with a 35% decrease in the number of general license hunters and 17% decrease in bucks as compared with 2012 levels. General license hunter success was up slightly at 29%. The “days per animal harvested” statistics for general licenses, as an indicator of hunter effort, remained at 14.7 days in 2013. Doe/fawn mule deer harvest, since youth hunters and archers are allowed to hunt for “Any” deer, resulted in minimal harvest of 7 does and 4 fawns.

Population

A spreadsheet model was developed for this population in 2012, and updated utilizing 2013 post-season classification and harvest data. The TSJ, CA model was selected as the best fit model, with the lowest Relative AICc value and producing population estimates aligned with trends observed in buck harvest, fawn recruitment, and buck/doe ratios. It also matches the professional perceptions of field personnel and public opinion about mule deer population trends. The post-hunt population estimates created by this model are lower (~50%) than those produced by POP-II, but with very similar trends. This spreadsheet model (TSJ, CA) is considered FAIR, and should be used for bio-year 2013 with a post-season estimate of about 2,500 mule deer. The initial model in 2012 showed a much higher population throughout the past decade than the 2013 version; therefore the population data in the JCR database has been changed from 2008-13 to reflect the current model. We predict this model will “settle in” and don’t anticipate such dramatic changes will be needed in the future.

Management Summary

Management changes have included implementation of antler point restrictions (4-point in 2004 and 2005 and 3-point in 2012 and 2013), in response to declines in buck/doe ratios and population trends, and perceived increases in hunter numbers. Expectedly, both APR types resulted in lower hunter numbers and reduction of overall buck harvest. The 4-point APR implemented in 2004 and 2005 coincided with improved buck/doe ratios as a result of improved fawn survival/yearling buck recruitment with favorable weather patterns and improved, albeit short-term, habitat conditions. However, the recent 3-point APR seasons have not led to improved buck/doe ratios, due to concurrent poor fawn survival/yearling buck recruitment and overall population decline as drought has reduced habitat quality and untimely spring snowstorms in 2013 led to elevated late-winter mortality.

Epizootic Hemorrhagic Disease (EHD) was present in the Lander Region in late summer 2013, especially in white-tailed deer and pronghorn. Recently, evidence of impacts to mule deer has been observed in a number of animals on Table Mountain and the Lander Foothills with hoof and antler abnormalities indicating exposure to EHD. While EHD was detected in pronghorn within and nearby the herd unit, it has not been observed in mule deer within the Sweetwater Herd Unit,

but has prompted us to begin looking for these symptoms. The long range impacts of EHD on mule deer populations are not as well known as for white-tailed deer or pronghorn, but due to the presence of EHD in the area, it is possible this has been directly or indirectly affecting the decline in mule deer numbers across Wyoming, and exacerbates problems related to habitat conditions.

The 2013 seasons resulted in considerable decreases in hunter numbers and mule deer harvest, due largely to the use of a 3-point antler restriction for mule deer, as designed. This was the second of a 2-year evaluation period as was presented to the public in the 2012 season setting process. Our plan was to re-evaluate this season structure following the 2013 season based on whether:

1. Population improves toward objective.
2. Hunter success improves to $\geq 50\%$ for general license hunters by 2013.

This population continues to decline and general license hunter success was only 29%. With low fawn/doe ratios and yearling buck recruitment, it is not expected this population will move toward objective soon. Fewer mule deer equates to fewer bucks, thereby making the likelihood of reaching 50% hunter success an unlikely prospect with a general license season structure well into the foreseeable future. Hunters were asked to rank their satisfaction with mule deer hunting in the 2013 harvest survey, with 40% of all hunters reporting they were either satisfied or very satisfied. This falls well short of the 60% satisfaction “trigger point” being used as one of the criteria for herd units where Hunter Satisfaction is being utilized as a management objective.

The 2014 hunting seasons continue the 3-point APR for general license hunts, to again reduce hunter densities and minimize buck harvest, in lieu of other options. Hunters, at public meetings and during field contacts, have repeatedly asked for ways to reduce hunter crowding, improve mule deer populations, buck numbers and quality, and have increasingly asked for the Department to change to limited quota seasons for the Sweetwater and South Wind River Mule Deer Herds.

White-tailed deer hunts are again being offered for Hunt Area 97, with 25 Type 3 licenses (Any white-tailed deer) along with 25 Type 8 doe/fawn white-tailed licenses valid in November.

The 2014 season structure should result in a harvest of approximately 200 buck mule deer and about 7 does and fawns (with youth and archery hunters being allowed to harvest “Any” deer. If habitat conditions show improvement with recent precipitation, the population should begin to slowly recover. With anticipated fawn survival, this should allow for a stable population of about 2,400 mule deer after the 2014 hunting season.

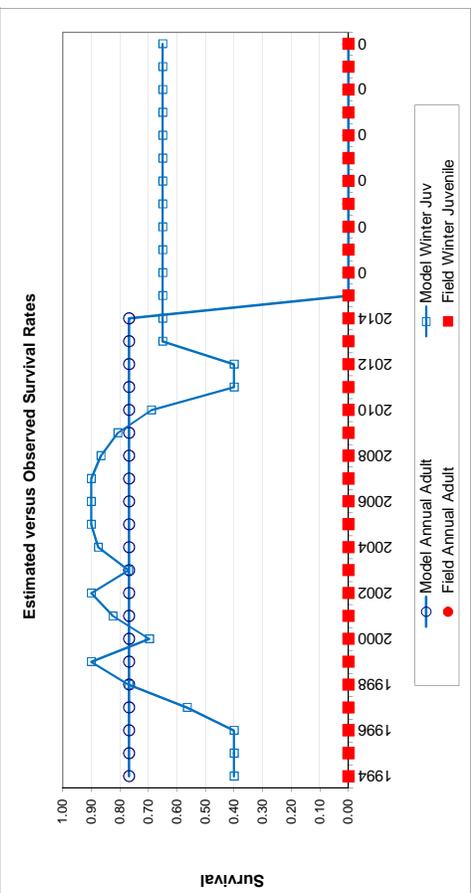
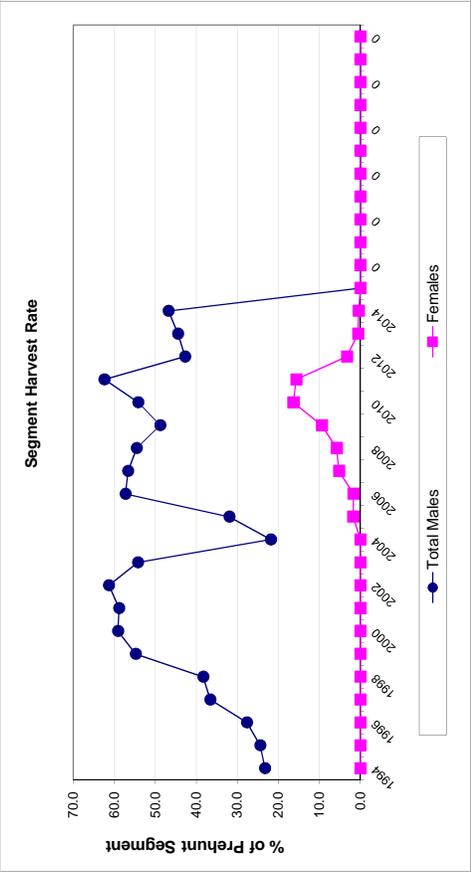
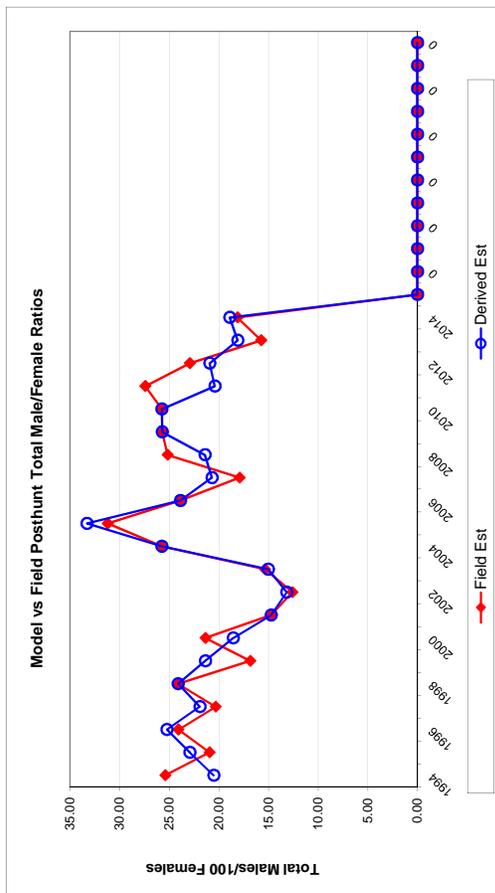
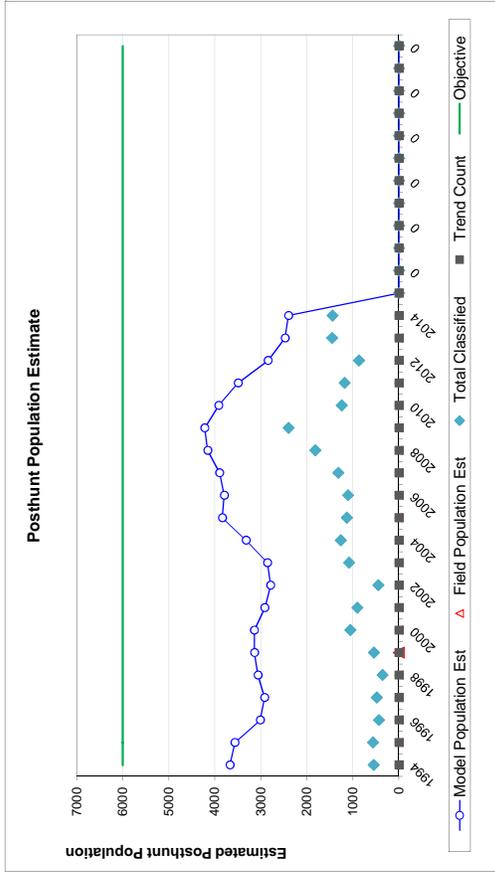
Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est SE	Model Est	Field Est SE
1994	0.40		0.77	
1995	0.40		0.77	
1996	0.40		0.77	
1997	0.56		0.77	
1998	0.77		0.77	
1999	0.90		0.77	
2000	0.70		0.77	
2001	0.82		0.77	
2002	0.90		0.77	
2003	0.77		0.77	
2004	0.88		0.77	
2005	0.90		0.77	
2006	0.90		0.77	
2007	0.90		0.77	
2008	0.87		0.77	
2009	0.81		0.77	
2010	0.69		0.77	
2011	0.40		0.77	
2012	0.40		0.77	
2013	0.65		0.77	
2014	0.65		0.77	
0	0.65			
0	0.65			
0	0.65			
0	0.65			
0	0.65			
0	0.65			
0	0.65			
0	0.65			
0	0.65			

Parameters:		Optim cells
Adult Survival =		0.768
Initial Total Male Pop/10,000 =		0.043
Initial Female Pop/10,000 =		0.210

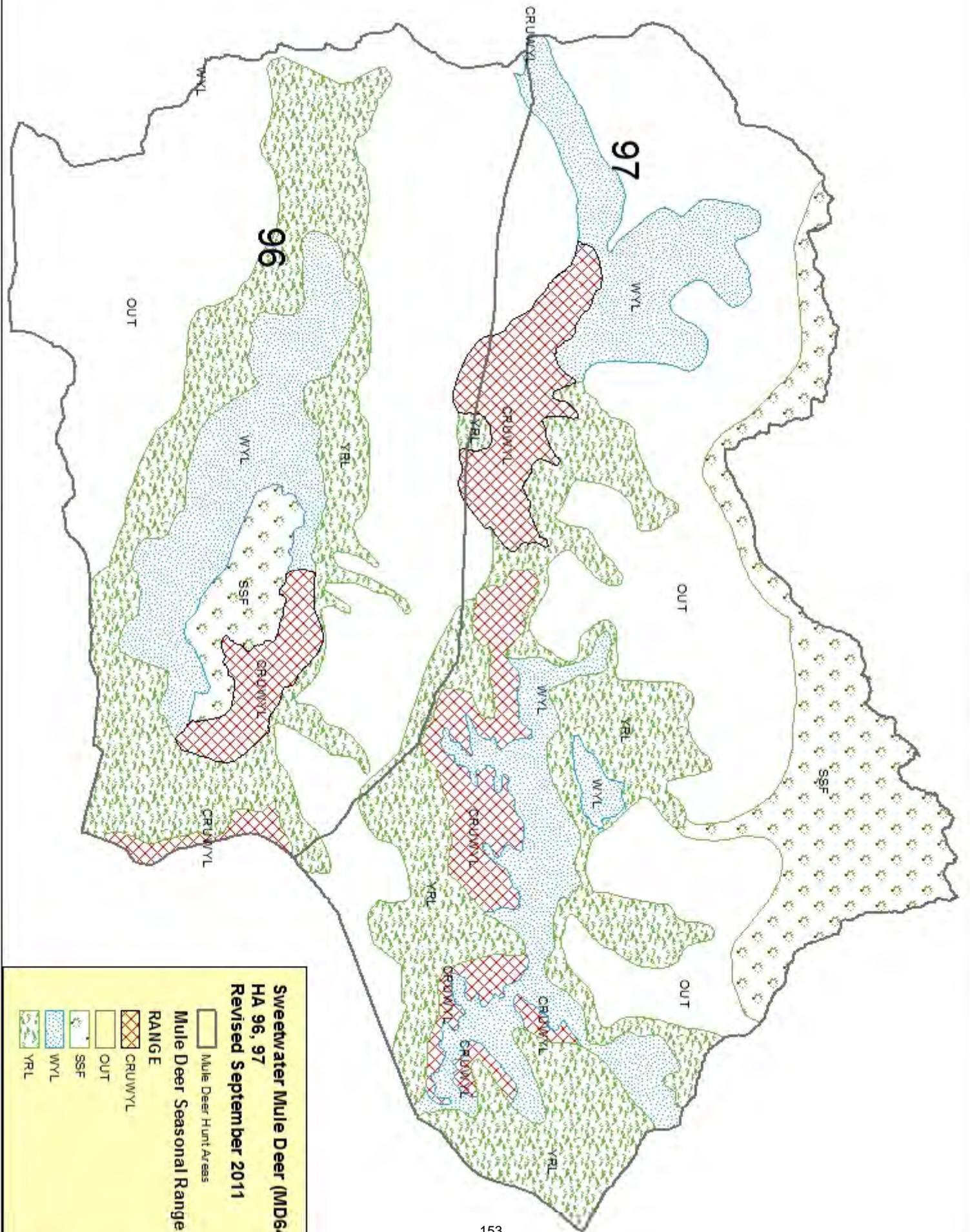
MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%

FIGURES



Comments:

END



2013 - JCR Evaluation Form

SPECIES: Mule Deer
 HERD: MD647 - FERRIS
 HUNT AREAS: 87

PERIOD: 6/1/2013 - 5/31/2014
 PREPARED BY: GREG HIATT

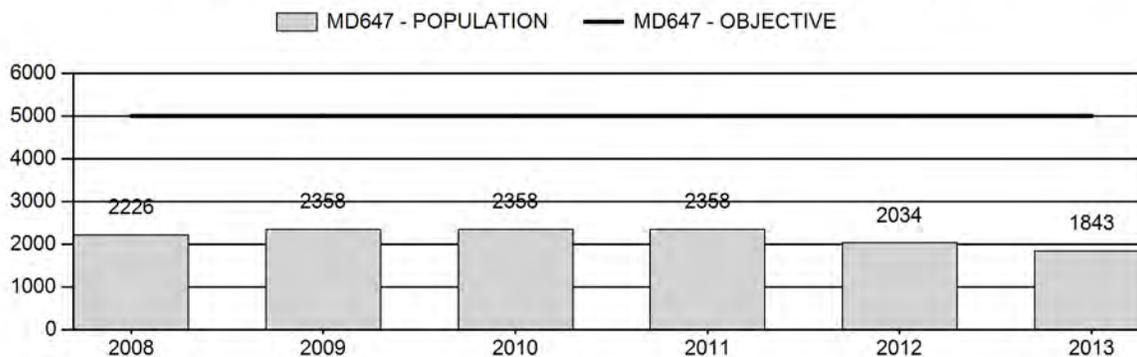
	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	2,267	1,843	1,887
Harvest:	116	41	20
Hunters:	149	52	24
Hunter Success:	78%	79%	83 %
Active Licenses:	149	52	24
Active License Percent:	78%	79%	83 %
Recreation Days:	771	259	125
Days Per Animal:	6.6	6.3	6.2
Males per 100 Females	38	31	
Juveniles per 100 Females	54	29	

Population Objective: 5,000
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: -63.1%
 Number of years population has been + or - objective in recent trend: 21
 Model Date: 3/5/2014

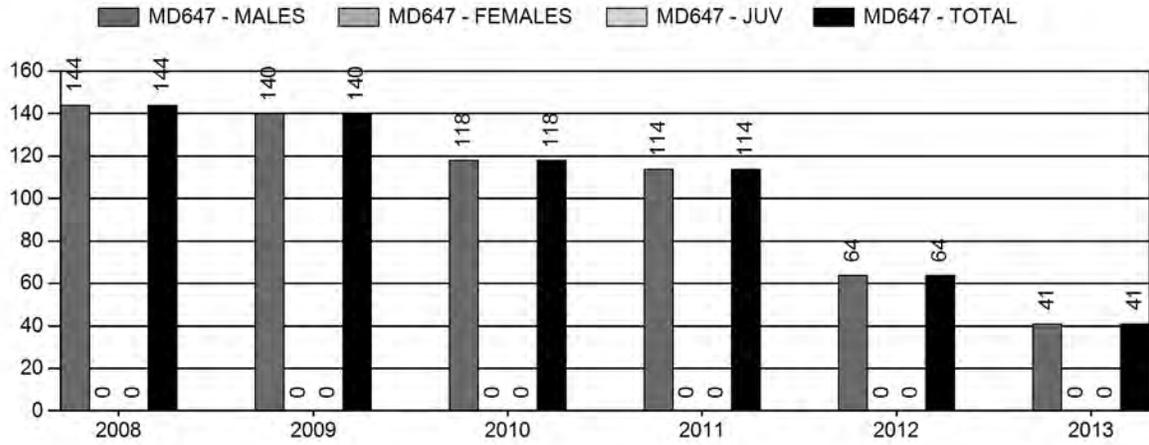
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	6.4%	4.3%
Juveniles (< 1 year old):	0%	0%
Total:	1.5%	1.0%
Proposed change in post-season population:	+4.1%	+2.4%

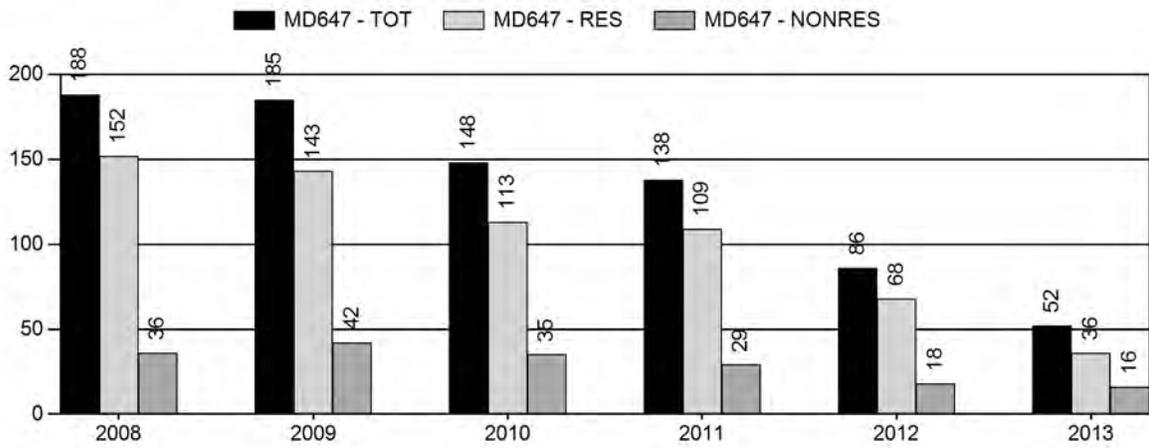
Population Size - Postseason



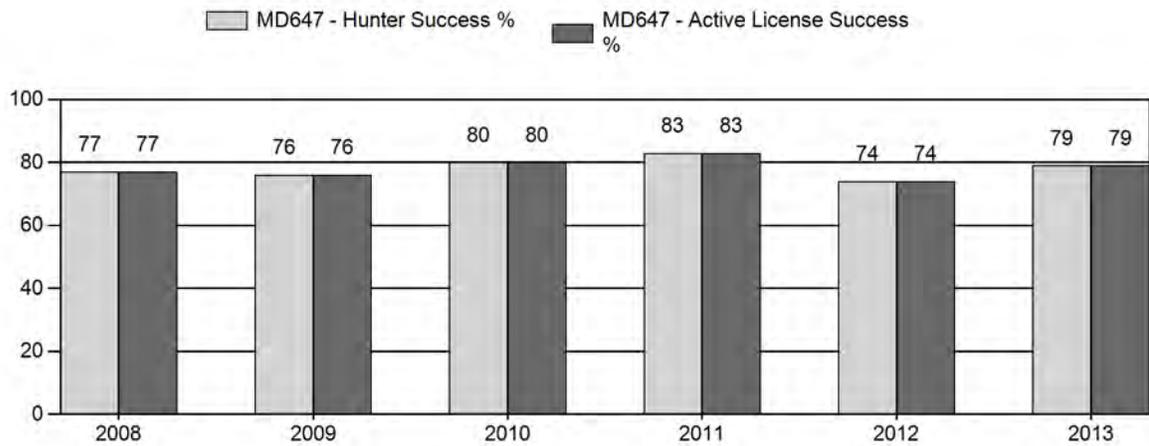
Harvest



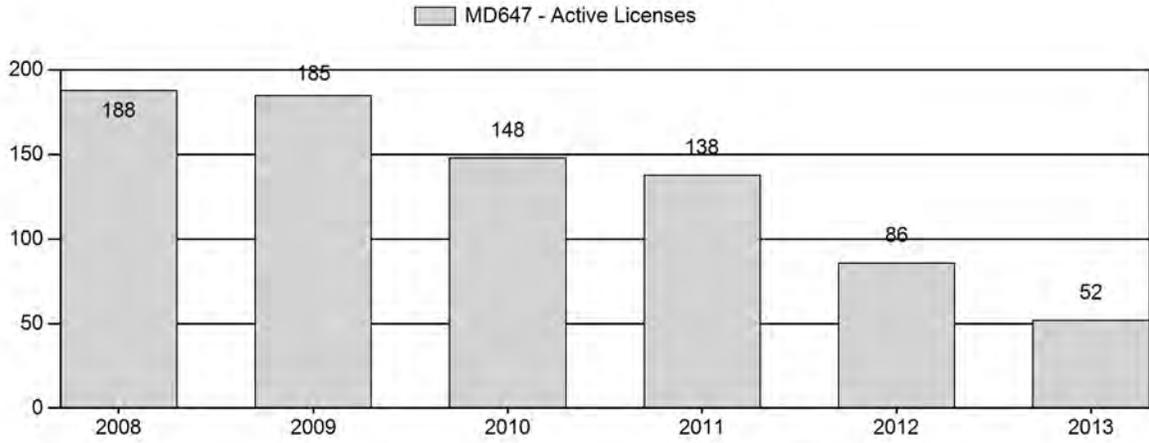
Number of Hunters



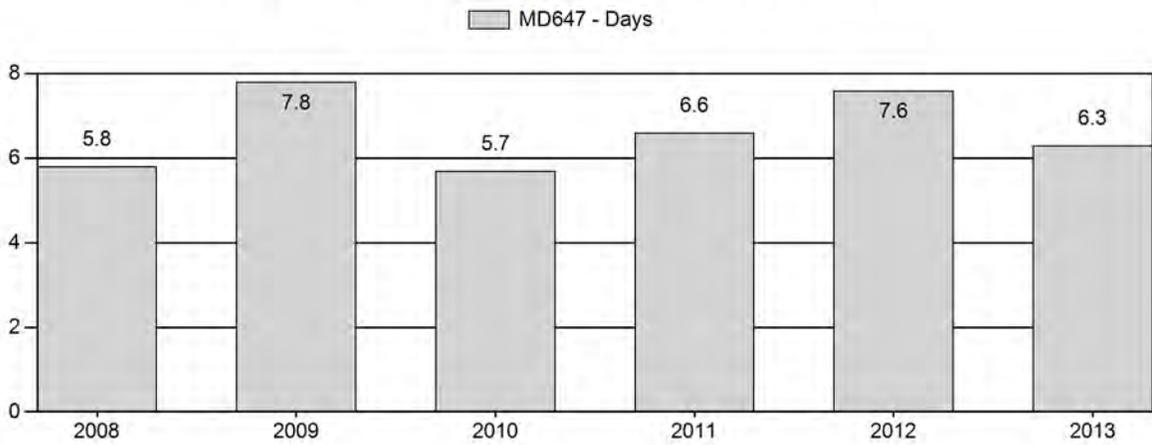
Harvest Success



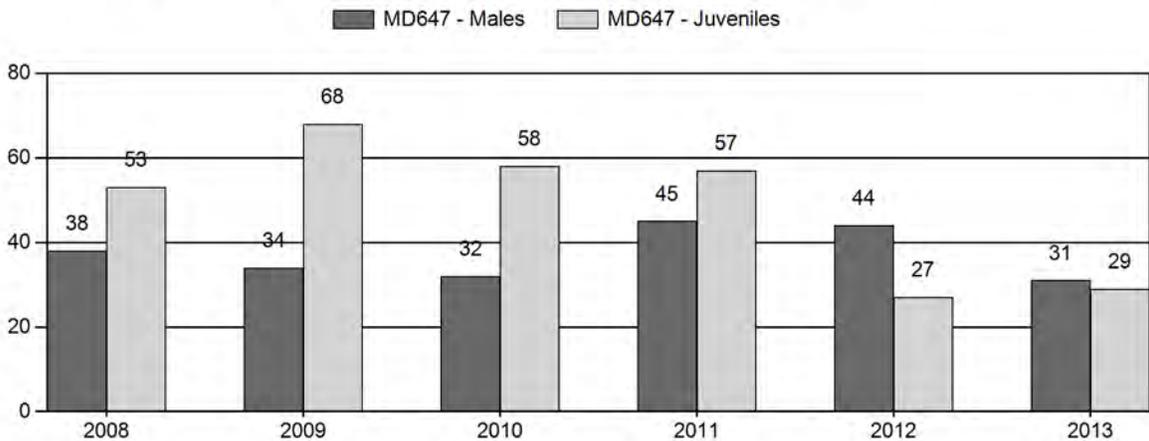
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2008 - 2013 Postseason Classification Summary

for Mule Deer Herd MD647 - FERRIS

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	2,226	57	101	158	20%	416	52%	221	28%	795	699	14	24	38	± 4	53	± 5	39
2009	2,358	55	87	142	17%	419	49%	286	34%	847	923	13	21	34	± 3	68	± 5	51
2010	2,358	51	71	122	17%	381	53%	222	31%	725	771	13	19	32	± 4	58	± 5	44
2011	2,358	50	111	161	22%	356	49%	204	28%	721	790	14	31	45	± 5	57	± 5	39
2012	2,034	0	0	125	26%	281	58%	75	16%	481	528	0	0	44	± 5	27	± 4	18
2013	1,843	14	58	72	20%	230	62%	66	18%	368	347	6	25	31	± 5	29	± 5	22

**2014 HUNTING SEASONS
FERRIS MULE DEER HERD (MD647)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
87	1	Oct. 15	Oct. 31	25	Limited quota; antlered deer
Archery 87		Sep. 1	Sep. 30		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2013
87	1	-25
Total	1	-25

Management Evaluation

Current Management Objective: 5,000

Management Strategy: Recreation

2013 Postseason Population Estimate: ~1,845

2014 Proposed Postseason Population Estimate: ~1,890

The management objective for the Ferris Mule Deer Herd Unit is a post-season population objective of 5,000 deer. The current management strategy is recreational management, but the herd is undergoing review to consider changing management status of this herd to “special.” The objective and management strategy were last publicly reviewed in 1994.

Herd Unit Issues

The 2013 post-season population estimate was about 1,845 deer with the population trending slowly downward from a high of about 3,000 deer in 2003. The herd was last near objective size prior to the 1992-93 winter. Restricted hunting access to major blocks of private and checkerboarded lands has concentrated hunting pressure on the remaining portions of the area, making it difficult to manage buck numbers and quality in the remaining portions of the herd.

Weather

Following severe drought conditions in 2012, with almost no precipitation throughout the spring and summer, body condition of the few harvested deer checked in 2013 was poor. Given the poor condition of animals at the end of fall, mortality was expected to be above average during the 2012-13 winter, particularly following three severe winter storms in April. Unusually low numbers of yearling bucks in the 2013 classifications indicate these losses did occur.

Habitat

Lack of fire has resulted in decadent shrub stands encroached by conifer in this herd unit. Severe drought has reduced the quantity and quality of forage for mule deer. Two browse transects have been established in this herd unit, but one was burned by fire in 2012 and the other was not read in 2013.

Over the past several years the Rawlins BLM has implemented prescribed burns in the Seminole and Ferris Mountains, partly to address conifer encroachment while also rejuvenating decadent mountain mahogany and bitterbrush stands. In the summer of 2012, two large wildfires in the Seminole Mountains and the eastern Ferris Mountains burned thousands of acres, including crucial mule deer winter habitat as well as year round habitats. These prescribed burns should benefit mule deer productivity with the return of young vigorous shrub complexes, but benefits from the wildfires will be longer term.

The Seminole Fire burned over 3,800 acres in the Seminole Mountains including areas within Morgan Creek WHMA. As in 2012, the Rawlins BLM again coordinated and funded aerial application of Plateau® in 2013 to mitigate cheatgrass spread on BLM and WGFD managed areas within the fire perimeter. The wildfire enveloped several previously planned prescribed burns, although not with the desired prescriptions.

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

Field Data

Despite conservative seasons, deer numbers have slowly declined over the past two decades due to several severe winters and persistent drought conditions. Poor habitat conditions, on all seasonal ranges, have prevented the rapid population response seen after similar weather events in previous decades. Fawn:doe ratios have remained low in most years, preventing recovery of the population, and remained low in 2013 at 29:100, following the near-record low of 27:100 in 2012. Sample size was also the lowest since 1984, despite covering the usual winter ranges with the normal number of hours in a helicopter.

The buck:doe ratio dropped to 31:100 in 2013, the lowest in six years and marginal for the “special” management proposed for this herd. Most of the decline was in the yearling ageclass, at 6:100, a result of both poor production in 2012 and high losses during the April blizzards. Hunter access is greatly restricted to large portions of this herd, yielding segments of the population that are essentially unhunted. Rapid fluctuations in buck:doe ratios early in the previous decade is suspected to have been caused by changes in how observers surveyed between hunted and unhunted segments of the herd. Classification surveys the past seven years have attempted to have uniform coverage of all winter ranges, yielding more representative ratios. While ratios may no longer be as skewed, a significant proportion of the bucks in the sample still come from areas with limited or no public access. Only 8 percent of the bucks in the sample were Class 3. More than half were yearlings or Class 1.

Harvest Data

Harvest statistics do not appear to indicate a decline in deer numbers from 2012 to 2013. Hunter success rose slightly, from 74 percent to 79 percent while hunter effort decreased from 7.6 days/animal to 6.3. But only half as many licenses were issued in 2013 as in the previous year, so the remaining hunters would be expected to enjoy better hunting conditions. Only 41 deer were harvested, the smallest harvest from this herd in over forty years, included years with 4-point restrictions.

Population

The Time-Specific Juvenile & Constant Adult Survival (TSJ/CAS) spreadsheet model provided the best fit with observed buck:doe ratios for this herd, and the model behaved predictably when 2013 classification and harvest data were added. Annual adult survival was predicted at 80 percent, a reasonable level. However, best fit with observed buck:doe ratios did not arise unless juvenile survival was also held constant, at 65 percent. This model, while matching well with observed buck:doe ratios and tracking with classification sample sizes, had a high AICc value of 1077, evaluated as “poor”, but improved over the 2012 version. A model with lower AICc values was obtained using the simpler Constant Juvenile – Constant Adult Mortality Rate which also tracked well with classification sample sizes, but simulated buck:doe ratios were well below observed. This model predicted population sizes roughly 10 percent lower than the TSJ/CAS model. Buck:doe ratios for this herd are skewed high because most hunters are denied access to major portions of the area. It may be more useful to weight ratios according to the segment of the herd sampled, rather than simply combining all data into one sample, and then use the simpler CJ/CA model to align with those values.

Fawn production in 2014 was projected at a 5-year average, which may be optimistic considering the poor condition of animals going into the 2013-14 winter and poor snowpack on low elevation habitats. Similarly, the model was run with moderate juvenile survival in 2014, which may be optimistic. The resultant model predicts a roughly stable population in 2014, but greatly over-estimates observed buck:doe ratios for the past two years. If drought conditions abate, the large acreages of treated habitat may improve fawn production and survival and provide for some degree of herd growth in the future.

Large numbers of dead pronghorn were found during late summer and early fall 2013 in Antelope Areas 62 and 63, which overlap this herd unit. Several were confirmed as EHD losses, and most are presumed to have been. EHD was also confirmed in a mule deer fawn mortality south of Rawlins in the Baggs herd unit, so it is likely there were losses from the Ferris herd as well.

Management Summary

Expected harvest from this season proposal would be roughly 20 buck deer. The limited quota hunt is compatible with the application booklets. As in the previous 18 years, these licenses are valid only for antlered deer during the regular season. The quota is reduced by half from that available in 2013, which was half that allowed in 2012. With the herd so far below objective, no

doe harvest is warranted and no doe/fawn licenses are available. Youth hunters and archers in the special archery season will still be able to harvest antlerless deer.

Opening date is traditional, coincides with hunts in neighboring areas in Regions D and E, and is consistent with the application booklets. Closing date is the same as in the previous 14 years.

Archery season dates are standard and the same as used in previous years.

With the low numbers of permits allowed in this herd, hunters have come to expect better opportunities to see and harvest larger bucks than available in neighboring general license, more productive herds. High demand for these licenses is attributed as much to an expectation of high buck quality as it is for a less crowded hunting experience. To accommodate this demand, compensate for the second straight year of record low fawn production, and keep the herd near the “special” management criterion, the recommended license quota was decreased to 25 licenses in 2014.

INPUT	
Species:	Mule Deer
Biologist:	Gregg Hiatt
Herd Unit & No.:	MD647 Ferris
Model date:	03/05/14

Clear form

MODELS SUMMARY			Relative AICc	Notes
CJ,CA	Constant Juvenile & Adult Survival	Fit	548	<input checked="" type="checkbox"/> Check best model to create report <input type="checkbox"/> CJ,CA Model <input type="checkbox"/> SCJ,SCA Model <input checked="" type="checkbox"/> TSJ,CA Model
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	Fit	199	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	Fit	624	

Year	Posthunt Population Est.		Predicted Prehunt Population				Predicted Posthunt Population				Objective	
	Field Est	Field SE	Trend Count	Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females		Total
1993				757	427	1452	2635	753	330	1380	2463	5000
1994				650	509	1349	2508	650	401	1320	2371	5000
1995				776	532	1267	2575	776	444	1267	2487	5000
1996				799	607	1266	2673	799	488	1266	2553	5000
1997				720	650	1273	2642	720	511	1273	2503	5000
1998				1035	643	1252	2930	1035	522	1252	2809	5000
1999				968	754	1338	3060	968	553	1338	2859	5000
2000				805	757	1385	2947	805	534	1385	2724	5000
2001				912	689	1370	2971	912	542	1370	2823	5000
2002				808	730	1392	2930	808	586	1392	2786	5000
2003				1070	731	1376	3177	1070	576	1376	3022	5000
2004				844	808	1449	3101	844	616	1426	2885	5000
2005				631	767	1415	2813	631	533	1415	2579	5000
2006				610	631	1337	2579	610	419	1337	2366	5000
2007				733	534	1268	2535	733	285	1268	2286	5000
2008				665	466	1253	2384	665	308	1253	2226	5000
2009				832	463	1218	2512	832	309	1218	2358	5000
2010				725	517	1245	2487	725	387	1245	2358	5000
2011				706	546	1232	2483	706	420	1232	2358	5000
2012				324	566	1215	2104	324	495	1215	2034	5000
2013				309	501	1077	1888	309	456	1077	1843	5000
2014				481	466	962	1909	481	444	962	1887	5000
2015												5000
2016												5000
2017												5000
2018												5000
2019												5000
2020												5000
2021												5000
2022												5000
2023												5000
2024												5000
2025												5000

Survival and Initial Population Estimates

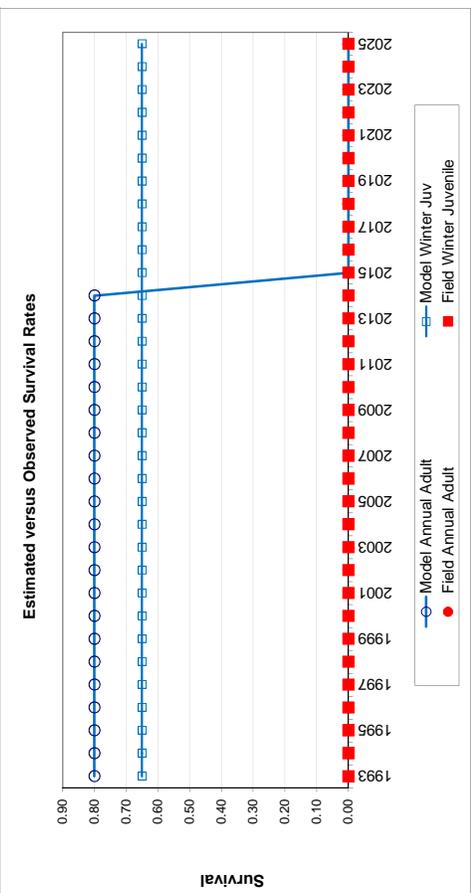
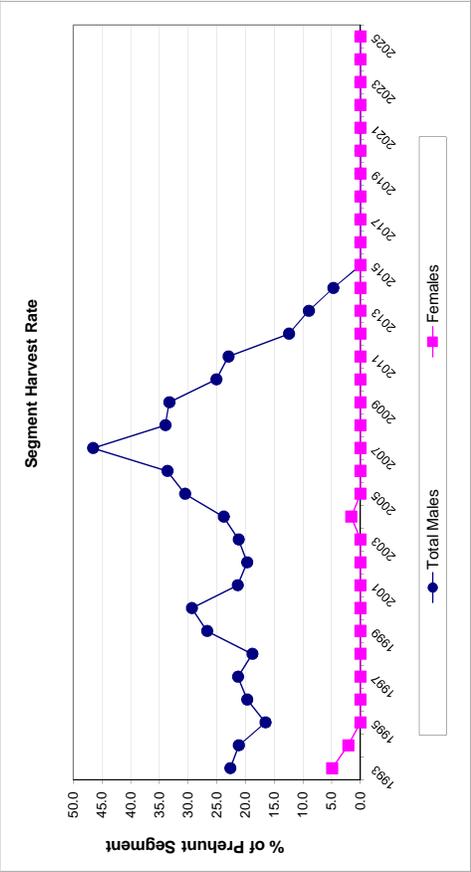
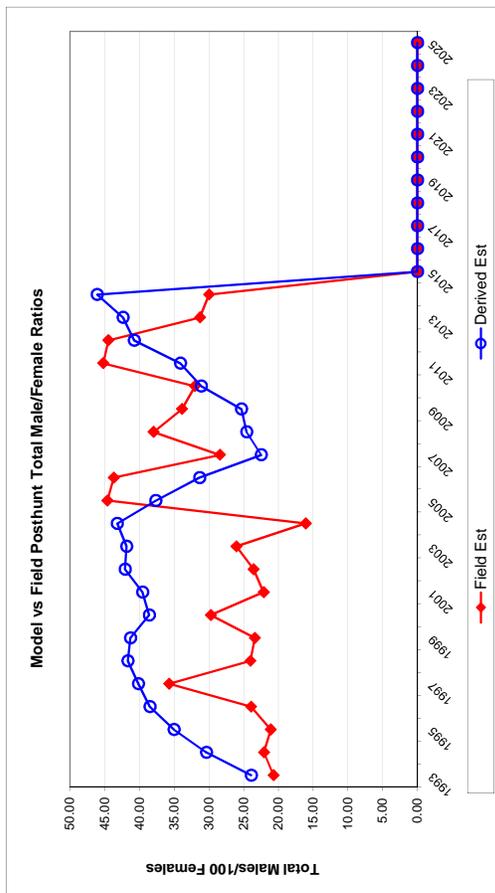
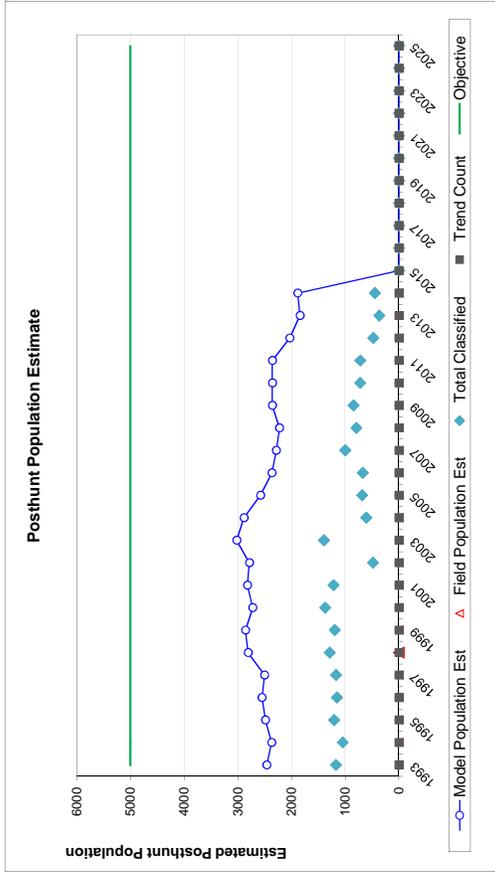
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est SE	Model Est	Field Est SE
1993	0.65		0.80	
1994	0.65		0.80	
1995	0.65		0.80	
1996	0.65		0.80	
1997	0.65		0.80	
1998	0.65		0.80	
1999	0.65		0.80	
2000	0.65		0.80	
2001	0.65		0.80	
2002	0.65		0.80	
2003	0.65		0.80	
2004	0.65		0.80	
2005	0.65		0.80	
2006	0.65		0.80	
2007	0.65		0.80	
2008	0.65		0.80	
2009	0.65		0.80	
2010	0.65		0.80	
2011	0.65		0.80	
2012	0.65		0.80	
2013	0.65		0.80	
2014	0.65		0.80	
2015	0.65		0.80	
2016	0.65		0.80	
2017	0.65		0.80	
2018	0.65		0.80	
2019	0.65		0.80	
2020	0.65		0.80	
2021	0.65		0.80	
2022	0.65		0.80	
2023	0.65		0.80	
2024	0.65		0.80	
2025	0.65		0.80	

Parameters:	Optim cells
Adult Survival =	0.800
Initial Total Male Pop/10,000 =	0.033
Initial Female Pop/10,000 =	0.138

MODEL ASSUMPTIONS
Sex Ratio (% Males) = 50%
Wounding Loss (total males) = 10%
Wounding Loss (females) = 10%
Wounding Loss (juveniles) = 10%

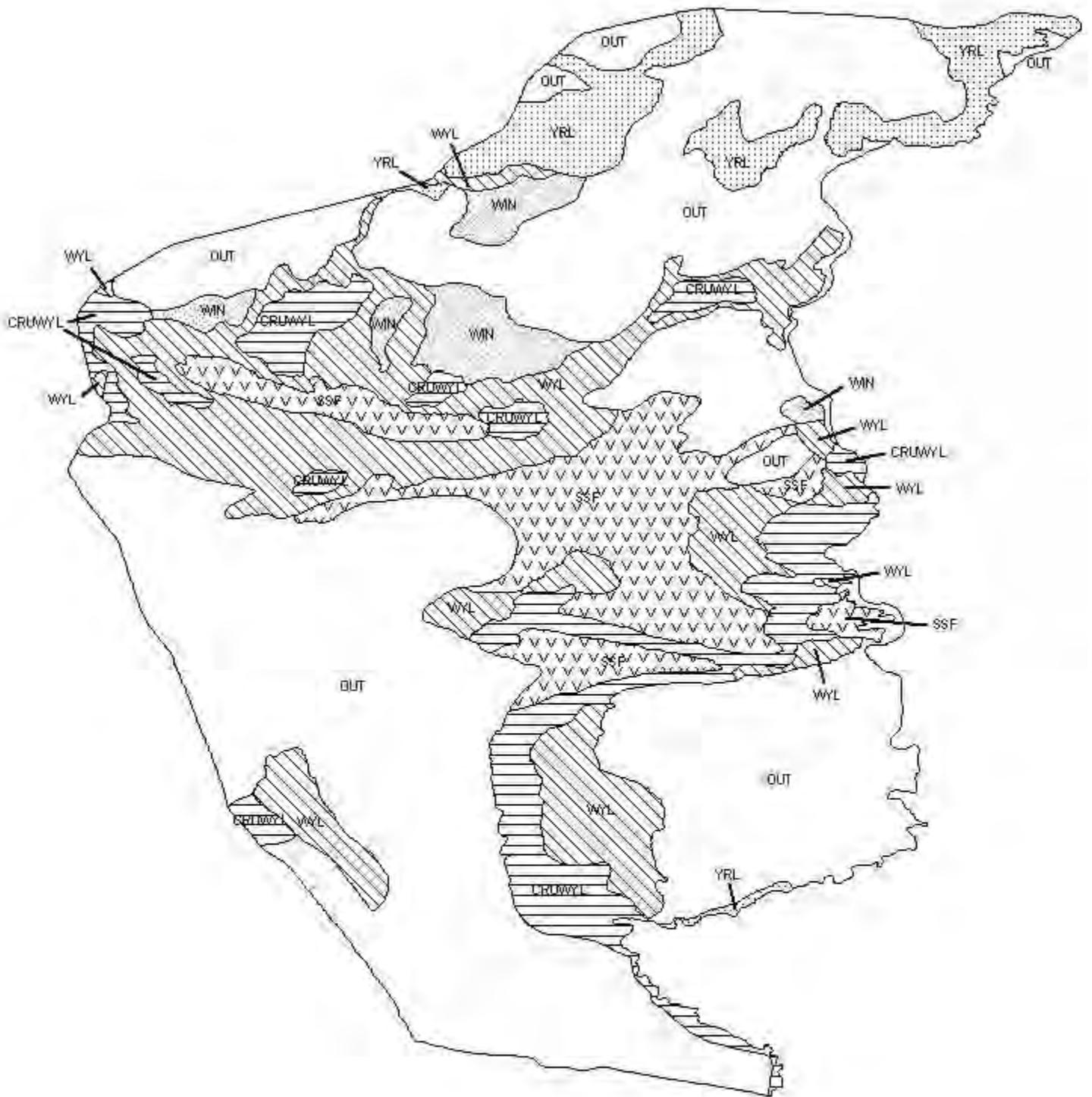
Year	Classification Counts										Harvest	
	Juvenile/Female Ratio					Total Male/Female Ratio					Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/o bull adj	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		54.55	3.54	23.91	20.72	1.93	4	88	65	157	22.7	4.9
1994		49.26	3.47	30.37	22.09	2.10	0	98	26	124	21.2	2.1
1995		61.24	3.86	35.03	21.12	1.96	0	80	0	80	16.5	0.0
1996		63.11	4.08	38.51	23.95	2.19	0	109	0	109	19.7	0.0
1997		56.56	3.81	40.16	35.74	2.82	0	126	0	126	21.3	0.0
1998		82.69	4.92	41.68	24.04	2.19	0	110	0	110	18.8	0.0
1999		72.34	4.52	41.30	23.40	2.17	0	183	0	183	26.7	0.0
2000		58.12	3.54	38.59	29.74	2.29	0	202	0	202	29.4	0.0
2001		66.56	4.14	39.56	22.14	2.05	0	134	0	134	21.4	0.0
2002		58.05	5.86	42.07	23.60	3.30	0	131	0	131	19.7	0.0
2003		77.73	4.48	41.86	26.06	2.19	0	141	0	141	21.2	0.0
2004		59.20	5.20	43.21	16.09	2.32	0	175	21	196	23.8	1.6
2005		44.63	4.22	37.66	44.63	4.22	0	213	0	213	30.5	0.0
2006		45.66	4.32	31.35	43.70	4.19	0	193	0	193	33.6	0.0
2007		57.81	4.12	22.48	28.44	2.61	0	226	0	226	46.6	0.0
2008		53.13	4.42	24.58	37.98	3.55	0	144	0	144	34.0	0.0
2009		68.26	5.24	25.33	33.89	3.29	0	140	0	140	33.3	0.0
2010		58.27	4.92	31.11	32.02	3.33	0	118	0	118	25.1	0.0
2011		57.30	5.03	34.12	45.22	4.30	0	114	0	114	23.0	0.0
2012		26.69	3.47	40.76	44.48	4.78	0	64	0	64	12.4	0.0
2013		28.70	4.01	42.37	31.30	4.23	0	41	0	41	9.0	0.0
2014		50.00	5.48	46.10	30.00	3.95	0	20	0	20	4.7	0.0
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

FIGURES



Comments:

END



Mule Deer (MD647) - Ferris
 HA 87
 Revised - 3/91



2013 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD648 - BEAVER RIM

HUNT AREAS: 90

PREPARED BY: GREG
ANDERSON

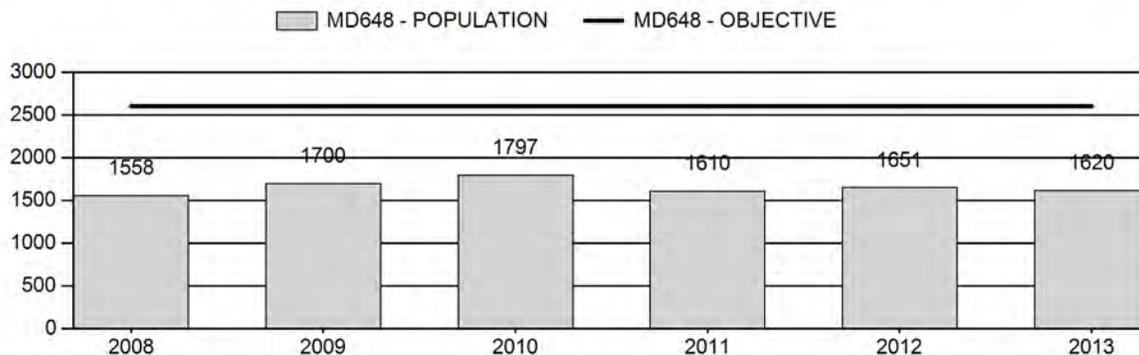
	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	1,663	1,620	1,792
Harvest:	96	46	40
Hunters:	118	73	50
Hunter Success:	81%	63%	80 %
Active Licenses:	118	73	50
Active License Percent:	81%	63%	80 %
Recreation Days:	711	459	400
Days Per Animal:	7.4	10.0	10
Males per 100 Females	38	22	
Juveniles per 100 Females	44	34	

Population Objective:	2,600
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-37.7%
Number of years population has been + or - objective in recent trend:	10
Model Date:	2/21/2014

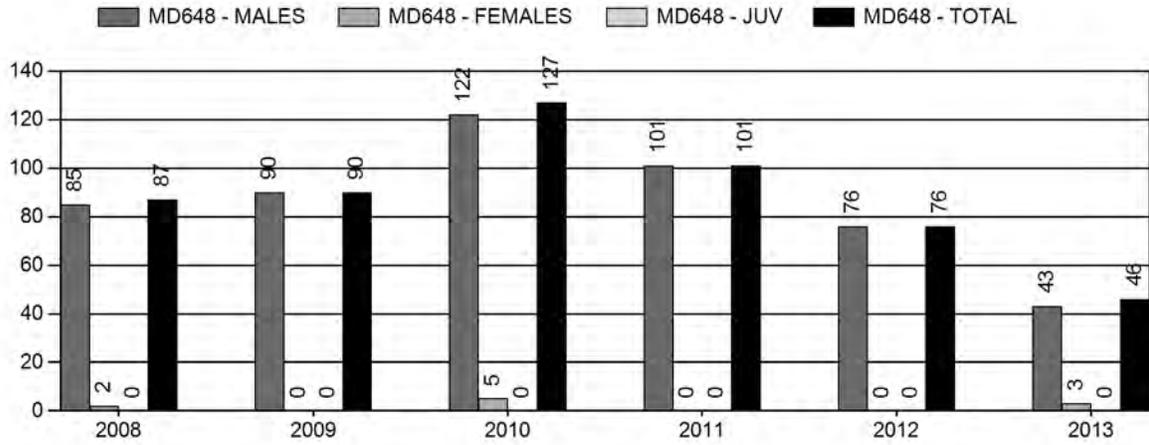
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	14%	12%
Juveniles (< 1 year old):	0%	0%
Total:	3%	2%
Proposed change in post-season population:	-2%	+11%

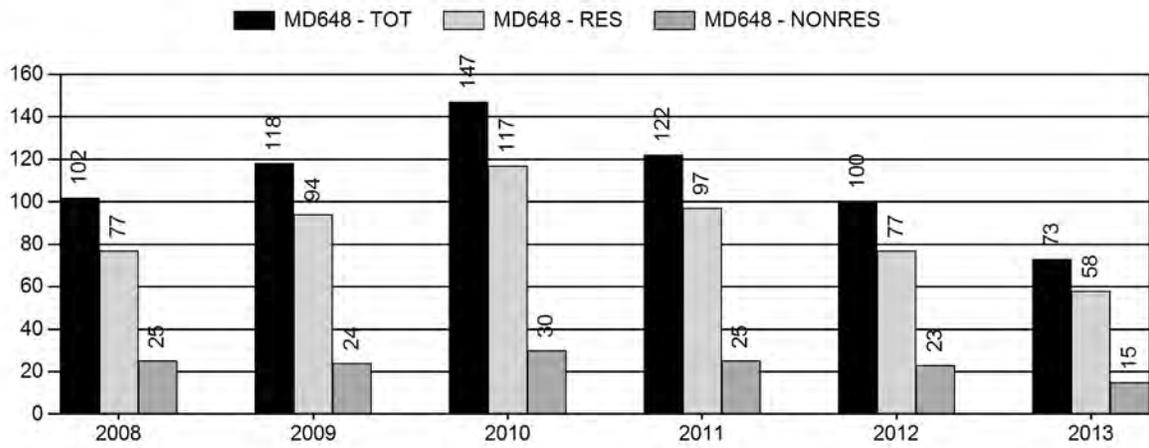
Population Size - Postseason



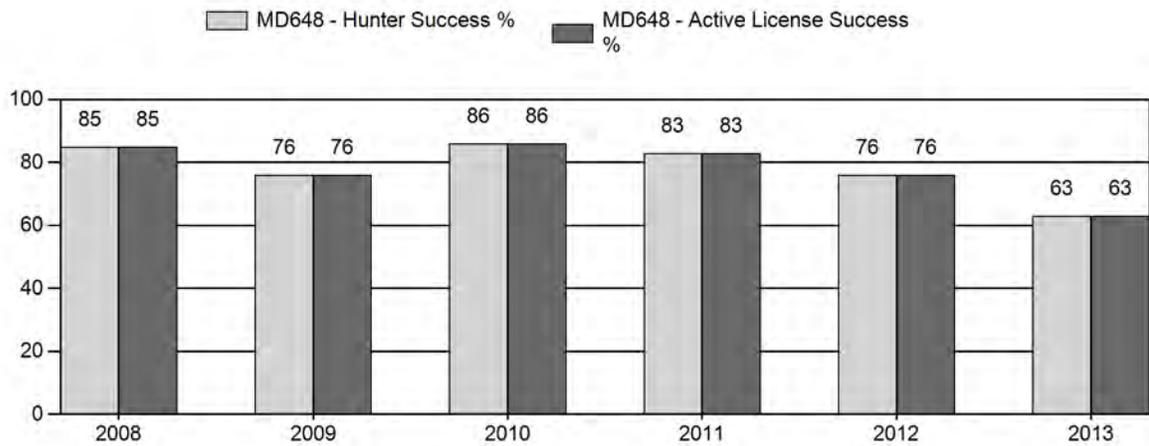
Harvest



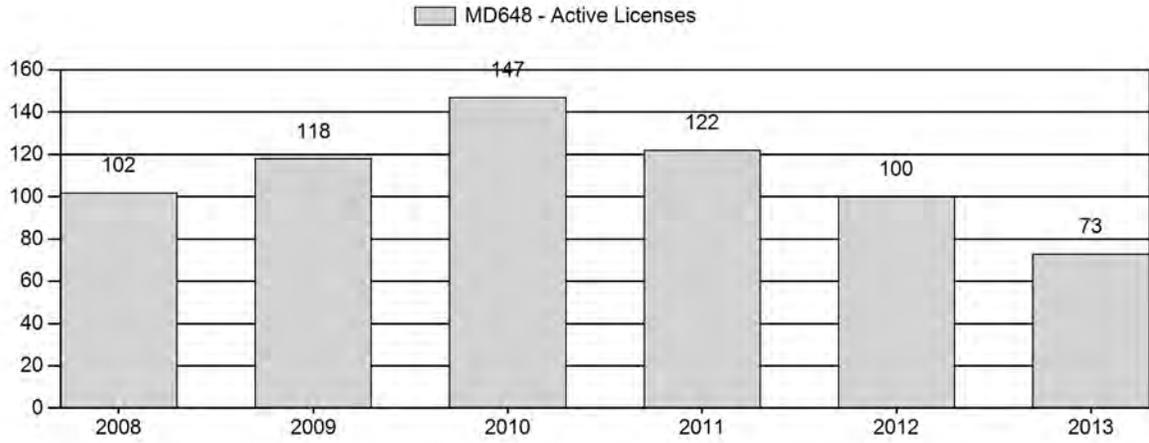
Number of Hunters



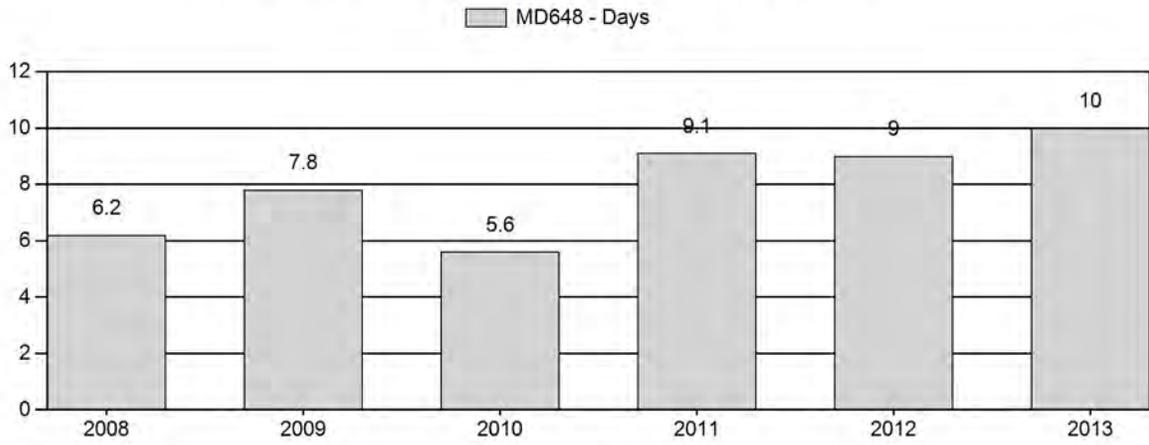
Harvest Success



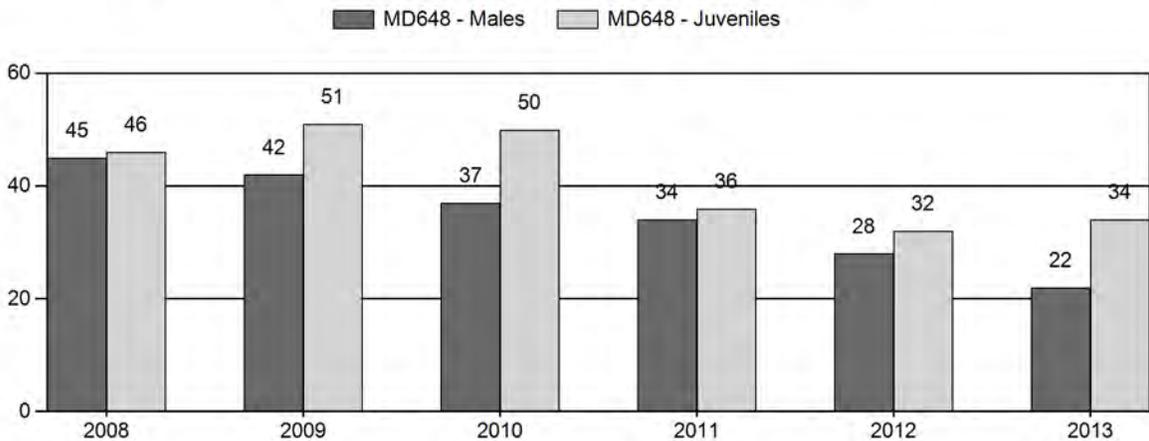
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2008 - 2013 Postseason Classification Summary

for Mule Deer Herd MD648 - BEAVER RIM

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	1,558	24	44	68	24%	151	52%	69	24%	288	504	16	29	45	± 8	46	± 8	32
2009	1,700	25	51	76	22%	182	52%	93	26%	351	552	14	28	42	± 7	51	± 7	36
2010	1,797	13	35	48	20%	129	54%	64	27%	241	582	10	27	37	± 8	50	± 9	36
2011	1,610	10	31	41	20%	119	59%	43	21%	203	389	8	26	34	± 7	36	± 8	27
2012	1,651	4	29	33	17%	120	62%	39	20%	192	362	3	24	28	± 7	32	± 7	25
2013	1,620	3	17	20	14%	90	64%	31	22%	141	362	3	19	22	± 7	34	± 9	28

**2014 HUNTING SEASONS
BEAVER RIM MULE DEER (MD 648)**

Hunt Area	Type	Season Dates		Quota	Limitations
		Opens	Closes		
90	1	Oct. 1	Oct. 31	50	Limited quota; any deer
Archery		Aug. 15	Sep. 30		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2013
90	1	-25
Total	1	-25

Management Evaluation

Current Management Objective: 2,600

Management Strategy: Special

2013 Postseason Population Estimate: ~1,600

2014 Proposed Postseason Population Estimate: ~1,800

Management Issues

The Beaver Rim mule deer herd has a population objective of 2,600 and has a special management designation. The population objective has been in place since 1994.

The landscape in this herd unit has remained relatively undisturbed compared to neighboring herd units. That said, vegetation throughout much of the area has been in poor condition for a number of years due to drought. In particular, the mid-2000's, 2012, and 2013 were extremely dry. No vegetation data is collected in the herd unit, but casual observation indicated new growth was almost non-existent in 2012 and 2013. As a result, deer body condition was quite poor entering the 2013/14 winter.

Habitat/Weather

This population was once significantly larger than it currently is. The population declined dramatically in the early 1990's following a catastrophic winter die-off. Deer numbers then languished for over a decade. The population showed signs of a slow, steady increase from 2000 through 2010. A harsh winter in 2010 followed by extreme drought in 2012 and 2013 resulted in a population decline over the past 3 years. While no vegetation data is collected in the herd unit, casual observations suggest almost no herbaceous vegetation grew throughout much of the herd unit in 2012 or 2013. Over the same period, extensive areas of sagebrush appear to have senesced or died.

Field/Harvest Data/Population

Due to low deer densities in the herd unit, classification sample sizes have generally been below desired levels for the population. That said, the number of deer seen during classification surveys has declined consistently over the past 4 years concurrent with a perceived population decline. In 2013 personnel only classified 141 mule deer; well below an adequate number. While the sample size was undesirably small, indications are recruitment was quite poor with a fawn/doe ratio of 34/100. The fawn/doe ratio was also very low the previous 2 years at 32/100 and 36/100 respectively. Concurrent with poor recruitment, the buck/doe ratio has declined each year for the past 5 years. The buck/doe ratio was 22/100 in 2013 and well below the desired level for a special management area. In 2013, harvest success in the area was 63% and was the lowest in over 10 years. Harvest success has declined annually each of the past 3 years as recruitment has languished and the buck/doe ratio declined. Taken in concert, classification data, harvest data, and casual observations clearly indicate this population has declined significantly over the past 3 years.

A spreadsheet model was developed for this population in 2012. The addition of 2013 data did not dramatically change the estimates produced by the model. The SCJ/SCA model appeared to provide the best fit in both 2012 and 2013. The SCJ/SCA had a significantly lower AIC value than the TSJ/CA model but nearly as good of fit. Both models produce a similar trend over the past 10 years and population estimates are not markedly different. The CA/CJ version models a population increase annually for the past 20 years. Given other data for the area it is clear the population declined markedly over the past several years invalidating the CA/CJ model version. The SCJ/SCA model tracks perceived trends well up to 2010 indicating slow, steady growth from 2000 through 2010. Past 2010, the model shows a slight decline in 2011 and then indicates the population was stable from 2011 through 2013. This is a marked contrast to what is indicated by personnel/hunter observations, classification data, and harvest statistics. Although the model is classified as fair due to the inputs available, it is apparent it does not track a recent, significant decline in the population and is thus not biologically defensible and should be considered a poor model.

Management Summary

All factors with the exception of the spreadsheet model indicate this population has declined significantly over the past 3 years. The population is clearly below objective and hunt quality has declined over the past several years as well. The buck/doe ratio has been declining steadily and is now well below the prescribed threshold for special management. Given low recruitment in the herd unit the past 3 years, the buck/doe ratio is unlikely to increase dramatically over the next year. In response, Type 1 licenses will be reduced by 25 for the 2014 season.

INPUT	
Species:	Mule Deer
Biologist:	Greg Anderson
Herd Unit & No.:	Beaver Rim Mule Deer
Model date:	02/21/14

Clear form

MODELS SUMMARY			Notes
	Fit	Relative AICc	Check best model to create report
C,J,CA	17	26	<input type="checkbox"/> C,J,CA Model
SC,J,SCA	17	28	<input checked="" type="checkbox"/> SC,J,SCA Mod
TS,J,CA	10	121	<input type="checkbox"/> TS,J,CA Model

Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population			Predicted Posthunt Population			Objective	
	Field Est	Field SE		Juveniles	Total Males	Females	Juveniles	Total Males	Females		Total
1993			91	153	217	461	88	31	171	291	2600
1994			79	58	188	325	79	32	172	282	2600
1995			116	55	186	357	115	41	184	341	2600
1996			125	76	209	410	125	63	208	396	2600
1997			133	100	235	468	133	73	235	442	2600
1998			196	112	262	570	196	91	262	549	2600
1999			246	149	309	703	246	110	309	665	2600
2000			168	183	368	719	168	146	362	676	2600
2001			162	191	392	745	162	157	392	711	2600
2002			174	199	418	792	174	166	416	756	2600
2003			251	212	444	907	251	180	442	873	2600
2004			280	250	494	1024	280	199	494	973	2600
2005			312	277	552	1141	312	226	550	1087	2600
2006			450	312	614	1376	450	274	609	1333	2600
2007			467	402	715	1584	467	332	715	1514	2600
2008			373	462	819	1654	373	369	816	1558	2600
2009			451	466	882	1799	451	367	882	1700	2600
2010			478	489	969	1937	478	355	964	1797	2600
2011			350	402	969	1721	350	291	969	1610	2600
2012			330	386	1017	1733	330	303	1017	1651	2600
2013			342	332	996	1670	342	285	993	1620	2600
2014			422	377	1036	1836	422	333	1036	1792	2600
2015											2600
2016											2600
2017											2600
2018											2600
2019											2600
2020											2600
2021											2600
2022											2600
2023											2600
2024											2600
2025											2600

Survival and Initial Population Estimates

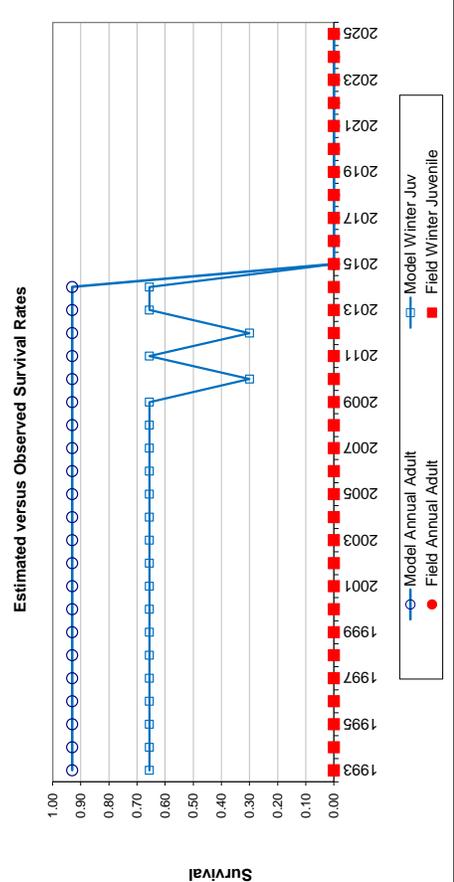
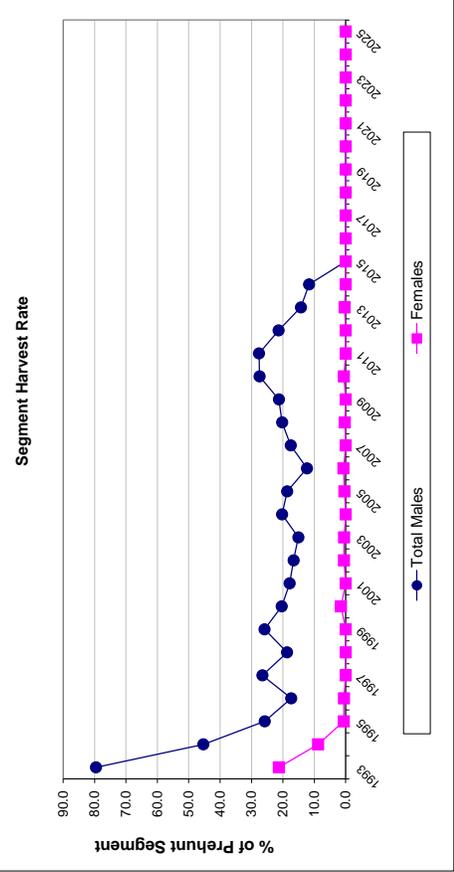
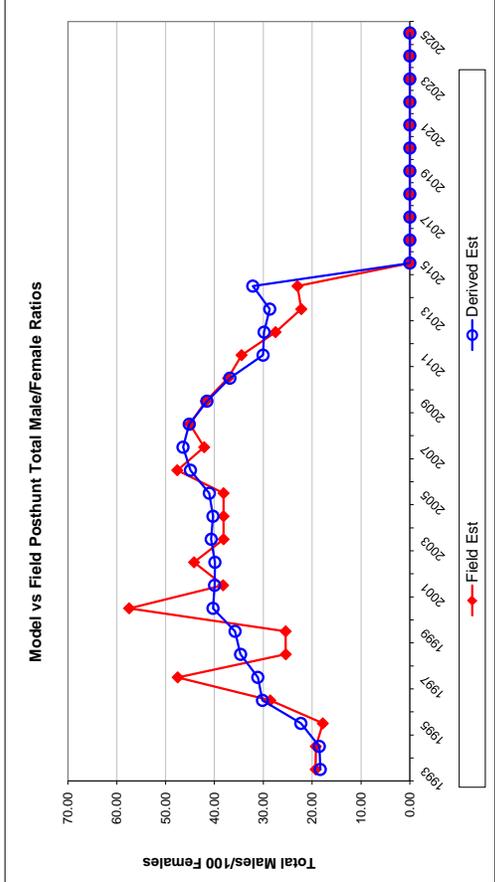
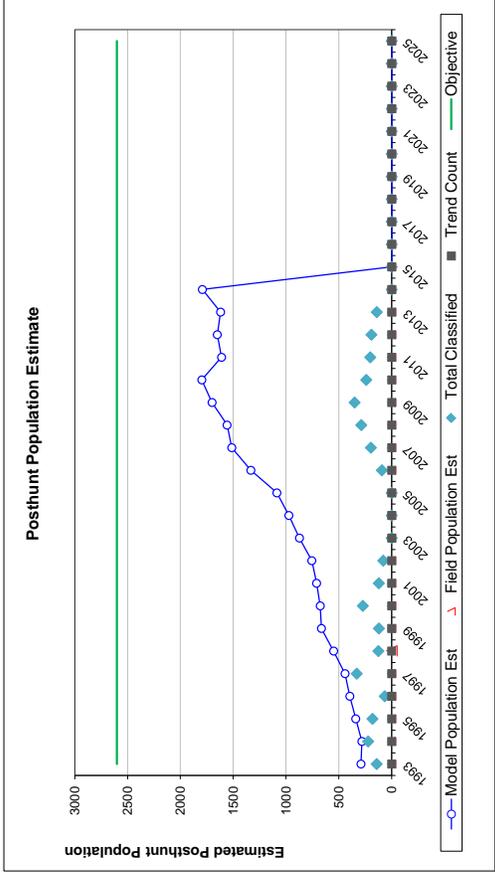
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.66		0.93	
1994	0.66		0.93	
1995	0.66		0.93	
1996	0.66		0.93	
1997	0.66		0.93	
1998	0.66		0.93	
1999	0.66		0.93	
2000	0.66		0.93	
2001	0.66		0.93	
2002	0.66		0.93	
2003	0.66		0.93	
2004	0.66		0.93	
2005	0.66		0.93	
2006	0.66		0.93	
2007	0.66		0.93	
2008	0.66		0.93	
2009	0.66		0.93	
2010	0.30		0.93	
2011	0.66		0.93	
2012	0.30		0.93	
2013	0.66		0.93	
2014	0.66		0.93	
2015				
2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				

Parameters:	Optim cells
Juvenile Survival =	0.656
Adult Survival =	0.931
Initial Total Male Pop/10,000 =	0.003
Initial Female Pop/10,000 =	0.017

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%

Year	Classification Counts										Harvest				
	Juvenile/Female Ratio		Total Male/Female Ratio				Juv		Males	Females	Total Harvest	Segment Harvest Rate (% of	Total Males	Females	
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/o bull adj	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		51.81	9.73	18.34	19.28	5.26				2	111	42	155	79.6	21.3
1994		45.93	7.05	18.54	19.26	4.12				0	24	15	39	45.4	8.8
1995		62.38	10.01	22.31	17.82	4.56				1	13	1	15	25.8	0.6
1996		60.00	16.56	30.17	28.57	10.24				0	12	1	13	17.4	0.5
1997		56.79	7.41	31.13	47.53	6.58				0	24	0	24	26.5	0.0
1998		74.60	14.38	34.65	25.40	7.11				0	19	0	19	18.7	0.0
1999		79.66	15.57	35.79	25.42	7.35				0	35	0	35	25.9	0.0
2000		46.27	7.11	40.30	57.46	8.22				0	34	5	39	20.4	1.5
2001		41.18	9.25	39.98	38.24	8.82				0	31	0	31	17.9	0.0
2002		41.86	11.75	39.91	44.19	12.17				0	30	2	32	16.6	0.5
2003		56.71	11.61	40.66	38.14	8.73				0	29	2	31	15.1	0.5
2004		56.71	11.61	40.31	38.14	8.73				0	46	0	46	20.3	0.0
2005		56.71	11.61	41.05	38.14	8.73				0	47	2	49	18.6	0.4
2006		73.81	17.48	44.92	47.62	12.94				0	35	4	39	12.3	0.7
2007		65.26	10.66	46.45	42.11	7.94				0	64	0	64	17.5	0.0
2008		45.70	6.64	45.16	45.03	6.58				0	85	2	87	20.2	0.3
2009		51.10	6.51	41.55	41.76	5.70				0	90	0	90	21.3	0.0
2010		49.61	7.59	36.84	37.21	6.29				0	122	5	127	27.4	0.6
2011		36.13	6.43	30.05	34.45	6.24				0	101	0	101	27.6	0.0
2012		32.50	5.99	29.84	27.50	5.41				0	75	0	75	21.4	0.0
2013		34.44	7.17	28.68	22.22	5.49				0	43	3	46	14.2	0.3
2014		40.76	6.74	32.16	23.00	5.83				0	40	0	40	11.7	0.0
2015															
2016															
2017															
2018															
2019															
2020															
2021															
2022															
2023															
2024															
2025															

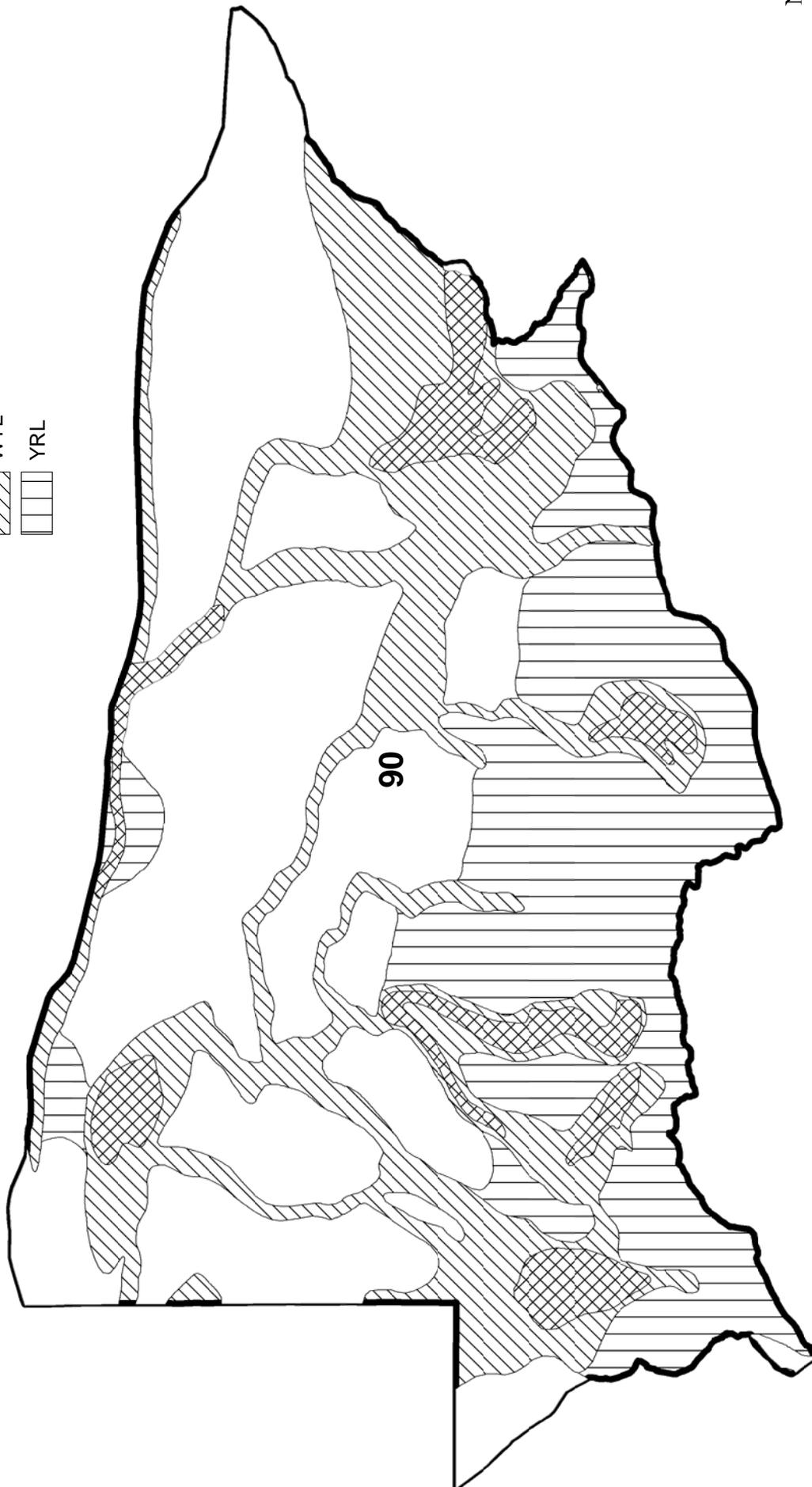
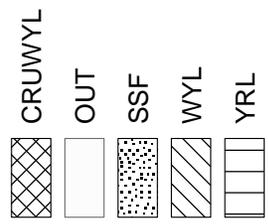
FIGURES



Comments:

END

**Beaver Rim Mule Deer Seasonal Range
Hunt Area 90
Updated 2013**



2013 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD650 - CHAIN LAKES

HUNT AREAS: 98

PREPARED BY: GREG HIATT

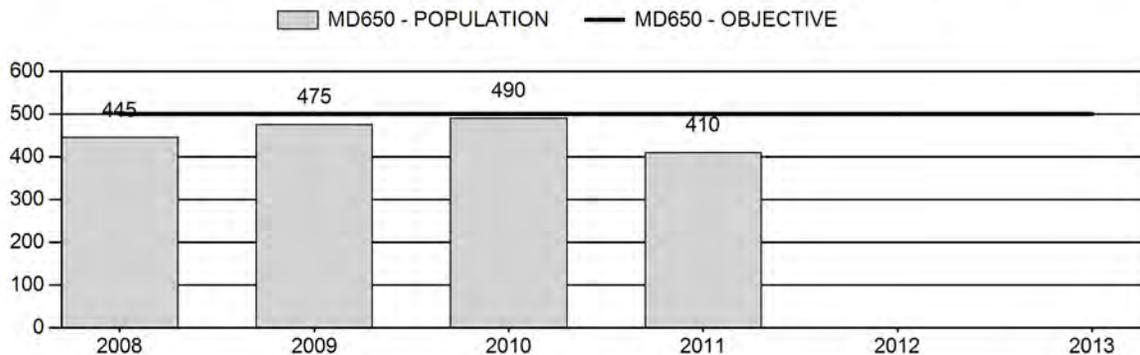
	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	364	N/A	N/A
Harvest:	40	15	20
Hunters:	133	93	110
Hunter Success:	30%	16%	18 %
Active Licenses:	133	93	110
Active License Percent:	30%	16%	18 %
Recreation Days:	568	378	500
Days Per Animal:	14.2	25.2	25
Males per 100 Females	0	0	
Juveniles per 100 Females	0	0	

Population Objective:	500
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0
Model Date:	None

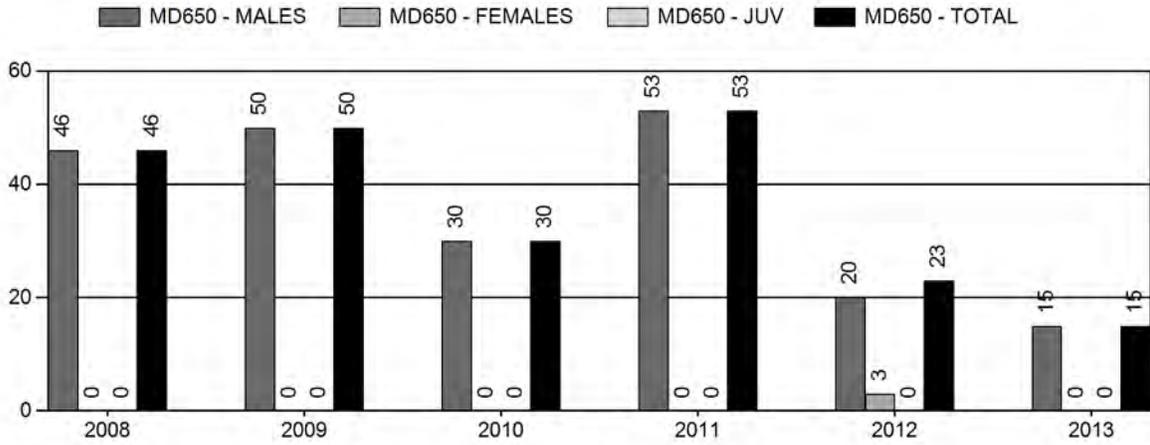
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

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

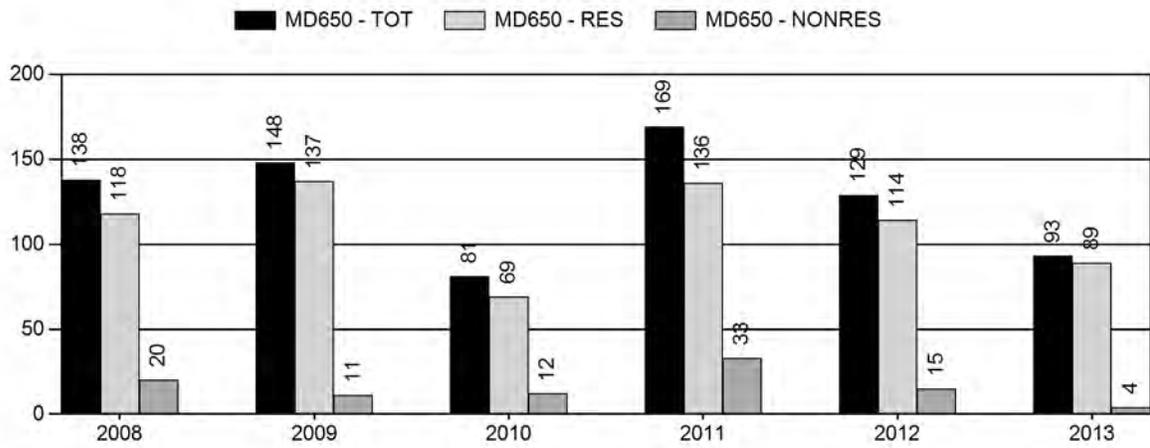
Population Size - Postseason



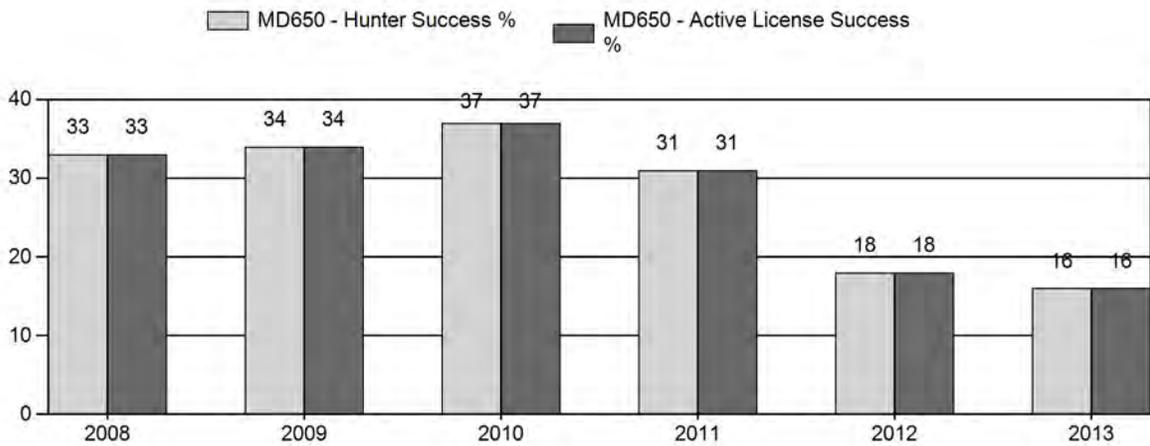
Harvest



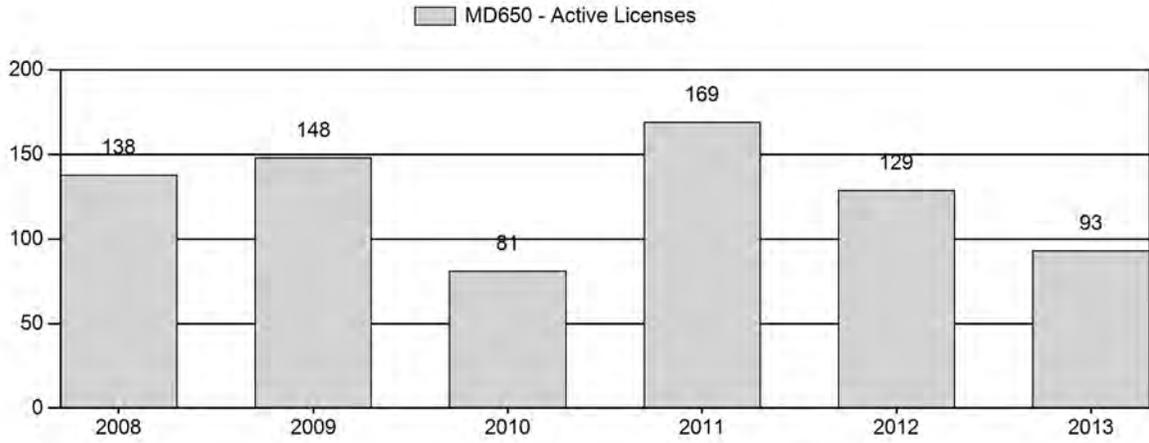
Number of Hunters



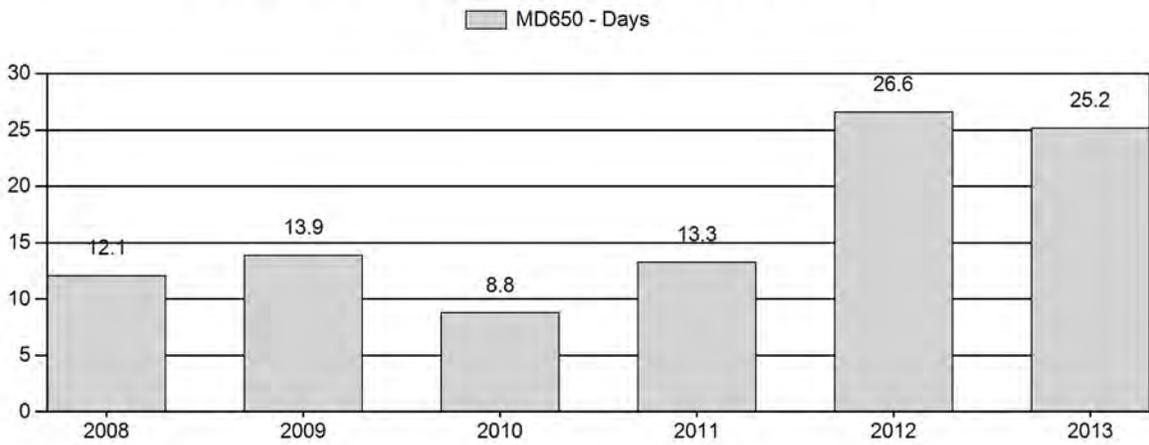
Harvest Success



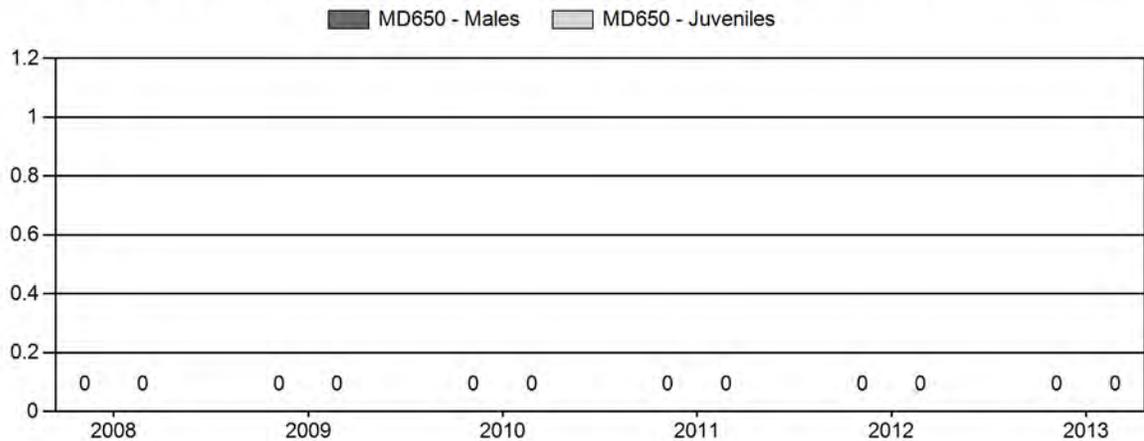
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2008 - 2013 Postseason Classification Summary

for Mule Deer Herd MD650 - CHAIN LAKES

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	445	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2009	475	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2010	490	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2011	410	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2012	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2013	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

**2014 HUNTING SEASONS
CHAIN LAKES MULE DEER HERD (MD650)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
98		Oct. 15	Oct. 22		General; antlered deer three (3) points or more on either antler, archery or muzzleloading firearms only
Archery 98		Sep. 1	Sep. 30		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2013
98	Gen	No change
Total		

Management Evaluation

Current Management Objective: 500

Management Strategy: Recreation

2013 Postseason Population Estimate: N/A

2014 Proposed Postseason Population Estimate: N/A

The management objective for the Chain Lakes Mule Deer Herd Unit is a post-season population objective of 500 deer. The management strategy is recreational management. The objective and management strategy were last publicly reviewed in 1994.

Herd Unit Issues

Dispersal of these deer in small bands across hundreds of square miles of sagebrush makes both aerial and ground classifications prohibitively expensive. Without reliable estimates of herd ratios, herd size cannot be modeled and objectives based on population size cannot be evaluated.

Concern has arisen that improved range, accuracy and faster reloading times of modern in-line muzzle-loading firearms is increasing hunter success, rather than increases in numbers of deer. If true, a redefinition of legal weapons allowed in this season may be necessary in the future to prevent excessive harvests from these vulnerable small bands of deer.

Weather

Severe drought conditions in 2012, with almost no precipitation throughout the spring and summer, were followed by three severe late winter blizzards in April 2013. Based on low yearling ratios in pronghorn and mule deer herds to the north and south, losses were presumed to

be well above normal during the 2012-13 winter in this herd as well. The 2013 summer was also exceptionally dry, reducing energy reserves of deer for the 2013-14 winter.

Habitat

Only one shrub transect has been established near this herd unit, on the Chain Lakes WHMA, but was not read in 2013. Shrub production is expected to again be poor. Precipitation that finally arrived in September was likely too late to stimulate growth on forbs and shrubs.

BP America transferred ownership of two solar water wells on Chain Lakes WHMA to WGFD. Developed with funds provided by WWNRT, these wells provide additional water sources for wildlife and help disperse domestic livestock that graze Chain Lakes WHMA.

Field Data

All classification samples for this herd have been statistically inadequate and no posthunt classification data were collected again this year. Drought during 2013 reduced fawn production in neighboring herds and fawn production in this desert herd was presumably low as well. Combined with losses during the previous winter, the herd is expected to be well below objective size.

Harvest Data

General license seasons with weapons restrictions allowed this herd to recover from severe losses in the past and that strategy is continued in 2014. These combined muzzleloader and archery seasons, used for the past 31 years, have been popular with a steady segment of both resident and nonresident hunters. But hunter numbers declined to 93 in 2013, the second lowest in the past 10 years, presumably because of the 3-point restriction, low deer numbers, and the poor success seen in 2012.

Hunter success was low again in 2013, at 16 percent, which was expected given the 3-point antler restriction. This was the poorest hunter success since 2004, following the severe 2003-04 winter. Unlike in 2012, no antlerless deer were reported in the 2013 harvest, even though archers in the special archery season and youth hunters in the regular season were allowed to harvest any deer. The average number of days hunted for each harvested deer remained high at 25 days. These data support hunter comments about low numbers of deer being seen during the fall hunt.

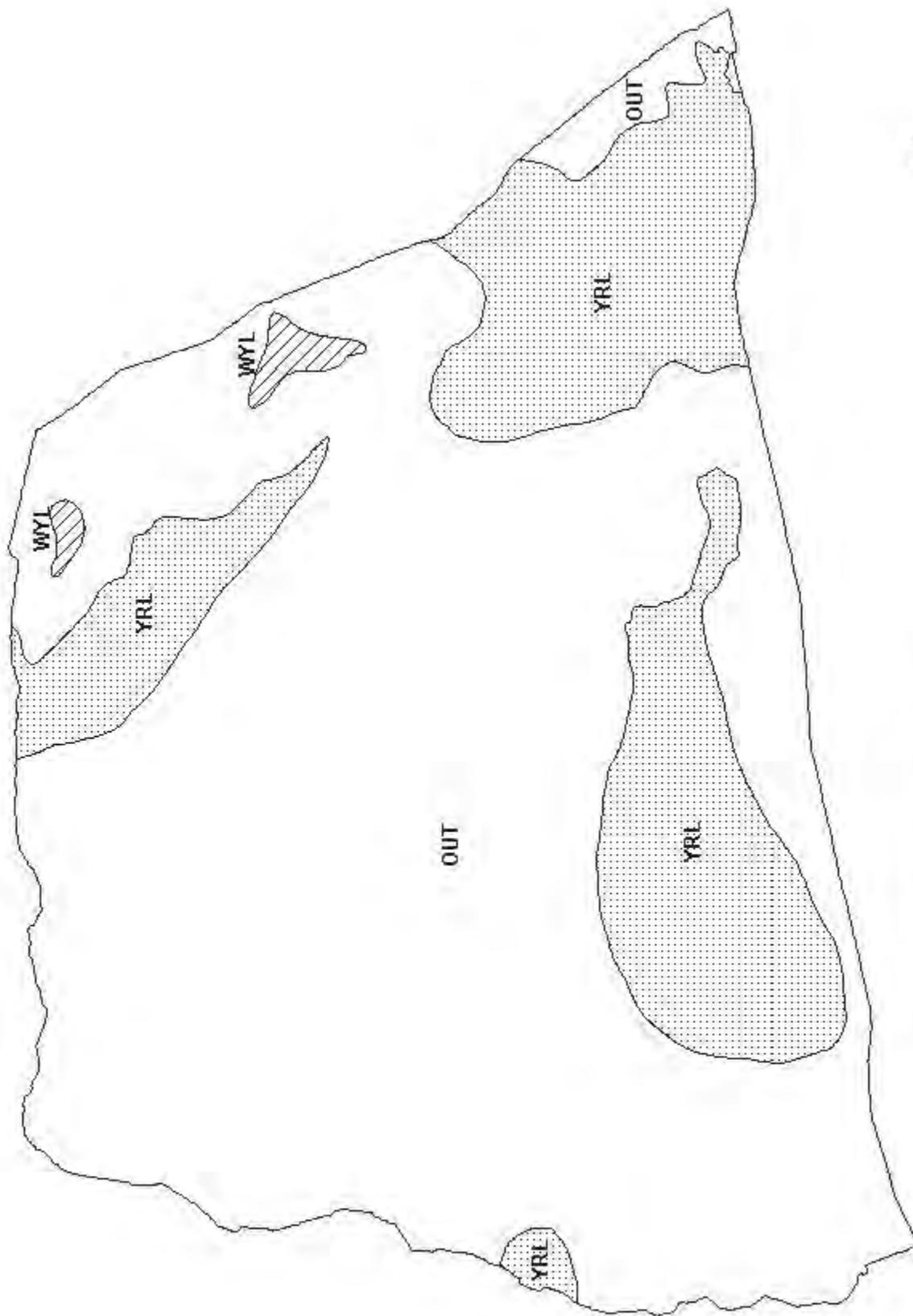
Population

This herd consists of small bands of deer residing yearlong in pockets of suitable habitat in the eastern Red Desert. No reliable population estimate is available for this herd, nor is one likely under current manpower and budget constraints. A simplistic population model was developed that supported the reported harvests, but its accuracy could not be evaluated because of the absence of classification data and limited harvest field check samples. Instead, population trends are monitored through harvest data and classification ratios of neighboring herds.

Management Evaluation

Deer in this desert herd unit have few options for finding green forage during dry conditions, with no high elevation habitats available. Body condition of deer entering the 2013-14 winter is presumed to have been poor. Because of drought stress, mortality is expected to be above average during the 2013-14 winter, despite relatively open winter conditions.

Expected harvest from the 2014 season would be about 20 antlered deer by roughly 110 hunters. The opening date is the same used in the past 18 years, is consistent with the application booklet, and opens simultaneously with neighboring areas in Region E. As in 2013, the closing date is aligned with general license hunts in neighboring areas in Region E. As in 18 of the previous 19 years, most hunters during the regular season would be restricted to harvesting only antlered deer. With neighboring general license areas to the north and south again adding 3-point antler point restrictions in 2014, a similar 3-point restriction is applied in Area 98 to prevent this area and the private landowners who grant access from being overwhelmed by general license hunters. Opportunities for archery hunting will again be available during the October season in addition to the special archery season in September. Archers will be allowed to harvest any deer during September to follow the statewide standard special archery season.



Mule Deer (MD650) - Chain Lakes
HA 98
Revised - 3/94