

2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD534 - GOSHEN RIM

HUNT AREAS: 15

PREPARED BY: MARTIN HICKS

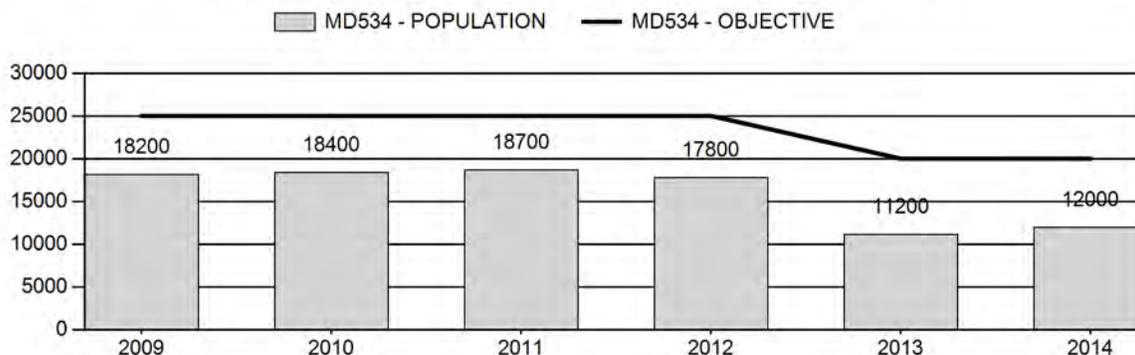
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	16,860	12,000	12,200
Harvest:	782	787	790
Hunters:	1,656	1,610	1,600
Hunter Success:	47%	49%	49 %
Active Licenses:	1,715	1,707	1,700
Active License Success:	46%	46%	46 %
Recreation Days:	6,258	6,555	6,550
Days Per Animal:	8.0	8.3	8.3
Males per 100 Females	31	28	
Juveniles per 100 Females	60	81	

Population Objective (± 20%) :	20000 (16000 - 24000)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-40%
Number of years population has been + or - objective in recent trend:	5
Model Date:	02/20/2015

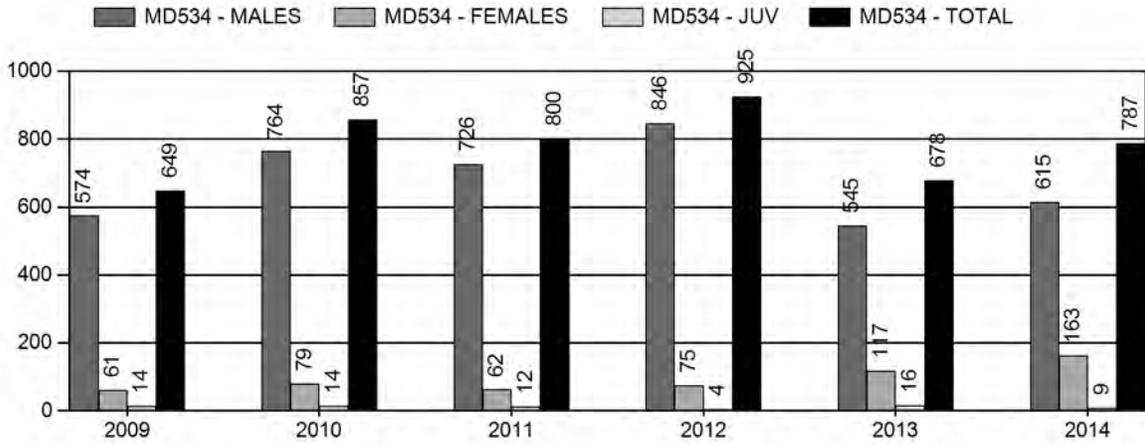
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	3%	1.5%
Males ≥ 1 year old:	29%	29%
Juveniles (< 1 year old):	.2%	.2%
Total:	6%	6%
Proposed change in post-season population:	-8%	-7%

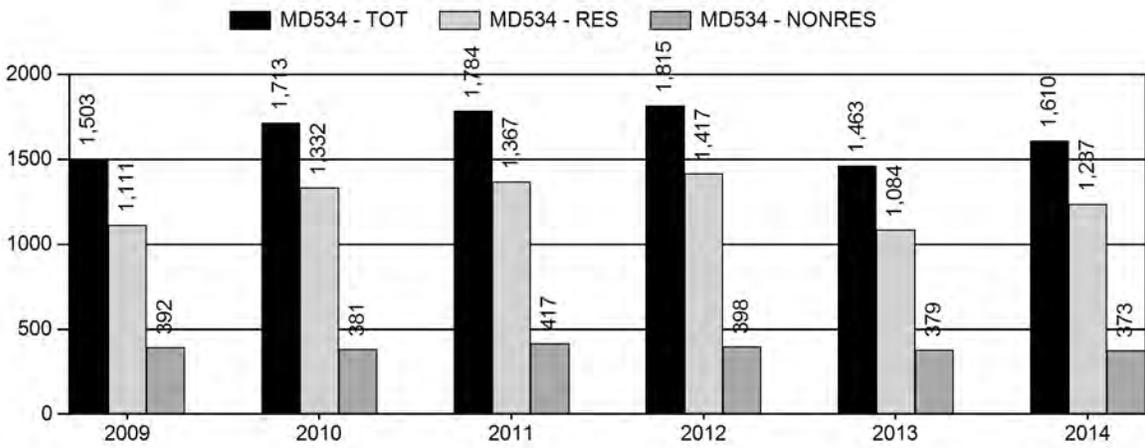
Population Size - Postseason



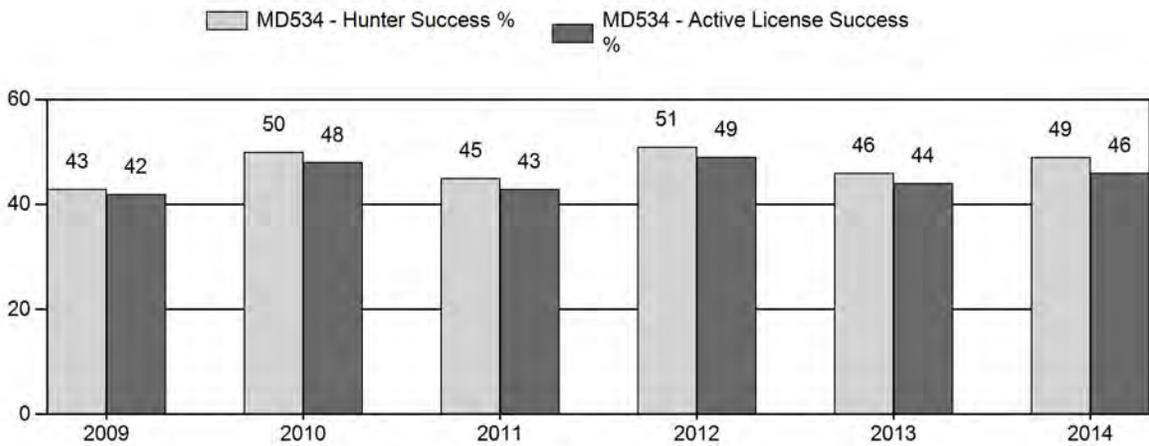
Harvest



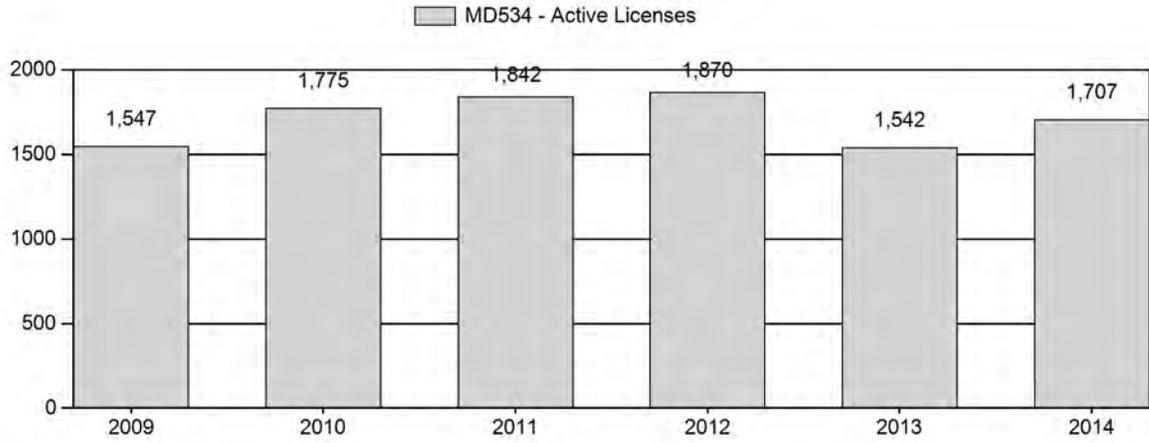
Number of Hunters



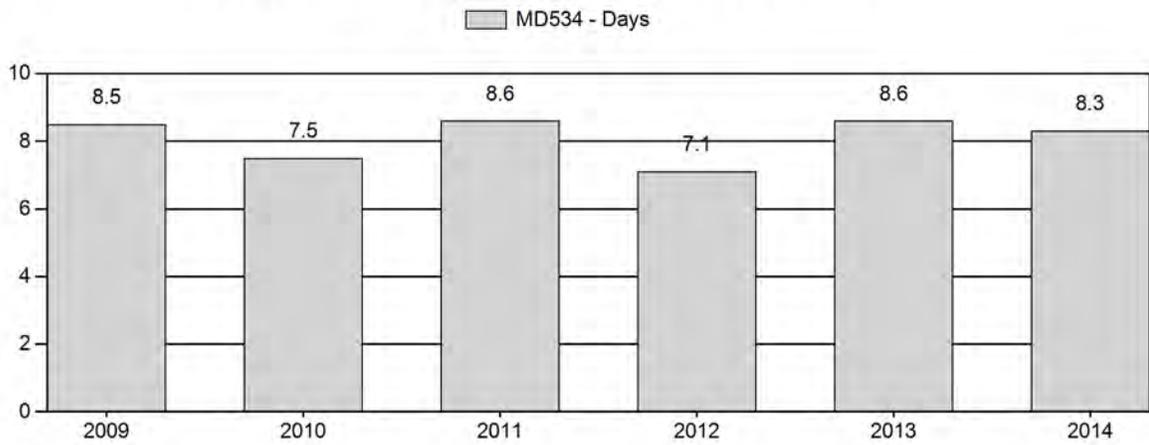
Harvest Success



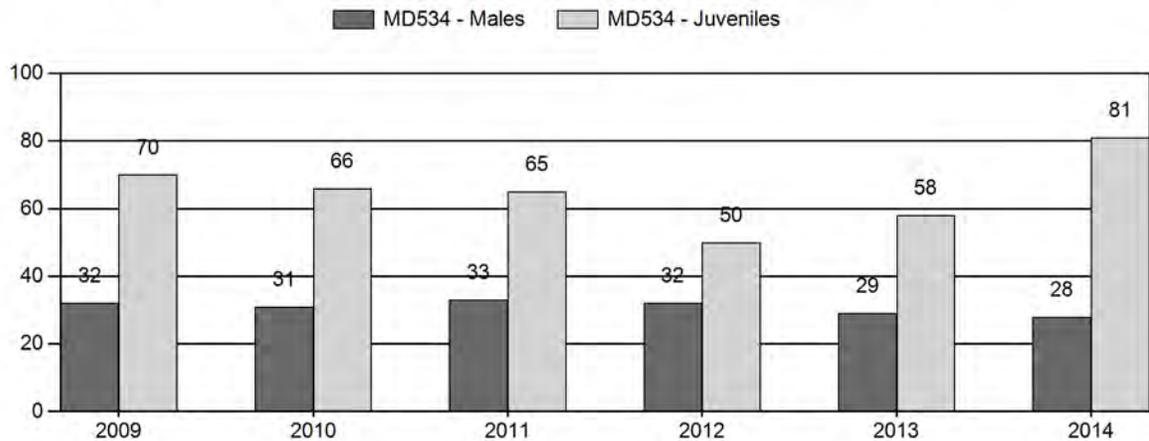
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD534 - GOSHEN RIM

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	18,200	44	0	0	0	98	142	16%	442	49%	311	35%	895	1,210	10	22	32	± 4	70	± 7	53
2010	18,400	80	0	0	0	125	205	16%	668	51%	440	34%	1,313	1,123	12	19	31	± 3	66	± 5	50
2011	18,700	116	0	0	0	226	342	17%	1,031	51%	665	33%	2,038	1,364	11	22	33	± 3	65	± 4	48
2012	17,800	121	0	0	0	192	313	18%	977	55%	487	27%	1,777	1,076	12	20	32	± 3	50	± 3	38
2013	11,200	39	128	172	21	88	224	15%	776	53%	451	31%	1,451	1,235	5	24	29	± 3	58	± 4	45
2014	12,000	93	53	67	23	7	243	13%	876	48%	706	39%	1,825	1,130	11	17	28	± 2	81	± 5	63

**2015 HUNTING SEASONS
GOSHEN RIM MULE DEER HERD UNIT (MD534)**

Hunt Area	Type	Season Dates		Quota	Limitations
		Opens	Closes		
15	Gen	Oct. 1	Oct. 14	350	General license; antlered mule deer or any white-tailed deer. Limited quota; doe or fawn
	6	Oct. 1	Dec. 31		
Region T				400	
Archery		Sept. 1	Sept. 30	Refer to Section 3 of this Chapter	

Hunt Area	Type	Quota change from 2014
15	6	No Change
Total	6	No Change

Management Evaluation

Current Management Objective: 20,000 (16,000-24,000)

2014 Post-season Population Estimate: ~12,000

2015 Post-season Population Estimate: ~12,200

2014 Hunter Satisfaction Survey Results: 64% Satisfied

Management Strategy: Recreational

2014 Sportsmen Satisfaction Survey Results: 64% Satisfied, 20% Neutral, 15% Dissatisfied

Herd Unit Issues

The management objective for the Goshen Rim Mule Deer Herd Unit was changed from 25,000 to 20,000 and Hunt Areas 15,16,55,57 were combined into Hunt Area 15 as a result of internal recommendations and public input during the 2013 herd objective review process. The management strategy is recreational management with a post-season buck ratio range of 20-29 bucks:100 does.

The 2014 post-season population estimate was about 12,000 with a stable population. Restricted access makes it difficult to manage this herd. Access is driven by isolated private land experiencing damage and small parcels of state, BLM lands, and private lands enrolled into the Department's PLPW program.

Without paying a trespass/trophy fee or hiring an outfitter, hunters have a difficult time harvesting a mature mule deer buck. Landowners and hunters would like to see an increase in mule deer, but without major habitat revitalization (for part of the year mule deer are dependent on irrigated and dryland agriculture fields) this herd unit will most likely remain around 12,000 mule deer. Buck ratios are anticipated to remain on the higher end of the recreational management strategy due to private land (92% of the occupied habitat). Public land hunters will continue to have a difficult time finding a mature buck due to the majority of land being held in private ownership.

Major landscape changes have been occurring in the southern portion of the herd unit. Urban sprawl continues to increase north and east of Cheyenne as well as industrial (methane production) development in Laramie County. The USDA's Conservation Reserve Program (CRP) has experienced a decline in productivity and quality of perennial forage throughout the herd unit. The conversion of dryland (wheat fields) cropland to CRP in the past provided favorable fawning and winter cover for mule deer. These stands are now monotypic stands of unfavorable perennial grass (i.e. smooth brome and crested wheatgrass) and no legume component, providing little if any habitat benefits.

Weather

Weather in this herd unit was relatively normal during the past bio-year. Precipitation amounts were average, to slightly above average at all elevations throughout the Goshen Rim Mule Deer Herd Unit. No significant prolonged periods of extreme heat or cold temperatures were observed, or extreme snow loading in lower elevation winter ranges. Timing of precipitation and amounts received during key growth periods for cool season grasses and preferred transitional range and winter range shrub species was excellent. Weather patterns most likely had a positive influence on mule deer. Mild fall temperatures and lack of persistent snows allowed for mule deer to spend greater amounts of time on summer and fall transition ranges providing additional relief for winter ranges that have historically been overutilized. For specific meteorological information for the Goshen Rim Mule Deer Herd Unit the reviewer is referred to the following link: <http://www.ncdc.noaa.gov/cag/>

Habitat

Habitat conditions improved in 2014 with an increase in amounts of precipitation received and the timeliness of when it was received. Precipitation received in April and May resulted in excellent growth of cool season grasses and forbs, and above average leader growth on preferred key shrubs. 2012 has been recognized as one of the worst droughts on record, and annual growth of key forages monitored finally returned to levels seen prior to year 2012. Utilization rates of key winter range shrubs documented in Spring 2014 was within acceptable use limits in most areas. Shrub habitats receiving treatments thru prescribed fire or mowing continue to outperform areas not receiving treatment from an overall production standpoint.

The limited number of habitat transects that have been established throughout the Laramie Region have not provided sufficient data to make reliable assumptions of habitat quantity or quality and consequently heavily influence population management for any particular big game specie. The vast majority of shrub habitats are still in need of treatment to improve nutritive content and overall leader production potential.

Shrub communities within the Laramie Region that are annually assessed by game wardens, wildlife biologists, and terrestrial habitat biologists, include: true mountain mahogany, antelope bitterbrush, skunkbrush sumac, big sagebrush, and four-wing saltbush. A majority of these transects were established approximately 12–13 years ago. Transects were established for several different reasons, including: measuring habitat response prior to or following treatments (i.e. prescribed fire, wildfire, mowing), concern over historic or current domestic livestock or wild ungulate utilization levels, selection of

“representative habitats” utilized by wildlife on identified winter ranges, and to compare present results with historic data sets.

In Spring 2015, population biologists and habitat managers will be working together to modify habitat monitoring techniques utilized statewide and to improve overall consistency among the regions. Identification of key herd units per big game species, identification of representative monitoring locations in all seasonal ranges per big game species (summer, transition, winter), and development of correlations to amounts of and timing of precipitation will help improve data collected and result in our abilities to more strongly correlate management decisions for populations based off habitat conditions.

Field Data

This herd experienced a sharp decline in 2012 following the worst drought recorded since the 1930's, and since then has been fluctuating around 12,000 mule deer. General licenses have focused harvest on the male segment of the population with little effort to remove females. There were 350 Type 6 licenses available for the 2014 season for some doe harvest opportunity and address damage situations. On average less than 1 percent of the female population is harvested. Chronic wasting disease is not as prevalent in this herd when compared to the Laramie Mountains and South Converse Mule Deer Herd Units, but the long-term prevalence rate average of 11% is most likely impacting population performance to an unknown extent.

In 2014 fawn ratios exceeded 66 fawns: 100 does (81 fawns:100 does) for the first time in over ten years, which is needed to increase a population (Unsworth et al. 1999). Despite buck ratios well within the recreational management range, (28 bucks:100 does in 2014) it appears based on personnel and hunter observation the buck ratios on accessible lands are likely on the lower end of the management strategy.

In 2014, 30% of the field harvest data was comprised of yearling bucks, which is the highest sample size in five years. The majority of yearling mule deer that are aged in the field typically come from public land where hunters are usually less selective, so the 30% is not surprising. Yearling harvest data correlated well with post-season yearling classification data, fawn ratios increased by 100% from 2013 to 2014. On public land the majority of mature male deer are typically 2-3+ years old. On private land where access is controlled, the average age is 4-6+ years old. Based on field observations public land hunters typically harvest younger deer, lending credibility to a lower buck: doe ratio on the limited amount of public lands.

Since 2012 antler class data has been collected from harvested mule deer, then in 2013 from classified mule deer to gauge buck quality. Antler class data is broken down into three classes: 1) Class I- ≤ 19 ", 2) Class II- 20-25", Class III- ≥ 26 ". Typically harvest class data is similar to classification class data (see tables from JCR). The only significant observation when comparing antler harvest data and classification antler data is the percent of Class II deer increased in 2014 compared to 2012/13, and 2014 was a mirror image of the classification antler class data. Based on these observations it appears the harvested deer are representative of male age cohorts within the population, which indicates the season structure is working to maintain the recreational management guidelines. The hunter satisfaction survey showed that 64% of the hunters were satisfied or very satisfied, similar to 2013. This level of satisfaction is somewhat

surprising given the negative comments received from hunters by field personnel. Hunters continue to comment on lack of mature bucks and overall lack of deer.

Harvest Data

Hunter success (49%) was slightly higher than the five-year average of 47%, and hunter effort (8.3 days/harvest) was similar to the five-year average of 8.0 days per harvest. Access continues to be an issue in this herd unit with 92% of the occupied habitat consisting of private land. The only major access is the PLPW's Hunter Management Program on the Guernsey Guard Camp, walk-in areas, and the various Wildlife Habitat Management Areas. Access for the most part is driven by damage, which is the reason for the few Type 6 licenses. Access for buck harvest is extremely difficult unless a hunter is willing to pay a trespass fee or hire an outfitter. Private land ratios inflate overall buck ratios to the higher end of the recreational management strategy.

Population

The "Time-Specific Juvenile and Constant Adult Survival" (TSJ,CA) spreadsheet model was chosen to use for the post-season population estimate of this herd. The model has a slightly higher AIC value but did have the best fit compared to the other two models. Given the better fit of data and perceived population trend by personnel, landowners and hunters, this seemed like the most plausible model. Juvenile survival ranges varied from a high of 90% to a low of 40% with an average of 60%. The 2007 winter was mild, so a high survival rate is plausible. Hunters and landowners would like to see a continued increase in the population, however, given poor fawn production CWD, and poor shrub conditions an increase is not likely in the near future. This models ranks fair. The only data available is classification and harvest data.

Management Summary

Hunting seasons in this herd unit have traditionally started on October 1 and run for 11 to 14 days for the general season with limited doe/fawn harvest opportunity running later. The 2015 season structure will remain the same as the 2014 season; general season October 1-14 and 350 Type 6 licenses. Department personnel will work with landowners and hunters to distribute harvest as damage issues arise. The Region T licenses will remain at 400. In 2014, 93% of the licenses were active, similar to the number of hunters that went to the field in 2013 when 500 Region T licenses were available. Based on harvest data, harvest increased, success increased, and effort decreased compared to 2013. The current number of Region T licenses seems adequate.

If we attain the projected harvest of 790 deer and observe normal fawn production the mule deer population of 12,200 will continue to remain well below the objective of 20,000.

Literature cited:

Unsworth, JW, Pac DF, White GC, and Bartmann BC: Mule deer survival in Colorado, Montana, and Idaho. *J. Wildl. Manage.* 63(1):315-326, 1999

INPUT	
Species:	Deer
Biologist:	Martin Hicks
Herd Unit & No.:	Goshen Rim MD534
Model date:	02/13/15

MODELS SUMMARY			Relative AICc	Fit	Notes
CJ,CA	Constant Juvenile & Adult Survival		82	73	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival		89	62	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival		112	7	

Check best model to create report

CJ,CA Model
 SCJ,SCA Model
 TSJ,CA Model

mild winters provide allow for higher survival during certain years than a constant .6 survival

Population Estimates from Top Model

Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population			Predicted Posthunt Population			Total	Objective
	Field Est	Field SE		Juveniles	Total Males	Females	Juveniles	Total Males	Females		
1993				3521	2685	6196	12402	3436	1207	9935	14500
1994				3207	2363	5837	11396	3127	1046	9082	14500
1995				3656	1996	5290	10942	3603	986	9427	14500
1996				4168	2462	5747	12377	4168	1557	5630	14500
1997				3923	2162	5635	11719	3919	1437	10814	14500
1998				3650	2119	5549	11318	3648	1312	10328	14500
1999				4712	2760	6220	13692	4681	1684	12359	25000
2000				4090	2629	6305	13024	4070	1625	5977	25000
2001				2787	2200	5911	10898	2755	1365	9752	25000
2002				2989	2001	5640	10629	2979	1374	9801	25000
2003				3995	2330	5805	12130	3955	1685	5566	25000
2004				3573	3217	6526	13316	3548	2563	12369	25000
2005				4573	2939	6089	13601	4566	2160	5961	25000
2006				2904	2920	6161	11985	2891	2107	11062	25000
2007				2758	2594	5969	11321	2738	1795	5805	25000
2008				3927	2696	6116	12739	3914	2085	6048	25000
2009				4148	2560	5940	12648	4132	1929	5873	25000
2010				3927	2663	6026	12617	3912	1823	5939	25000
2011				4106	2904	6414	13424	4093	2105	6346	25000
2012				3222	2920	6537	12678	3217	1990	6454	25000
2013				3515	2340	6147	12003	3498	1741	6019	25000
2014				4633	2268	5916	12817	4623	1591	5737	20000
2015				4273	2645	6180	13099	4262	1870	6098	20000
2016											
2017											
2018											
2019											
2020											
2021											
2022											
2023											
2024											
2025											

Survival and Initial Population Estimates

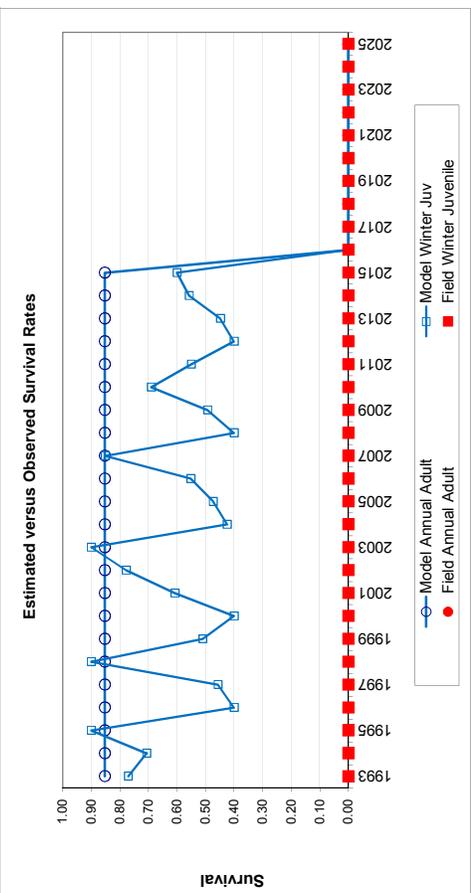
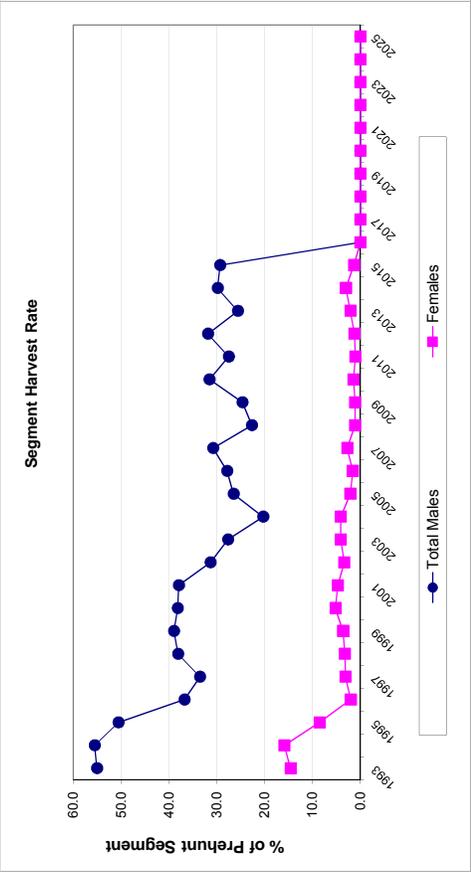
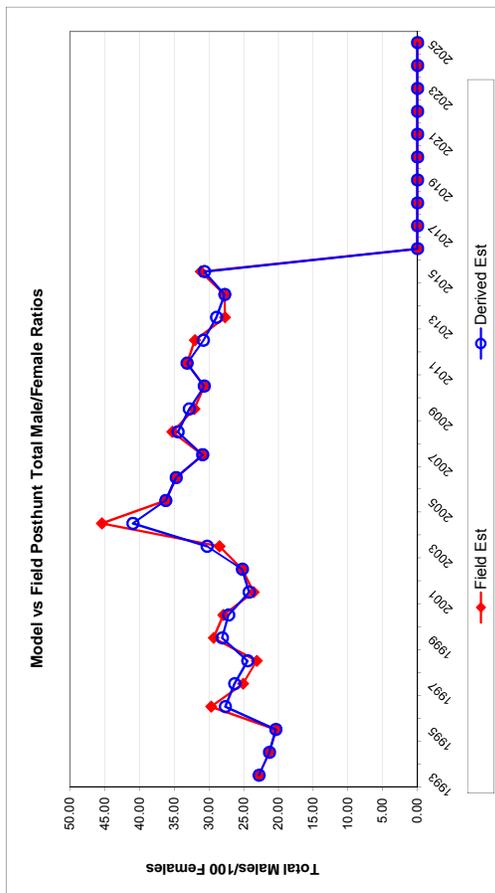
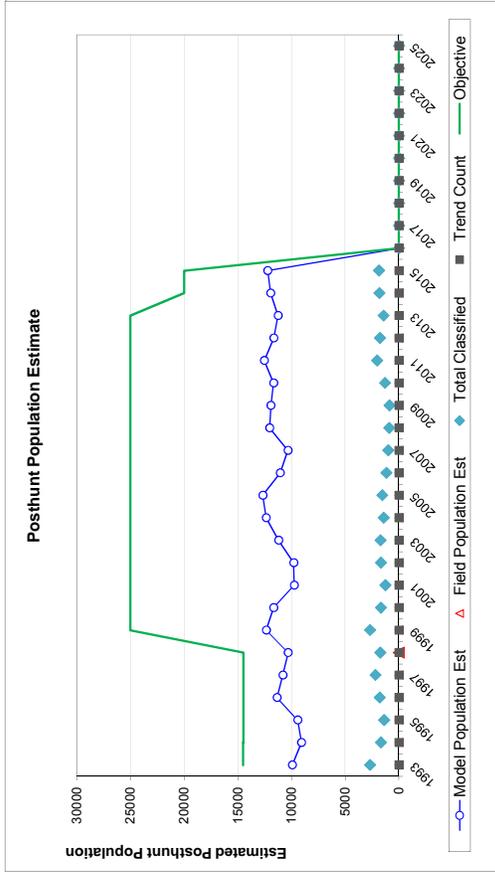
Year	Winter Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.77		0.85	
1994	0.71		0.85	
1995	0.90		0.85	
1996	0.40		0.85	
1997	0.46		0.85	
1998	0.90		0.85	
1999	0.51		0.85	
2000	0.40		0.85	
2001	0.61		0.85	
2002	0.78		0.85	
2003	0.90		0.85	
2004	0.42		0.85	
2005	0.47		0.85	
2006	0.55		0.85	
2007	0.85		0.85	
2008	0.40		0.85	
2009	0.49		0.85	
2010	0.69		0.85	
2011	0.55		0.85	
2012	0.40		0.85	
2013	0.45		0.85	
2014	0.56		0.85	
2015	0.60		0.85	
2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				

Parameters:	Optim cells
Adult Survival =	0.853
Initial Total Male Pop/10,000 =	0.121
Initial Female Pop/10,000 =	0.529

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

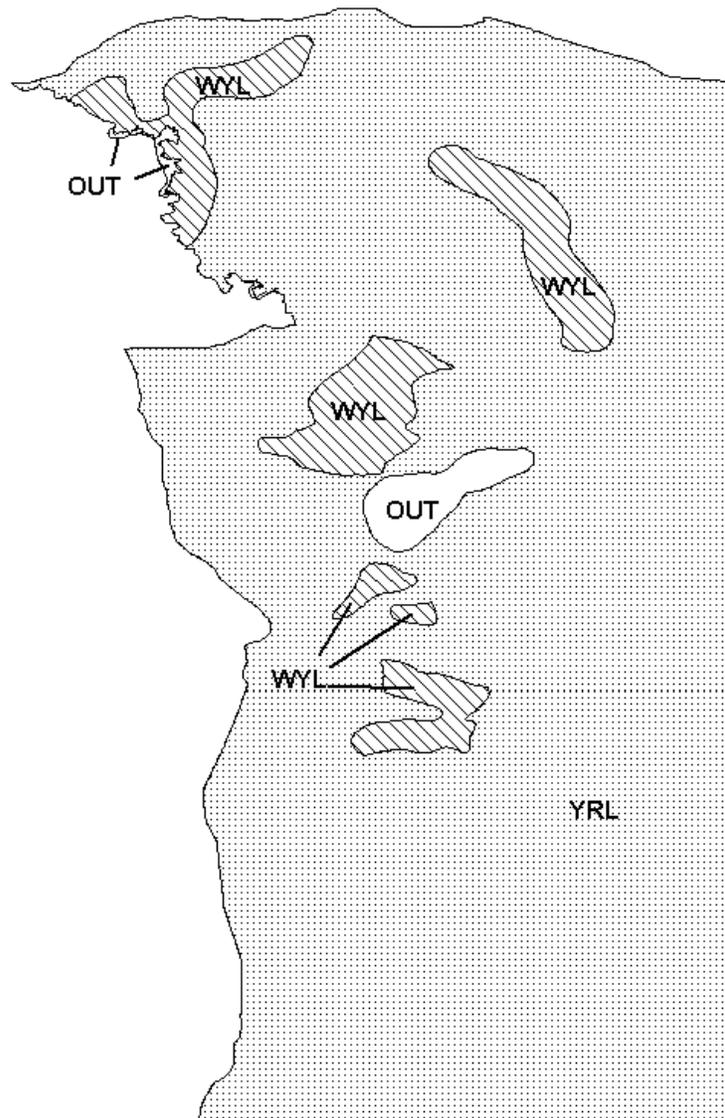
Year	Classification Counts										Harvest		
	Juvenile/Female Ratio					Total Male/Female Ratio					Segment Harvest Rate (% of Prehunt Segment)		
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/o bull adj	Field SE	Juv	Yrl males	2+ Males	Females	Total Harvest	Total Males	Females
1993		64.93	2.72	22.80	22.80	1.39	77	0	1344	822	2243	55.1	14.6
1994		63.72	3.38	21.31	21.31	1.68	72	0	1188	844	2104	55.5	15.9
1995		74.48	4.26	20.39	20.36	1.85	48	0	918	411	1377	50.6	8.5
1996		74.04	3.82	27.66	29.71	2.09	0	0	823	106	929	36.8	2.0
1997		71.79	3.32	26.32	25.09	1.67	4	0	659	160	823	33.5	3.1
1998		67.94	3.53	24.44	23.12	1.76	2	0	734	164	900	38.1	3.3
1999		78.08	3.26	28.10	29.35	1.71	29	0	978	205	1212	39.0	3.6
2000		68.10	3.65	27.19	27.94	2.04	18	0	913	298	1229	38.2	5.2
2001		48.92	3.14	24.23	23.58	1.99	29	0	759	253	1041	38.0	4.7
2002		54.68	3.00	25.21	25.21	1.83	9	0	570	174	753	31.3	3.4
2003		71.05	3.74	30.28	28.49	2.05	37	0	586	217	840	27.7	4.1
2004		56.70	3.54	40.96	45.42	3.05	23	0	594	244	861	20.3	4.1
2005		76.43	4.29	36.23	36.24	2.59	15	0	708	116	839	26.5	2.1
2006		47.66	3.31	34.74	34.74	2.70	12	0	739	88	839	27.8	1.6
2007		47.17	3.50	30.92	30.92	2.67	18	0	726	149	893	30.8	2.7
2008		64.72	4.80	34.47	35.28	3.21	12	0	556	62	630	22.7	1.1
2009		70.36	5.21	32.85	32.13	3.10	14	0	574	61	649	24.7	1.1
2010		65.87	4.04	30.69	30.69	2.45	14	0	764	79	857	31.6	1.4
2011		64.50	3.21	33.17	33.17	2.07	12	0	726	62	800	27.5	1.1
2012		49.85	2.76	30.83	32.04	2.08	4	0	846	75	925	31.9	1.3
2013		58.12	3.44	28.92	27.71	2.14	16	0	545	117	678	25.6	2.1
2014		80.59	4.08	27.74	27.74	2.01	9	0	615	163	787	29.8	3.0
2015		69.89	3.57	30.67	31.18	2.10	10	0	705	75	790	29.3	1.3
2016													
2017													
2018													
2019													
2020													
2021													
2022													
2023													
2024													
2025													

FIGURES



Comments:

END



Mule Deer (MD534) - Goshen Rim
HA 15, 16, 55, 57
Revised - 97



2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD537 - LARAMIE MOUNTAINS

HUNT AREAS: 59-60, 62-64, 73

PREPARED BY: MARTIN HICKS

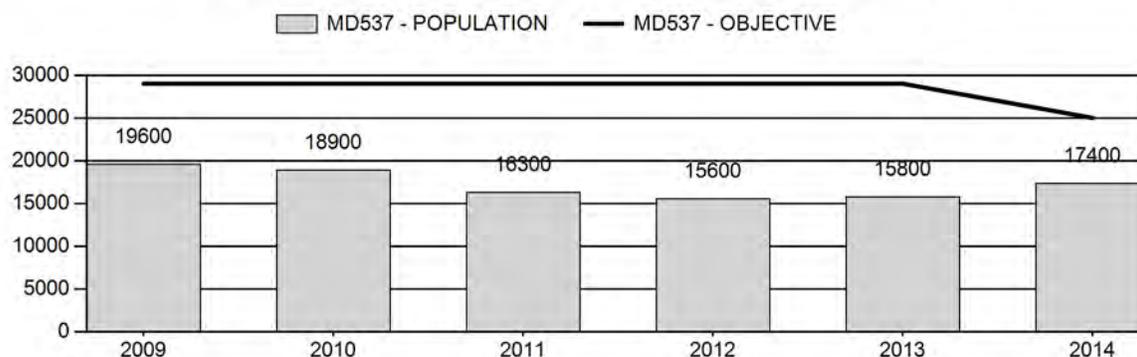
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	17,240	17,400	15,600
Harvest:	1,171	953	970
Hunters:	2,172	1,847	1,880
Hunter Success:	54%	52%	52 %
Active Licenses:	2,259	1,898	1,930
Active License Success:	52%	50%	50 %
Recreation Days:	9,812	9,490	9,400
Days Per Animal:	8.4	10.0	9.7
Males per 100 Females	38	37	
Juveniles per 100 Females	60	81	

Population Objective ($\pm 20\%$) :	25000 (20000 - 30000)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-30.4%
Number of years population has been + or - objective in recent trend:	20
Model Date:	02/26/2015

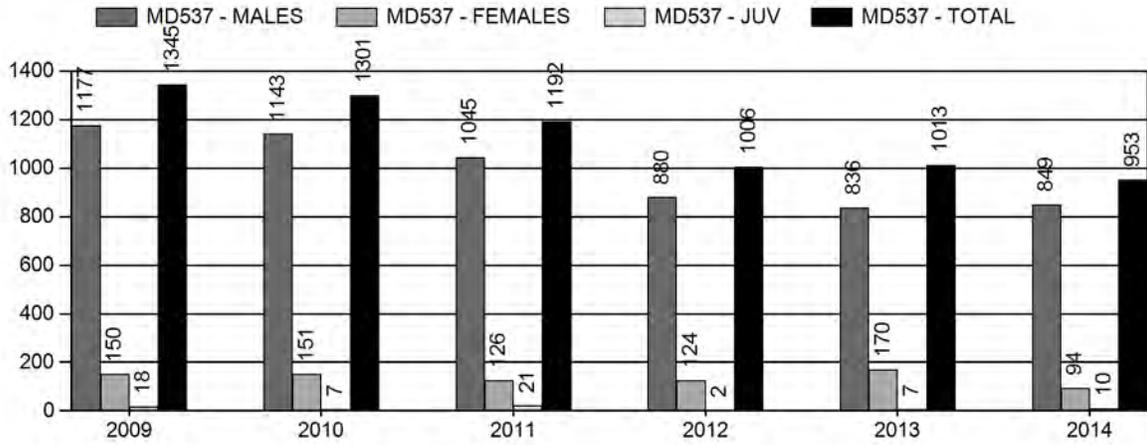
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	1%	1%
Males \geq 1 year old:	23%	26%
Juveniles (< 1 year old):	.1%	.1%
Total:	5%	5%
Proposed change in post-season population:	-6%	-7%

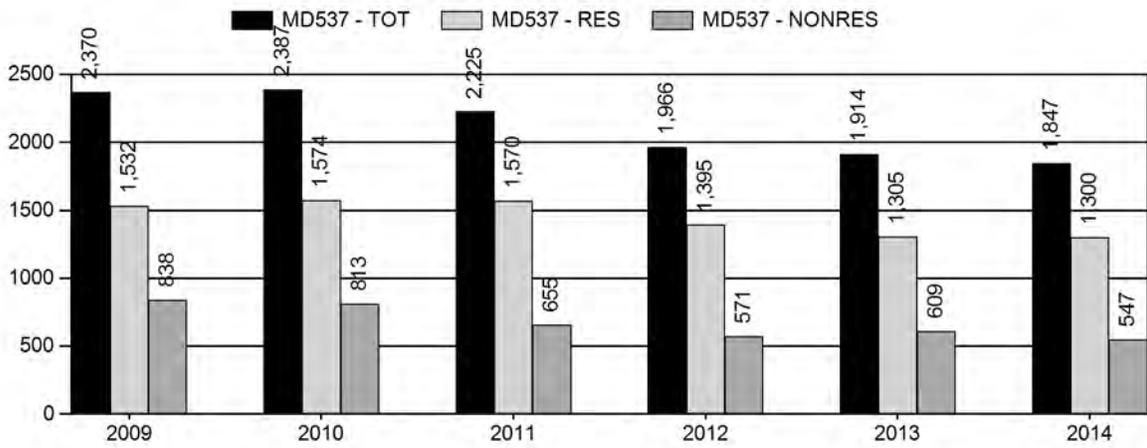
Population Size - Postseason



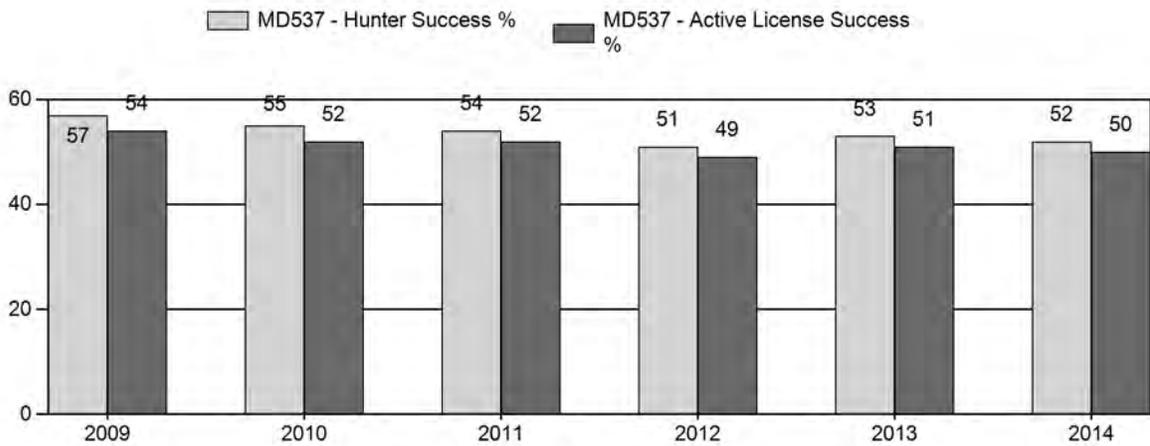
Harvest



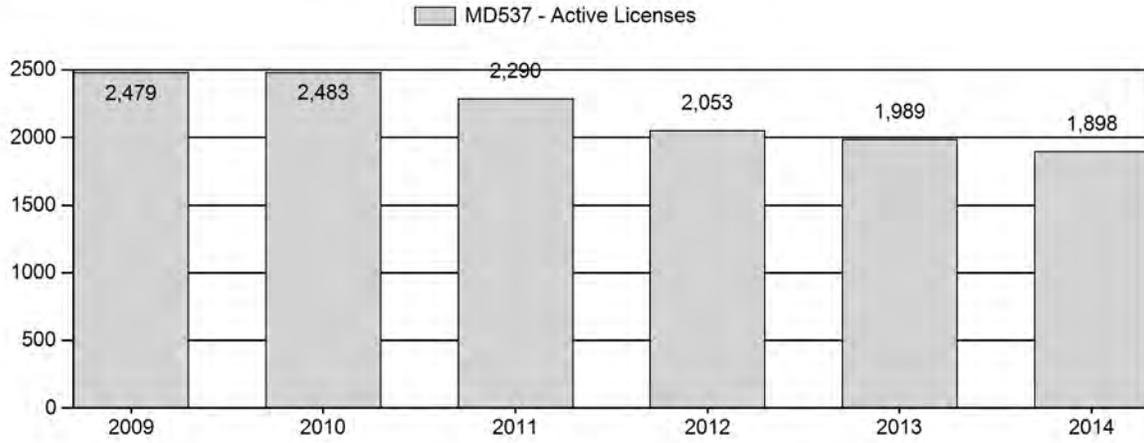
Number of Hunters



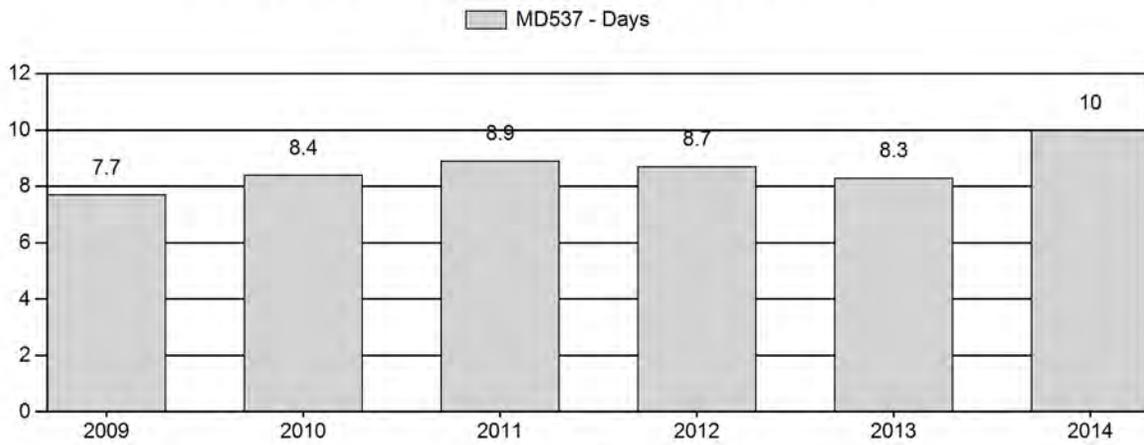
Harvest Success



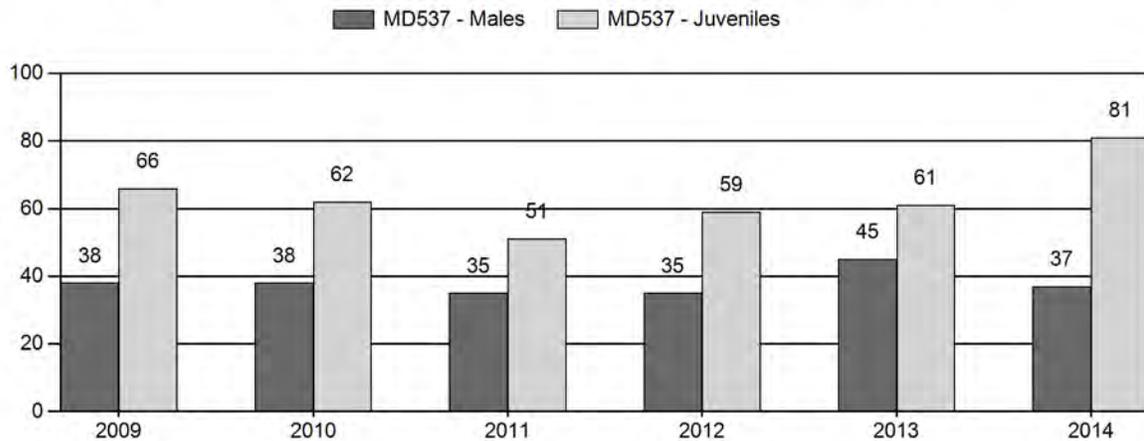
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD537 - LARAMIE MOUNTAINS

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot CIs		Males to 100 Females			Young to			
		Ylg	2+ CIs	2+ CIs	2+ CIs	2+ UnCIs	Total	%	Total	%	Total	%	Cls	Obj	YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	19,600	155	0	0	0	395	550	19%	1,433	49%	952	32%	2,935	1,245	11	28	38	± 2	66	± 3	48
2010	18,900	205	0	0	0	425	630	19%	1,639	50%	1,015	31%	3,284	1,202	13	26	38	± 2	62	± 3	45
2011	16,300	102	0	0	0	296	398	19%	1,122	54%	570	27%	2,090	1,263	9	26	35	± 2	51	± 3	38
2012	15,600	83	0	0	0	162	245	18%	699	51%	415	31%	1,359	1,218	12	23	35	± 3	59	± 5	44
2013	15,800	23	101	104	9	2	239	22%	528	48%	324	30%	1,091	1,161	4	41	45	± 4	61	± 5	42
2014	17,400	147	177	161	36	0	521	17%	1,384	46%	1,115	37%	3,020	1,135	11	27	38	± 2	81	± 4	59

**2015 HUNTING SEASONS
LARAMIE MOUNTAINS MULE DEER HERD (MD537)**

Hunt Area	Type	Season Dates		Quota	Limitations
		Opens	Closes		
59	General	Oct. 15	Oct.25		General license; antlered mule deer or any white-tailed deer, except the Wyoming Game and Fish Commission's Tom Thorne/Beth Williams Wildlife Research Center at Sybille shall be closed
64	6	Oct. 15	Oct. 31	100	Limited quota; doe or fawn, valid on private land
	6	Nov. 1	Dec. 31		Unused Area 59, , 64 Type 6 licenses valid for doe or fawn white-tailed deer
60	1	Oct. 20	Nov. 5	100	Limited quota; antlered deer on national forest, any deer valid off national forest; All lands within Curt Gowdy State Park, archery only
	2	Oct. 20	Nov. 5	200	Limited quota; any deer valid off national forest; all lands within Curt Gowdy State Park, archery only
		Nov. 6	Nov. 30		Unused Area 60 Type 1 and Type 2 licenses valid for doe or fawn white-tailed deer valid off national forest; all lands within Curt Gowdy State Park, archery only
64	6	Oct. 20	Nov. 30	50	Limited quota; doe or fawn; all lands within Curt Gowdy State Park, archery only
	General	Oct. 15	Oct. 25		General license; antlered mule deer or any white-tailed deer, except the Wyoming Game and Fish Commission's Tom Thorne/Beth Williams Wildlife Habitat Management Area and the Laramie Peak Wildlife Habitat Management Area north of the Tunnel Road (Albany County Rd 727), shall be closed
64	2	Oct. 15	Oct. 25	100	Limited quota; antlered mule deer or any white-tailed deer
Region J Archery		Sept. 1	Sept. 30	900	Refer to Section 3 of this Chapter

Summary of Change

Hunt Area	License Type	Quota Change from 2014
62,63,64	T6	0
60	T1	0
60	T2	+50
60	T6	0
64	T2	0
59,60,62-65,73	Region J	0
Total	1	0
	2	+50
	6	0
	Region J	0

Management Evaluation

Current Post-season Population Objective: 25,000 (20,000-30,000)

2014 Post-season Population Estimate: ~17,300

2015 Post-season Population Estimate: ~15,500

Management Strategy: Recreational

2014 Sportsmen Satisfaction Survey Results: 59% Satisfied, 20% Neutral, 21% Dissatisfied

Herd Unit Issues

The management objective for the Laramie Mountains Mule Deer Herd Unit was reviewed in 2014 and as a result of internal and public involvement the objective was decreased to 20,000 mule deer, and Hunt Areas 59, 62, 63 were combined into Hunt Area 59, and Hunt Areas 64, 73 were combined into Hunt Area 64. The recreational management strategy will remain in place with a post-season buck ratio range of 20-29 bucks:100 does.

The 2014 post-season population estimate was about 17,300 with the population fluctuating around 17,500. Chronic wasting disease (CWD) has been detected in this herd for well over two decades. The average prevalence rate since 1997 is 22%, contributing towards the suppression of this herd. Management strategy has been very conservative with little doe harvest to try and increase the herd. Approximately 50% of the herd unit is private lands which affects our ability to provide opportunity.

The Arapahoe wild fire in 2012 will have habitat effects for years to come. In some areas perennial vegetation is responding. In other places the ground appears sterile with little to no vegetation growth. Mule deer have been harvested in the burned area in 2012 and 2013. Mule deer occupation in burned areas was also documented during the winter of 2013. In the long run this major fire will be positive for ungulate habitat. It will take time to see the major re-vegetation events and herd population response.

Landowners and sportsmen would like to see more mule deer. To address this desire the Type 6 license are proposed to stay at a conservative number.

Weather

Weather in this herd unit was relatively normal during the past bio-year. Precipitation amounts were average, to slightly above average at all elevations throughout the Laramie Mountains Herd Unit. No significant prolonged periods of extreme heat or cold temperatures were observed, or extreme snow loading in lower elevation winter ranges. Timing of precipitation and amounts received during key growth periods for cool season grasses and preferred transitional range and winter range shrub species was excellent. Weather patterns most likely had a positive influence on mule deer. Mild fall temperatures and lack of persistent snows allowed for mule deer to spend greater amounts of time on summer and fall transition ranges providing additional relief for winter ranges that have historically been overutilized. For specific meteorological information for the Laramie Mountains Mule Deer Herd Unit the reviewer is referred to the following link: <http://www.ncdc.noaa.gov/cag/>

Habitat

Habitat conditions improved in 2014 with an increase in amounts of precipitation received and the timeliness of when it was received. Precipitation received in April and May resulted in excellent growth of cool season grasses and forbs, and above average leader growth on preferred key shrubs. 2012 has been recognized as one of the worst droughts on record, and annual growth of key forages monitored finally returned to levels seen prior to year 2012. Utilization rates of key winter range shrubs documented in spring 2014 was within acceptable use limits in most areas. Shrub habitats receiving treatments thru prescribed fire or mowing continue to outperform areas not receiving treatment from an overall production standpoint.

The limited number of habitat transects that have been established throughout the Laramie Region have not provided sufficient data to make reliable assumptions of habitat quantity or quality and consequently heavily influence population management for any particular big game species. The vast majority of shrub habitats are still in need of treatment to improve nutritive content and overall leader production potential.

Shrub communities within the Laramie Region that are annually assessed by game wardens, wildlife biologists, and terrestrial habitat biologists, include: true mountain mahogany, antelope bitterbrush, skunkbrush sumac, big sagebrush, and four-wing saltbush. A majority of these transects were established approximately 12–13 years ago. Transects were established for several different reasons, including: measuring habitat response prior to or following treatments (i.e. prescribed fire, wildfire, mowing), concern over historic or current domestic livestock or wild ungulate utilization levels, selection of “representative habitats” utilized by wildlife on identified winter ranges, and to compare present results with historic data sets.

In spring 2015, population biologists and habitat managers will be working together to modify habitat monitoring techniques utilized statewide and to improve overall consistency among the regions. Identification of key herd units per big game species, identification of representative monitoring locations in all seasonal ranges per big game species (summer, transition, winter), and development of correlations to amounts of and timing of precipitation will help improve data collected and result in our abilities to more strongly correlate management decisions for populations based off habitat conditions.

Field Data

Fawn ratios of 81 fawns:100 does in 2014 were the highest observed in over ten years, allowing for population growth. According to Unsworth et al. (1999) populations increase when fawn ratios are above 66 fawn: 100 does. Buck ratios of 39 bucks:100 does were well above the recreational management strategy. However, finding a mature buck on public land is often difficult. Yearling bucks classified in 2014 (11 yearling bucks: 100 does) were similar to the five-year average of 10 yearling bucks:100 does. The 2014 sample size was the highest collected in the past ten years (n=3,012), lending credibility to herd composition data.

Field harvest data in 2014 was somewhat similar to post-season classification data. Seventeen percent of the field harvest data was comprised of yearling bucks, and post-season classification data resulted in 11 yearling bucks: 100 does. A poor fawn crop in 2013 coupled with an increase in harvest pressure on the yearling bucks could explain the slight discrepancy.

Since 2012 antler class data has been collected from harvested mule deer and then starting in 2013 from classified mule deer to gauge buck quality. Antler class data is broken down into three classes: 1) Class I- ≤ 19 ", 2) Class II- 20-25", Class III- ≥ 26 ".

The majority of mule deer bucks harvested in 2012 were in the Class I category (75%). Then it was split between class II (14%) and Class III (12%) bucks. In 2013 the harvest data is similar to the classification data. In 2014 Class I harvest data and Class I classification data were similar but Class II classification data was 24% lower than Class II harvest data, and Class III classification data was 12% higher than Class III harvest data. Male cohorts follow typical pattern in harvest and herd composition data over their lifespan; typically there is a greater percentage of bucks in the lower antler classes. As deer mature there are fewer left in the population. By comparing these two data sets this more or less holds true. One would expect to see a higher percentage of Class III bucks in classification data since they are observed during the rut with a greater sample size, this also holds true.

Deer were in good condition going into the winter given the excellent habitat conditions in 2014. The average body score taken from 35 mule deer was 17 out of 20. The satisfaction survey showed that 59% of the hunters were satisfied, which was somewhat surprising based on negative comments received from the field that hunters were having difficulty finding mature buck.

Harvest Data

Hunter success in 2014 (52%) was similar to the five-year average of 54% and hunter effort of 10 days per harvest which was significantly higher than the five-year average of 8.4 days per harvest. These data support a stable to decreasing trend in population, which also supports personnel, landowner, and sportsmen observations. The boost in fawn production should help to offset the higher rate of adult mortality due to CWD.

Population

The “Time-Specific Juvenile and Constant Adult Survival” (TSJ,CA) spreadsheet model was chosen to use for the post-season population estimate of this herd. The AIC value was slightly higher but did have a better fit than the other two models. This model was chosen for the following reasons: 1) The model tracks juvenile variability in survival, which is more consistent with this herd unit based on the fluctuations in juvenile composition data, 2) There is a large number of years with classification and harvest data, indicative of the TSJ, CA model, 3) simulated population trends mimic perceived trends observed by local personnel, landowners and hunters. Adult survival was changed in years 2010-2013. Adult survival data from the South Converse Mule Deer Herd Unit CWD study was incorporated from those years since both herd units have high prevalence rates and the Laramie Mountains Herd Unit is adjacent to South Converse. This model is rated as fair. There is not an annual population estimate with a standard error available to anchor the model and results are biologically defensible, giving the model a fair fit. Adult survival was adjusted to .7-.8 instead of the recommended range of .7-.95 to account for chronic wasting disease prevalence rates in years that did not have adult survival data. Hunters and landowners would like to see an increase in mule deer, but given poor recruitment, CWD, and poor habitat conditions an increase in the population does not seem likely in the near future.

Management Summary

Hunting seasons in this herd unit have started on the 15th of October and run between 10-15 days. Late doe/fawn seasons have been used to address damage situations in lower elevations on private land, but the public has overwhelmingly indicated they would like to see more mule deer. The season structure for the general season and Type 6 licenses will remain the same as 2014. Area 60 remains a sought after license for hunters since it provides a chance to hunt into November when bucks are more susceptible to harvest. In order to try and provide more opportunity for the coveted license the number of Hunt Area 60 Type 2 licenses will increase from 150 to 200. Region J licenses will remain the same at 900 to address low deer densities, especially on public lands. Nonresident licenses continue to decrease over the past few years. The 900 Region J quota will be consistent with recent license sales (2012=949, 2013=779 and 2014= 822) and hopefully improve harvest statistics and reduce hunting pressure.

To simplify management and regulations Hunt Areas 59, 62 and 63 were combined into Hunt Area 59 and Areas 64 and 73 were combined into Hunt Area 64.

If we attain the projected harvest of 970 mule deer (890 bucks, 80 does), maintain average fawn recruitment, and take into account CWD prevalence rates the mule deer population will slightly decline and still remain well below the management objective. We predict a 2014 post-season population of about 15,500.

Literature Cited:

Unsworth, JW, Pac DF, White GC, and Bartmann BC: Mule deer survival in Colorado, Montana, and Idaho. *J. Wildl. Manage.* 63(1):315-326, 1999

INPUT	
Species:	Mule Deer
Biologist:	Martin Hicks
Herd Unit & No.:	Laramie Mts Herd
Model date:	02/08/13

MODELS SUMMARY			Relative AICc	Fit	Notes
CJ,CA	Constant Juvenile & Adult Survival	126	117		
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	126	116		
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	114	18		

Check best model to create report

- CJ,CA Model
 SCJ,SCA Model
 TSJ,CA Model

Model based on fit and AIC score- survival data from CWD study just north of herd unit is plausible for

Population Estimates from Top Model

Year	Posthunt Population Est.		Trend Count		Predicted Prehunt Population				Predicted Posthunt Population				Objective
	Field Est	Field SE	Juveniles	Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total		
1993			4685	4679	10481	19845	4638	3200	9648	17486	29000		
1994			4088	3760	8917	16765	4088	2453	8704	15245	29000		
1995			4979	3251	8251	16481	4974	2191	8210	15375	29000		
1996			4526	3318	8133	15977	4518	2412	8111	15041	29000		
1997			5429	2976	7535	15940	5426	2191	7515	15132	29000		
1998			5373	3337	7596	16306	5373	2358	7577	15307	29000		
1999			5678	4304	8479	18461	5678	2779	8466	16924	29000		
2000			4773	3359	7909	16040	4770	2072	7889	14731	29000		
2001			4517	3646	8299	16462	4517	2531	8258	15307	29000		
2002			4802	4058	8639	17499	4802	3036	8610	16448	29000		
2003			5922	3389	7848	17160	5922	2287	7816	16025	29000		
2004			5072	3550	7973	16595	5057	2439	7860	15357	29000		
2005			5834	4227	8564	18625	5831	3007	8510	17348	29000		
2006			5749	5029	9432	20210	5734	3672	9382	18788	29000		
2007			5560	5437	10005	21002	5539	3895	9830	19264	29000		
2008			6142	5608	10357	22107	6103	4162	10130	20395	29000		
2009			6385	4972	9747	21104	6365	3677	9582	19624	29000		
2010			5857	4888	9612	20358	5850	3631	9446	18927	29000		
2011			4481	4262	8914	17658	4458	3113	8775	16346	29000		
2012			4643	3860	8390	16894	4641	2892	8254	15787	29000		
2013			4909	3886	8175	16970	4902	2966	7988	15856	29000		
2014			6434	4008	8026	18467	6423	3074	7922	17419	20000		
2015			5292	3744	7622	16658	5287	2765	7540	15591	20000		
2016													
2017													
2018													
2019													
2020													
2021													
2022													
2023													
2024													
2025													

Survival and Initial Population Estimates

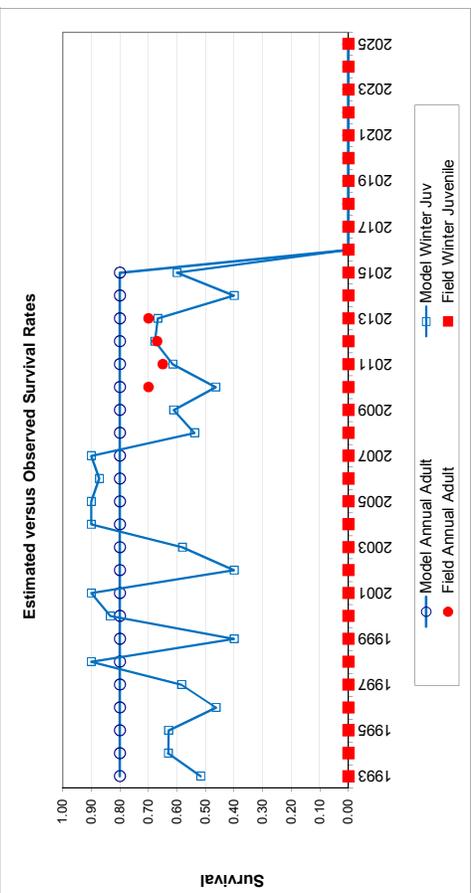
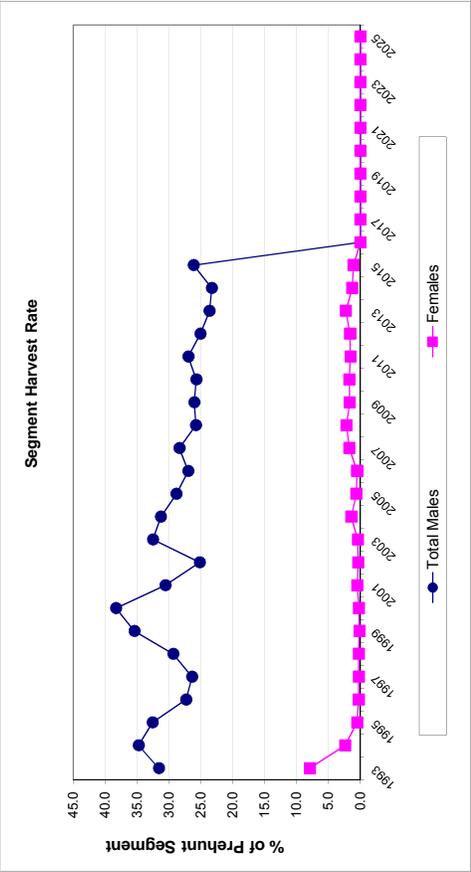
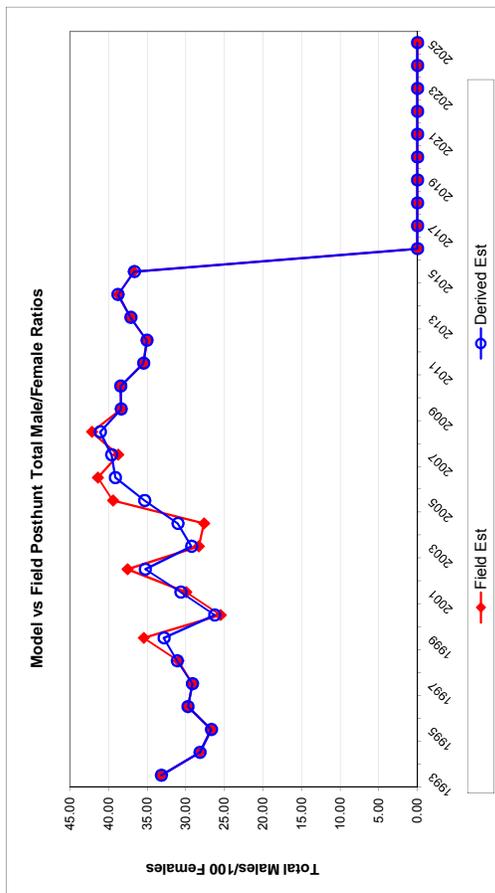
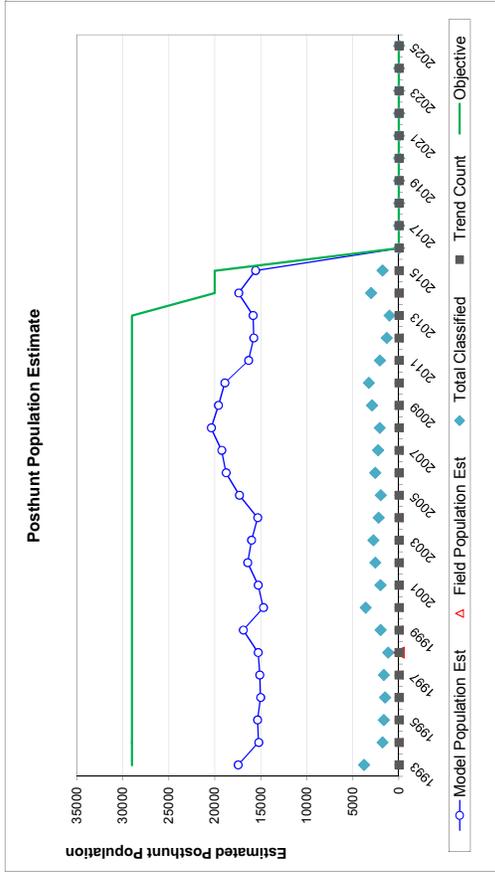
Year	Winter Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est SE	Model Est	Field Est SE
1993	0.52		0.80	
1994	0.63		0.80	
1995	0.63		0.80	
1996	0.46		0.80	
1997	0.56		0.80	
1998	0.90		0.80	
1999	0.40		0.80	
2000	0.83		0.80	
2001	0.90		0.80	
2002	0.40		0.80	
2003	0.58		0.80	
2004	0.90		0.80	
2005	0.90		0.80	
2006	0.87		0.80	
2007	0.90		0.80	
2008	0.54		0.80	
2009	0.61		0.80	
2010	0.46		0.80	0.70 0.07
2011	0.61		0.80	0.65 0.10
2012	0.68		0.80	0.67 0.12
2013	0.67		0.80	0.70 0.14
2014	0.40		0.80	
2015	0.60		0.80	
2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				

Parameters:		Optim cells
Adult Survival =		0.800
Initial Total Male Pop/10,000 =		0.320
Initial Female Pop/10,000 =		0.965

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

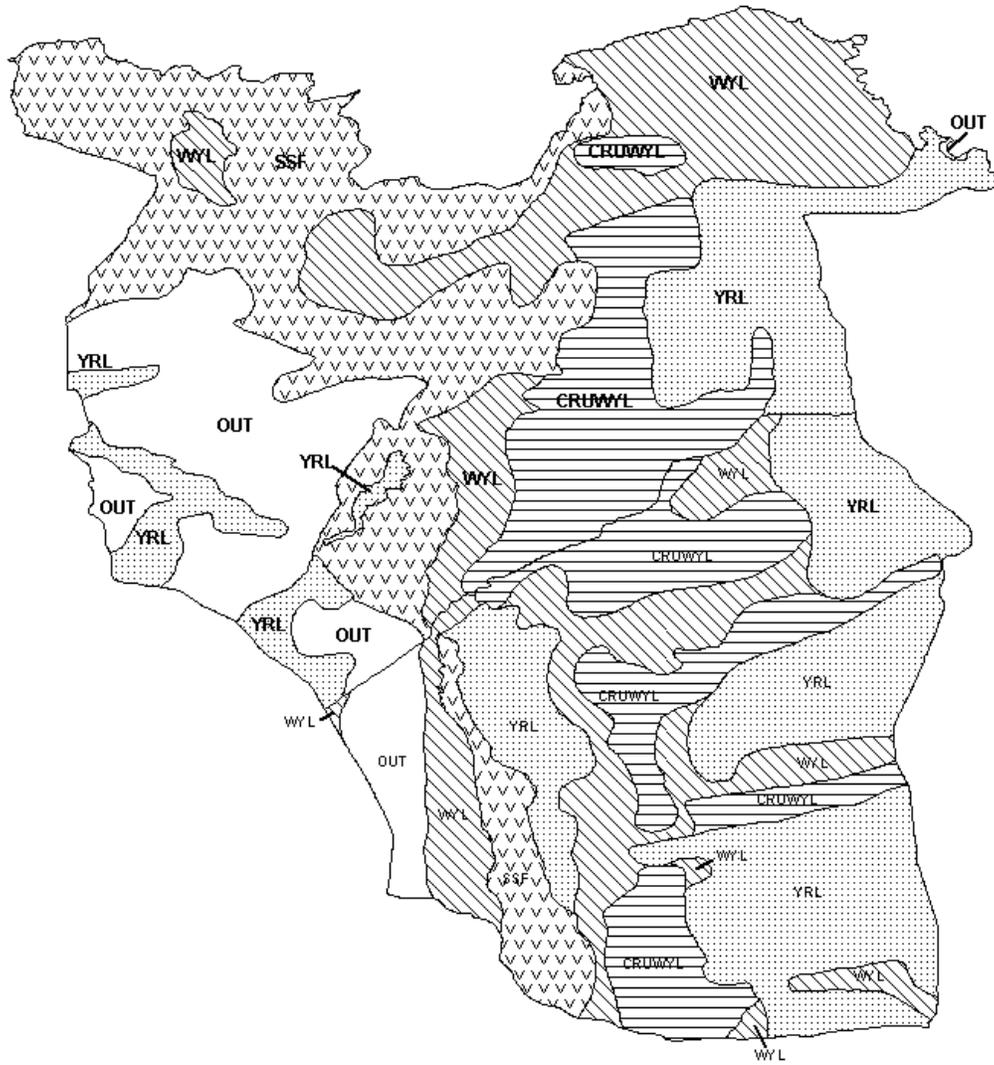
Year	Classification Counts						Harvest								
	Juvenile/Female Ratio			Total Male/Female Ratio			Yr1 males			2+ Males			Segment Harvest Rate (% of Prehunt Segment)		
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/o bull adj	Field SE	Juv	Yr1 males	2+ Males	Females	Total Harvest	Total Males	Females		
1993		48.07	1.84	33.17	33.17	1.45	43	0	1344	758	2145	31.6	8.0		
1994		46.97	2.60	28.18	28.18	1.88	0	0	1188	194	1382	34.8	2.4		
1995		60.59	3.31	26.69	26.69	1.95	5	0	963	38	1006	32.6	0.5		
1996		55.70	3.24	29.73	29.73	2.16	7	0	824	20	851	27.3	0.3		
1997		72.20	3.89	29.15	29.15	2.14	3	0	714	18	735	26.4	0.3		
1998		70.92	4.54	31.12	30.95	2.63	0	0	890	18	908	29.3	0.3		
1999		67.07	3.36	32.83	35.45	2.20	0	0	1386	12	1398	35.4	0.2		
2000		60.47	2.23	26.27	25.50	1.28	2	0	1170	18	1190	38.3	0.3		
2001		54.70	2.78	30.65	29.95	1.89	0	0	1013	37	1050	30.6	0.5		
2002		55.77	2.55	35.26	37.56	1.97	0	0	929	27	956	25.2	0.3		
2003		75.77	3.12	29.26	28.33	1.63	0	0	1002	29	1031	32.5	0.4		
2004		64.34	3.02	31.03	27.65	1.74	13	0	1010	103	1126	31.3	1.4		
2005		68.51	3.48	35.34	39.44	2.40	3	0	1109	49	1161	28.9	0.6		
2006		61.11	2.78	39.14	41.39	2.14	14	0	1234	45	1293	27.0	0.5		
2007		56.35	2.75	39.62	38.77	2.15	19	0	1402	159	1580	28.4	1.7		
2008		60.25	3.06	41.08	42.17	2.41	35	0	1315	206	1556	25.8	2.2		
2009		66.43	2.76	38.38	38.38	1.93	18	0	1177	150	1345	26.0	1.7		
2010		61.93	2.47	38.44	38.44	1.80	7	0	1143	151	1301	25.7	1.7		
2011		50.80	2.61	35.47	35.47	2.07	21	0	1045	126	1192	27.0	1.6		
2012		56.22	3.54	35.04	35.05	2.60	2	0	880	124	1006	25.1	1.6		
2013		61.36	4.33	37.13	37.12	3.10	7	0	836	170	1013	23.7	2.3		
2014		81.07	3.26	38.80	38.73	1.97	10	0	849	94	953	23.3	1.3		
2015		70.11	3.70	36.67	36.78	2.40	5	0	890	75	970	26.1	1.1		
2016															
2017															
2018															
2019															
2020															
2021															
2022															
2023															
2024															
2025															

FIGURES



Comments:

END



Mule Deer (MD537) - Laramie Mountains
 HA 59, 60, 62-64, 73
 Revised - 3/04



2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD539 - SHEEP MOUNTAIN

HUNT AREAS: 61, 74-77

PREPARED BY: LEE KNOX

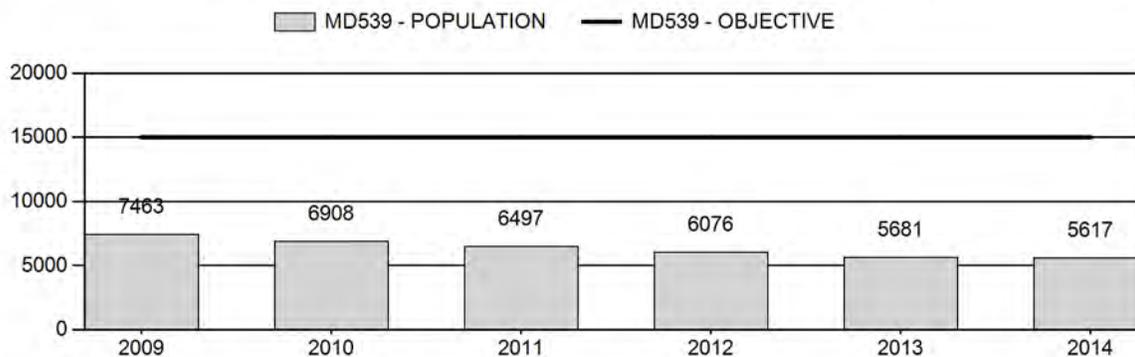
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	6,525	5,617	5,926
Harvest:	373	290	335
Hunters:	1,681	1,194	1,200
Hunter Success:	22%	24%	28%
Active Licenses:	1,681	1,194	1,200
Active License Success:	22%	24%	28%
Recreation Days:	8,305	6,984	7,000
Days Per Animal:	22.3	24.1	20.9
Males per 100 Females	26	26	
Juveniles per 100 Females	59	75	

Population Objective (± 20%) :	15000 (12000 - 18000)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-62.6%
Number of years population has been + or - objective in recent trend:	20
Model Date:	2/26/2015

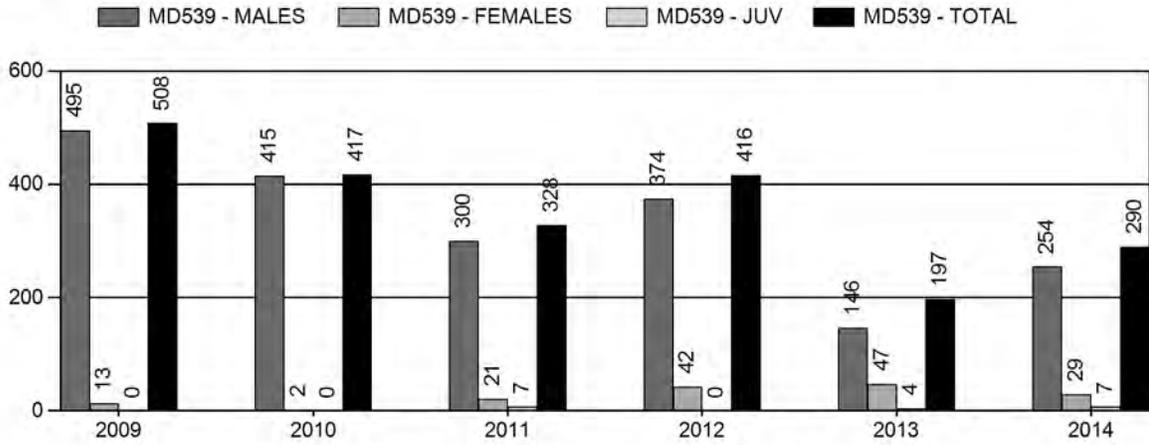
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1%	.1%
Males ≥ 1 year old:	26%	24%
Juveniles (< 1 year old):	0.0%	0%
Total:	6%	6%
Proposed change in post-season population:	5%	5%

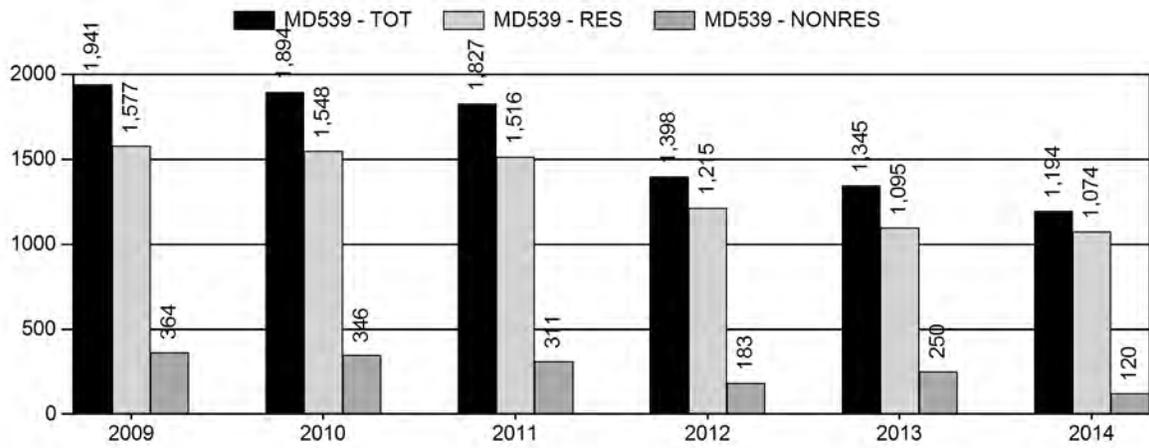
Population Size - Postseason



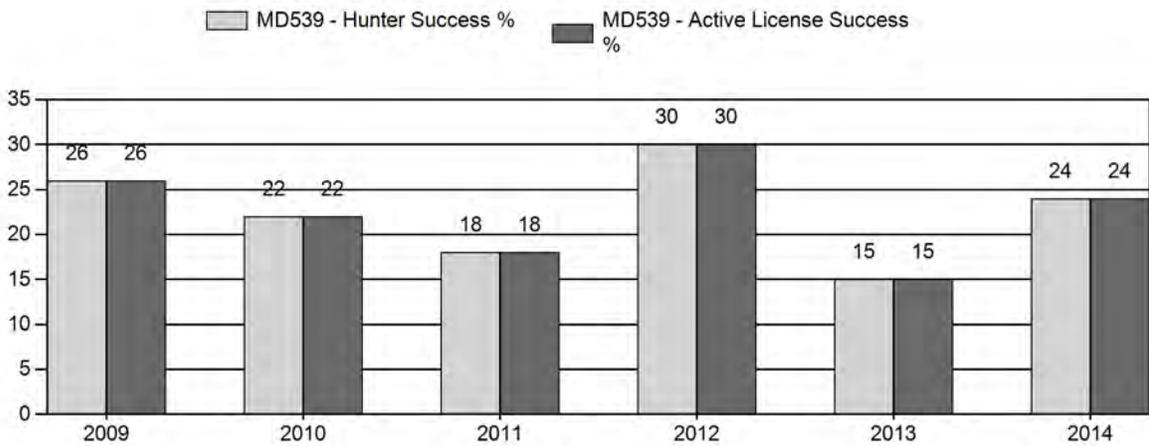
Harvest



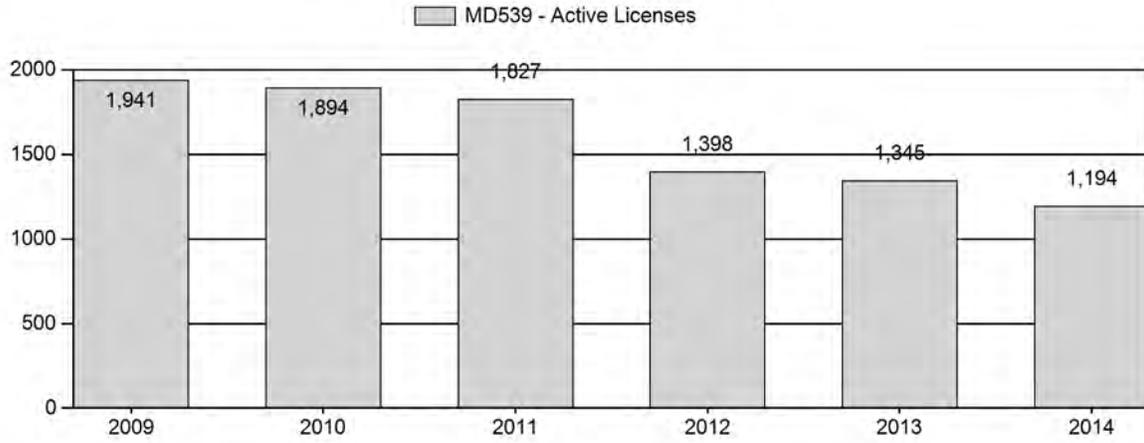
Number of Hunters



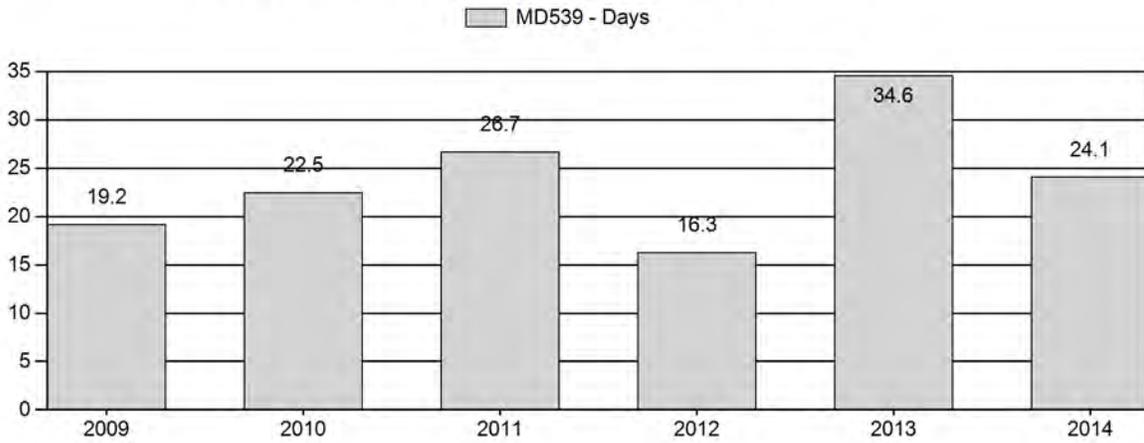
Harvest Success



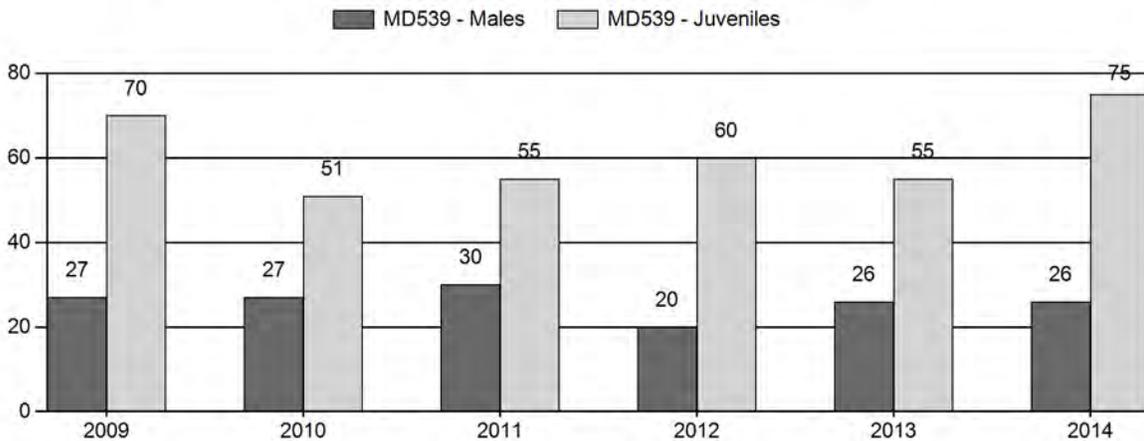
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2009 - 2014 Postseason Classification Summary
for Mule Deer Herd MD539 - SHEEP MOUNTAIN

Year	Post Pop	MALES					FEMALES			JUVENILES			Tot	Cls	Males to 100 Females				Young to				
		Ylg	Cls 1	Cls 2	Cls 3	2+	UnCls	Total	%	Total	%	Total			%	Cls	Obj	1,661	1,391	Yng	Adult	Total	Conf
2009	8,168	91	0	0	0	0	134	225	14%	843	51%	593	36%	1,661	1,391	11	16	27	±2	70	±4	56	
2010	6,908	63	0	0	0	63	126	15%	474	56%	243	29%	843	840	13	13	27	±3	51	±5	40		
2011	6,497	48	0	0	0	98	146	16%	480	54%	263	30%	889	1,087	10	20	30	±3	55	±5	42		
2012	6,076	33	0	0	0	52	85	11%	416	55%	249	33%	750	1,047	8	12	20	±3	60	±6	50		
2013	5,681	82	47	42	16	1	188	14%	721	55%	395	30%	1,304	984	11	15	26	±2	55	±4	43		
2014	5,617	31	23	14	8	0	76	13%	290	50%	218	37%	584	1,109	11	16	26	±4	75	±8	60		

**2015 HUNTING SEASONS
Sheep Mountain Mule Deer (MD539)**

Hunt Area	Type	Date of Seasons		Quota	License	Limitations
		Opens	Closes			
61		Oct. 1	Oct. 7		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
74		Oct. 1	Oct. 7		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
75		Oct. 1	Oct. 7		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
76		Oct. 1	Oct. 7		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
77		Oct. 1	Oct. 7		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
Archery		Sep. 1	Sep. 30			Refer to Section 4 of this Chapter

Region D Nonresident Quota: 400

Area	Type	Change from 2014
Herd	General	0
Totals	TOTAL	0

Management Evaluation

Current Postseason Population Management Objective: 15,000 (12,000-18,000)

Management Strategy: Recreational

2014 Postseason population Estimate: ~ 5,600

2015 Proposed Postseason Population Estimate: ~ 5,900

2014 Hunter Satisfaction: 49% Satisfied, 24% Neutral, 27% Dissatisfied

The management objective for the Sheep Mountain Mule Deer Herd Unit is a post-season population objective of 15,000 mule deer. The management strategy is recreational management with guidelines to maintain a post hunt buck ratio of 20 to 29:100 does. The objective and management strategy was reviewed in the spring of 2015 (appendix B).

Herd Unit Issues

The Sheep Mountain herd unit encompasses hunt areas 61, 74, 75, 76 and 77. Landownership varies from mostly private lands with limited public access, to large portions of public lands. The 2014 post-season population estimate is approximately 5,600 with the population stabilizing after a decline from 7,500 in 2009. The Sheep Mountain Herd Unit historically has one of the lowest hunter success rates in the state, even when we estimated a higher population. Most of the herd's summer range is in dense lodge pole or spruce forests that were once heavily logged in the 1960s and 1970s. There is a large scale forest die off from pine and spruce beetles, and though we think it will be beneficial, the effects are unknown. Winter and transition range is limited. In 2012 there was a large scale wildfire that is thought to be beneficial in the long run, but currently has caused displacement. Black bear and lion mortality limits were liberalized, and season lengths were increased. There is an ongoing predator removal project with the Albany County Predator Board focusing on key mule deer parturition areas in the Sheep Mountain herd unit to evaluate the effect of coyotes on fawn recruitment (Appendix A). We are currently in the middle of a mule deer initiative process with this herd unit. So far it has helped spark more discussions with the WGFD, federal agencies, and non-government organizations that should turn into some good on the ground improvements that will be beneficial.

Weather

Timing of precipitation and amounts received during key growth periods for cool season grasses and preferred transitional range and winter range shrub species was excellent. The fall of 2013 in the Laramie Valley received the highest amount of precipitation on record. 2014 in the Laramie Valley experienced a mild winter, above average precipitation in the spring, followed by an average summer, and ending once again with above average precipitation in the fall. Mild fall temperatures and lack of persistent snows allowed for big game species to spend greater amounts of time on summer and fall transition ranges providing additional relief for winter ranges that have historically been overutilized. For specific meteorological information the reviewer is referred to the following link: <http://www.ncdc.noaa.gov/cag/>

Habitat

Habitat conditions improved in 2014 with an increase in amounts of precipitation received and the timeliness of when it was received. Precipitation received in April and May resulted in excellent growth of cool season grasses and forbs, and above average leader growth on preferred key shrubs. 2012 has been recognized as one of the worst droughts on record, and annual growth of key forages monitored finally returned to levels seen prior to year 2012. Utilization rates of key winter range shrubs documented in spring 2014 was within acceptable use limits in most areas. Shrub habitats receiving treatments thru prescribed fire or mowing continue to outperform areas not receiving treatment from an overall production standpoint.

The Squirrel Creek Fire (Figure 1.) started on June 30th 2012, burning about 11,000 acres of transitional and crucial mule deer winter range within the Sheep Mountain Herd Unit. Habitat conditions were old and decadent and we expect this fire to greatly benefit range conditions in the future. During the summer of 2014 field personal observed a high success of re-sprouting from true mountain mahogany and antelope bitterbrush. However, on steep south facing slopes

and areas that burned at higher temperatures there is substantial cheatgrass encroachment. The USFS has not finished the EIS to allow aerial application of herbicide, and until this is complete there is little that can be done.



Figure 1. Squirrel Creek Fire Perimeter with Sheep Mountain Mule Deer crucial winter range.

Field Data

In 2014, 580 deer were aerially classified within the herd unit. This effort did not meet the classification objective of 1,110 due to a mild fall with little snow and warmer than average temperatures, causing deer to be less concentrated on the winter ranges. Fawn ratios increased from 55:100 does in 2013 to 75:100 does in 2014. Mule deer herds state wide saw similar increases in fawn ratios and it is mostly attributed to the excellent fall and spring moisture in 2013 and 2014. Youth and archery hunters harvested 36 does and fawns in 2014, less than 1% of the total female population. 2014 was the second year an antler point restriction was implemented. The buck ratio remained at 26:100 does from 2013 to 2014, reaching the high side of recreational management, but 40% of the bucks classified were yearlings. We are also certain that we missed mature bucks during our classification flight due to the mild weather conditions and the buck ratio mostly like does not truly reflect what is on the ground. We implemented a new ranking system in our classification in 2013 that places bucks into 3 classes based on antler spread: class I is 19 inches or less, class II is 20-25 inches, and class III is 26 inches or greater. Of the total number of bucks classified, class I made up 71%, class II was 18%, and class III was 11%, which is comparable to 2013. Total active licenses remained comparable to 2013 at 1,100, but over the last decade we have lost 1,000 resident hunters. Nonresident hunters decreased by 130, which was expected with the reduction in region D quota. Hunter effort decreased by 10 days to 24, and hunter success increased by 10% to 24%, indicating hunters are finding more mature bucks. However 24% hunter success is still far below the state wide average of 66%, and is one of the lowest herd unit success rates in the state. The hunter satisfaction survey indicated that 50% of hunters were satisfied or very satisfied with their hunt, up from 40% in 2013, with 23% remaining neutral in the survey.

Harvest Data

2014 was the third year of a weeklong season, and the second year of an antler point restriction. Harvest has been on a steady decline from a high of 980 deer in 2004 to 190 deer in 2013. The 2014 harvest saw a slight increase to 290 deer. Of the estimated 290 mule deer harvested, 36 were does and fawns, and 29 of those were harvested with archery equipment. Even though the female harvest makes up 10% of the total harvest, it is less than 1% of the total female population and is not substantial enough to affect the population, but it is perceived poorly by the public. The 2014 season structure was mostly well received; hunters and landowners perceived it as the Department is addressing their concerns with this herd unit. Overall public comments are that the herd is increasing.

Population

Time-Specific Juvenile & Constant Adult Survival (TSJ, CA) spreadsheet model was chosen for this Herd Unit. This model has the lowest AIC score of 167 and a Fit of 71, and estimates the population declining from a high of 7,500 in 2009 to the current estimate of 5,600. This model is ranked as fair; there is 15-20 years of data; ratio data available for all years in model; juvenile and adult survival estimate with standard errors obtained from adjacent or other similar herds; model aligns fairly well. We were able to get several years of fawn and adult survival rates from radio collared studies in Colorado that took place near the Wyoming border. With this information the model provides a more believable estimate considering the classification samples and fawn ratios. Field staff, landowners, and hunters all agree the population is down and the herd should be managed conservatively.

Management summary

If we attain the projected harvest of 335 deer, and have a fawn ratio of 66:100 does or higher, the herd should start to rebound. Using 66:100 (Unsworth 1999) does as our predicted fawn ratio, we estimate a 2015 post-season population of about 5,900. The 2015 season will be 7 days with a 3 point or better antler restriction to maintain higher buck ratios, and address public concerns. We feel the 3 point or better limitation is restrictive enough without a short season, but the majority of the public did not want more than a week. The nonresident quota for region D will remain at 400 licenses to address the declining populations in region D herd units and the conversion of six hunt areas from general to limited quota in the Platte Valley. This will maintain hunter opportunity that is in line with the current mule deer resource.

Bibliography

Unsworth, J.W., D.F. Pac, G.C. White, and R.M. Bartmann. 1999. Mule deer survival in Colorado, Idaho, and Montana. *Journal of Wildlife Management* 63:315-326.

INPUT	
Species:	Deer
Biologist:	Lee Knox
Herd Unit & No.:	MD539 Sheep Mountain
Model date:	02/26/15

Clear form

MODELS SUMMARY			Relative AICc	Fit	Notes
CJ,CA	Constant Juvenile & Adult Survival	331	340		
SC,J,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	435	444	<input type="checkbox"/> CJ,CA Model <input type="checkbox"/> SC,J,SCA IV	
TS,J,CA	Time-Specific Juvenile & Constant Adult Survival	71	167	<input checked="" type="checkbox"/> TS,J,CA Model	

Check best model to create report

Population Estimates from Top Model

Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population		Predicted Posthunt Population		Total	Objective
	Field Est	Field SE		Juveniles	Total Males	Females	Total Males		
1993			1234	1096	2836	1190	470	2380	15000
1994			1299	920	2483	1299	425	2476	15000
1995			1630	880	2557	1630	468	2557	15000
1996			1460	772	2482	1460	389	2473	15000
1997			1537	909	2613	1537	587	2613	15000
1998			1903	1040	2698	1903	681	2698	15000
1999			1925	1310	2961	1925	785	2961	15000
2000			2278	1478	3258	2266	825	3246	15000
2001			1964	1618	3599	1964	997	3587	15000
2002			2300	1552	3671	2300	843	3662	15000
2003			2243	1536	3844	2207	878	3548	15000
2004			1881	1711	3896	1812	1008	3585	15000
2005			1488	1641	3749	1470	908	3495	15000
2006			2251	1404	3521	2251	762	3517	15000
2007			2434	1636	3890	2429	1068	3880	15000
2008			2226	1817	4119	2211	1173	3947	15000
2009			2671	1540	3811	2671	996	3796	15000
2010			1865	1349	3641	1865	892	3638	15000
2011			1872	1179	3426	1865	849	3403	15000
2012			1855	1068	3157	1855	856	3111	15000
2013			1654	1053	3062	1649	893	3010	15000
2014			2083	1060	2793	2076	781	2761	15000
2015			1955	1360	2980	1949	1030	2947	15000
2016									
2017									
2018									
2019									
2020									
2021									
2022									
2023									
2024									
2025									

Survival and Initial Population Estimates

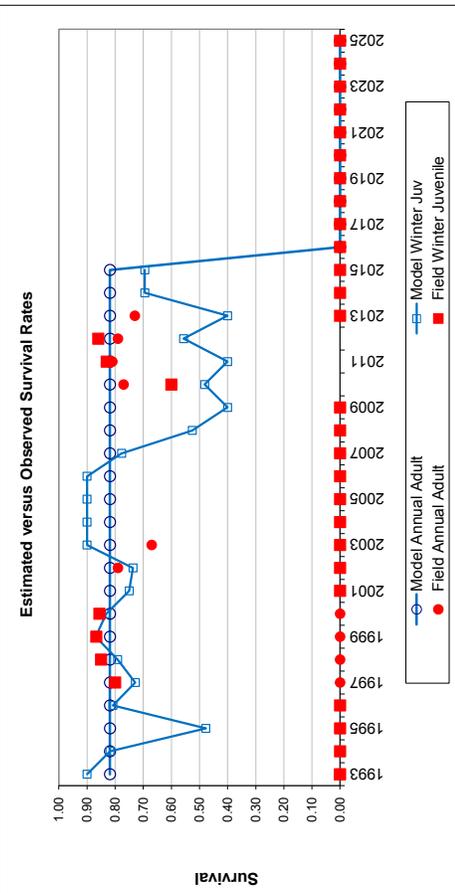
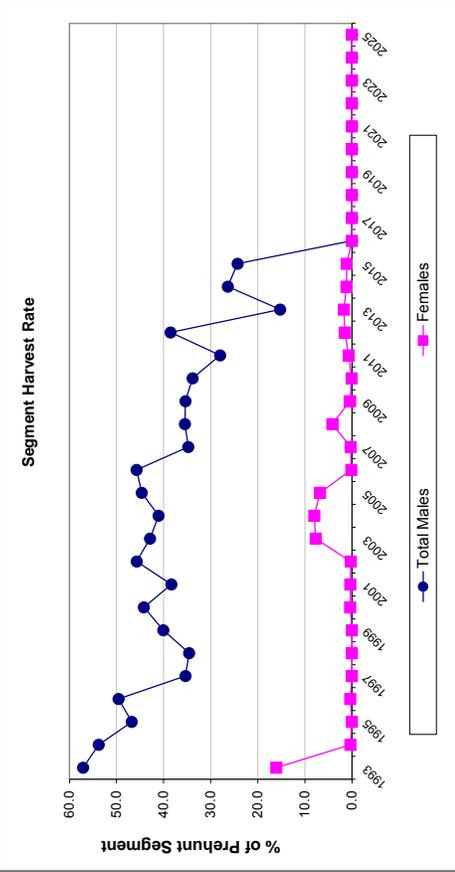
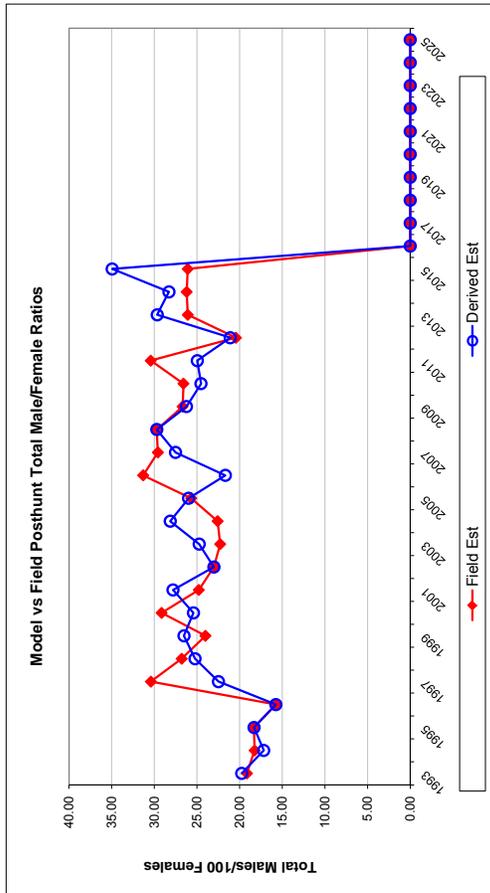
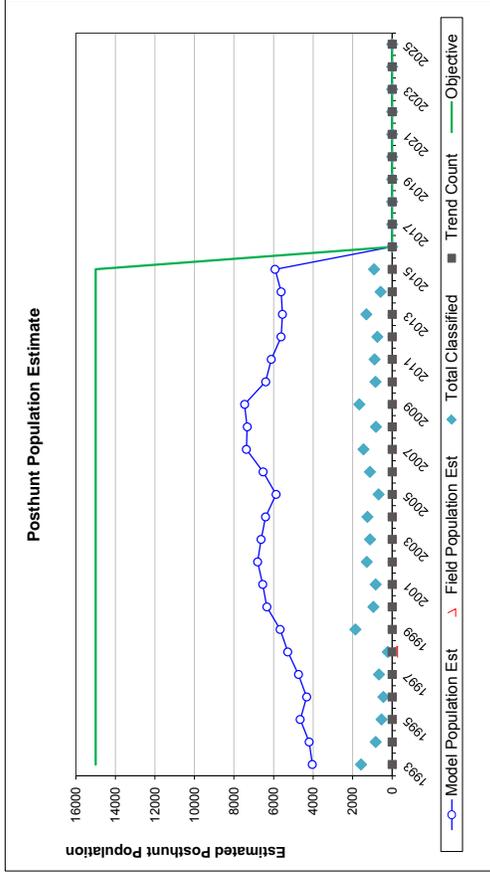
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est SE	Model Est	Field Est SE
1993	0.90		0.82	
1994	0.82		0.82	
1995	0.48		0.82	
1996	0.81		0.82	
1997	0.73	0.07	0.82	
1998	0.79	0.06	0.82	
1999	0.87	0.05	0.82	
2000	0.83	0.05	0.82	
2001	0.75		0.82	
2002	0.74		0.82	0.79 0.04
2003	0.90		0.82	0.67 0.09
2004	0.90		0.82	
2005	0.90		0.82	
2006	0.90		0.82	
2007	0.78		0.82	
2008	0.53		0.82	
2009	0.40		0.82	
2010	0.48		0.82	
2011	0.40	0.12	0.82	0.77 0.04
2012	0.56	0.14	0.82	0.81 0.03
2013	0.40	0.12	0.82	0.79 0.04
2014	0.69		0.82	0.73 0.04
2015	0.69		0.82	
2016			0.82	
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				

Parameters:		Optim cells
Adult Survival =		0.818
Initial Total Male Pop/10,000 =		0.047
Initial Female Pop/10,000 =		0.238

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

Year	Classification Counts				Total Male/Female Ratio				Harvest							
	Juvenile/Female Ratio		Field SE		Derived Est		Field Est w/o bull adj		Field SE		Juv	Males	Females	Total Harvest	Total Males	Females
	Derived Est	Field Est	Field SE	Field SE	Derived Est	Field Est	w/o bull adj	Field SE	Field SE							
1993		50.00	2.84	19.75	19.14	1.57	40	569	414	1023				57.1	16.1	
1994		52.46	4.05	17.18	18.24	2.10	0	450	7	457				53.8	0.3	
1995		63.73	5.95	18.31	18.31	2.71	0	374	0	374				46.8	0.0	
1996		59.06	6.08	15.75	15.75	2.68	0	348	8	356				49.6	0.4	
1997		58.81	5.15	22.48	30.40	3.36	0	292	0	292				35.3	0.0	
1998		70.54	10.36	25.22	26.79	5.51	0	327	0	327				34.6	0.0	
1999		65.01	3.30	26.52	24.01	1.74	0	477	0	477				40.1	0.0	
2000		69.81	4.99	25.41	29.14	2.81	11	594	11	616				44.2	0.4	
2001		54.74	4.27	27.81	24.78	2.58	0	564	11	575				38.3	0.3	
2002		62.81	3.85	23.01	23.01	2.02	0	645	8	653				45.7	0.2	
2003		62.21	4.08	24.74	22.28	2.12	33	599	269	901				42.9	7.7	
2004		50.55	3.25	28.13	22.58	1.96	62	639	283	984				41.1	8.0	
2005		42.05	3.82	25.98	25.67	2.81	17	666	231	914				44.7	6.8	
2006		64.00	4.27	21.67	31.30	2.67	0	584	4	588				45.7	0.1	
2007		62.80	3.67	27.51	29.58	2.25	4	517	9	530				34.8	0.3	
2008		56.01	4.45	29.71	29.71	2.96	14	586	156	756				35.5	4.2	
2009		70.34	3.77	26.23	26.69	2.00	0	495	13	508				35.3	0.4	
2010		51.27	4.04	24.53	26.58	2.66	0	415	2	417				33.8	0.1	
2011		54.79	4.20	24.96	30.42	2.87	7	300	21	328				28.0	0.7	
2012		59.62	4.78	21.10	20.43	2.43	0	374	42	416				38.5	1.5	
2013		54.79	3.43	29.65	26.07	2.14	4	146	47	197				15.2	1.7	
2014		75.17	6.74	28.28	26.21	3.38	7	254	29	290				26.4	1.1	
2015		66.15	4.80	34.94	26.08	2.63	5	300	30	335				24.3	1.1	
2016																
2017																
2018																
2019																
2020																
2021																
2022																
2023																
2024																
2025																

FIGURES



Comments:

END

APENDIX A

ALBANY COUNTY PREDATOR BOARD SPECIAL PROJECT EVALUATING
THE EFFECTS OF PREDATORS ON MULE DEER FAWN RECRUITMENT

Sheep Mountain Mule Deer Recruitment Project

Albany County Predatory Management District (ACPM), USDA/APHIS/Wildlife Services (WS'),
Wyoming Game and Fish Department (WGFD)

01/01/2013-12/31/14



The Sheep Mtn. Mule Deer Recruitment Project consists of a 3 yr. (01/01/2013- 12/31/2015) cooperative effort aimed at the removal of coyotes (*Canis latrans*) within Wyoming Hunt Areas 61, 74, 75, 76, 77 and adjacent lands. These removal efforts are aimed at increasing the viability of the mule deer (*Odocoileus hemionus*) herd that fawn in these areas. These areas lay Easterly adjacent to the Medicine Bow National Forest (USFS) and run generally North and South. This area is mainly used for cow/calf production, recreation, and grass cattle ranching. It is interspersed Private, Bureau of Land Management (BLM), United States Forest Service, and State of Wyoming lands. The goal of this project is to validate that coyote removal will prove beneficial to mule deer fawn recruitment.

The effort to remove coyotes from the hunt areas and adjacent lands began on 01/01/2013 and continues as the project moves towards the third year. Both ground and aerial hunting methods

will continue throughout the project time frame as funding, weather, recreational hunting use of lands, and time demanded by other WS' Albany County duties allow.

01/01/2013-12/31/2013 (1st year of 3)

A total of 89 coyotes within 18 different agreements were removed from the project area. When GPS waypoints of coyotes taken within the project area could be obtained, they were plotted as GPS points (squares) on the attached topographic map. Also, of the 89 coyotes, 24 were retrieved for comprehensive data collection.

Below is a series of operational, budget and coyote related to the data for the 1st year of the project time period (01/01/2013-12/31/2013).

30.9 hrs.	(\$6,573.00 ACPMD)*	Aerial hunting time only (fixed and rotor wing).
96.0 hrs.	(\$2,337.00 ACPMD, \$51.62 WS')*	Ground work time only.
26.0 hrs.	(\$1,342.12 WS')*	Administrative time only.
89		Coyotes removed from project area.
3		USDA/APHIS/WS personnel involved.

* (approximate costs incurred by ACPMD \$8,910.00 and WS' \$1,393.74)

24 of 89 total (27%) coyotes taken verified for sampling and analysis below:

11	Adult male coyotes verified.
11	Adult female coyotes verified.*
1	Pup (female) coyote verified.
1	Pup (male) coyote verified.

* 1 adult female coyote showed evidence of 4 pups whelped.

Stomach content occurrences on 24 verified coyotes.

10 Rodent	2 Empty	14 Pronghorn	3 Deer
-----------	---------	--------------	--------

1/1/2014-12/31/2014 (2nd year of 3)

A total of 116 coyotes and 1 den within 17 different agreements were removed from the project area. When GPS waypoints of coyotes taken within the project area could be obtained, they were plotted as GPS points (squares) on the attached topographic map. Also, of the 116 coyotes, 29 were retrieved for comprehensive data collection.

Below is a series of operational, budget and coyote related to the data for the 2nd year of the project time period (01/01/2014-12/31/2014).

54.0 hrs.	(\$13,446.00 ACPMD)*	Aerial hunting time only (fixed and rotor wing).
138.0 hrs.	(\$3,563.06 ACPMD, \$200.72 WS)*	Ground work time only.
39.0 hrs.	(\$1,957.02 WS)*	Administrative time only.
116/1 den		Coyotes removed from project area.
3		USDA/APHIS/WS personnel involved.

**(approximate costs incurred by ACPMD \$17,009.08 and WS' \$2,157.74)*

29 of 116 total (25%) coyotes taken verified for sampling and analysis below:

12	Adult male coyotes verified.*
13	Adult female coyotes verified.**
3	Pup (female) coyote verified.
1	Pup (male) coyote verified.

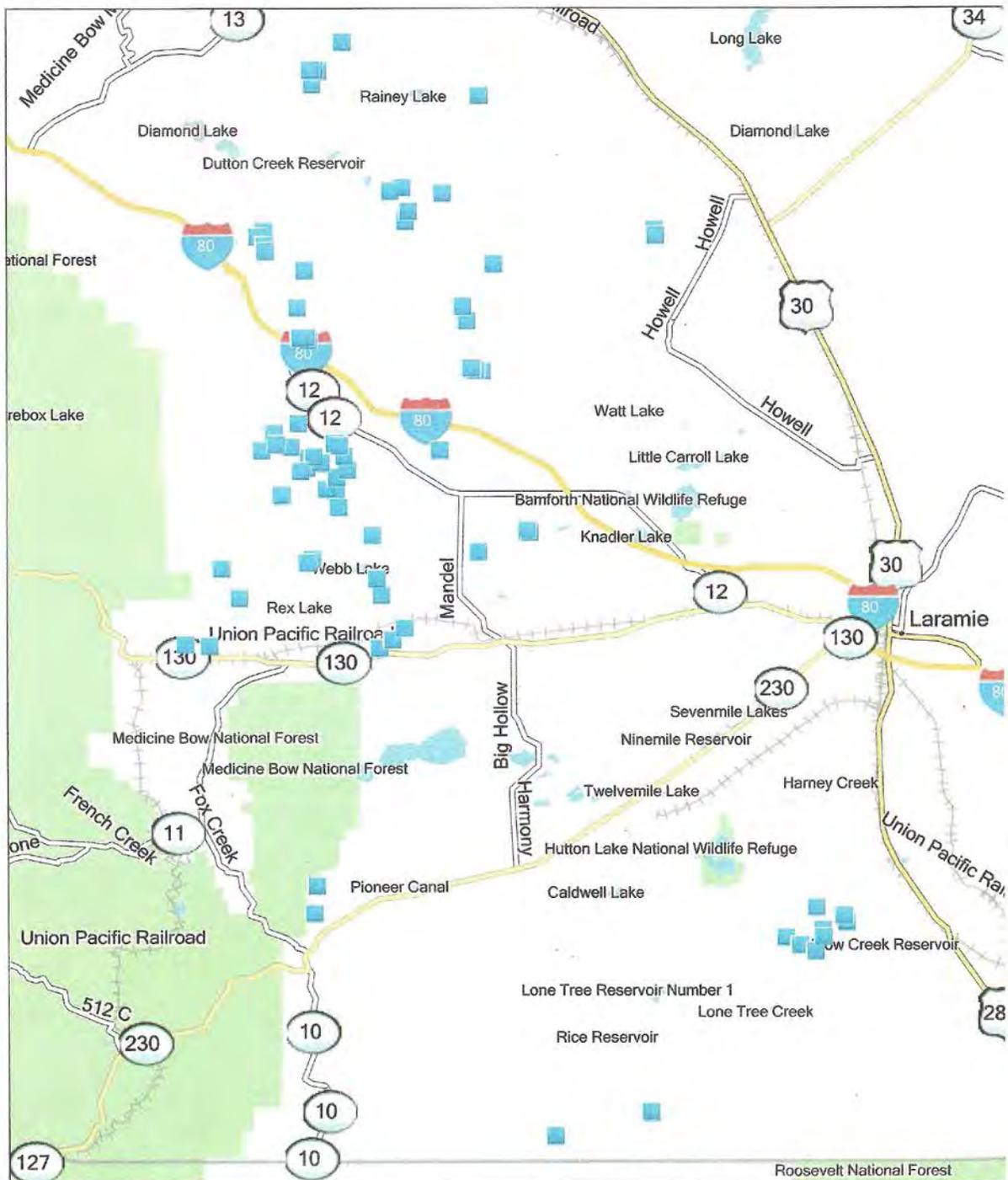
** 1 adult male exhibited signs of mange mite. **1 adult female showed evidence of 3 pups whelped. 1 adult female showed evidence of 6 pups whelped.*

Stomach content occurrences on 29 verified coyotes.

15 Rodent 3 Empty 14 Pronghorn 4 Deer 2 Bird

**The following, in sequence, are attached maps/graphs to project report.

1. Sheep Mtn. Hunt Areas/Fawning Areas. Hunt Areas-orange lined area, Fawning Areas-black circles.
2. Coyote Removal Map (01/03/2013-10/01/2013).
3. Coyote Removal Map (10/2/2013-12/31/2014).
3. WGF D Mule Deer Doe/Fawn Ration Graph and Report .



TOPO U.S. 100K
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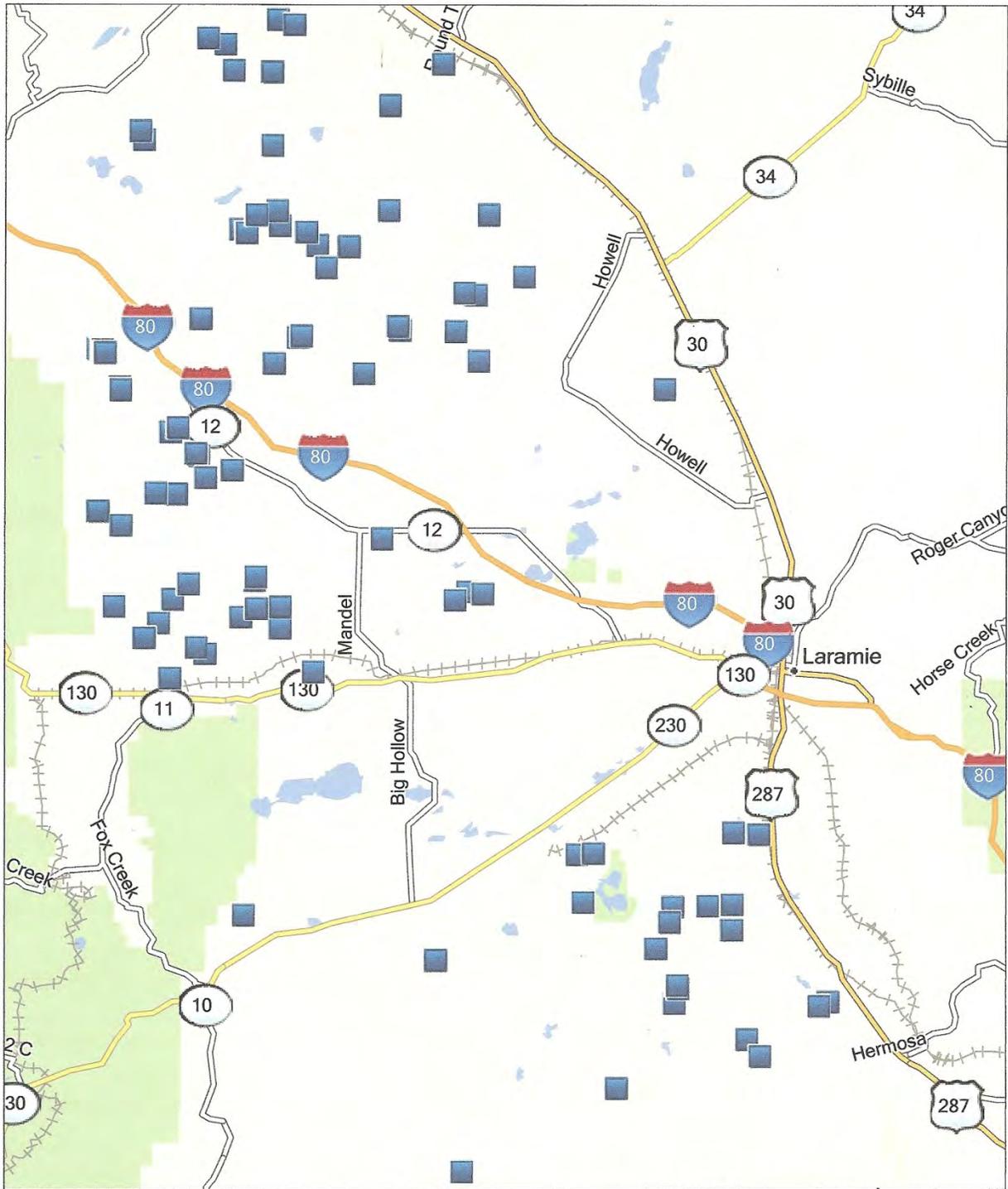


My Collection

Coyote remarks 01/03/13 - 10/01/13

GARMIN.

TN MN
 9.7
 1/1/2010

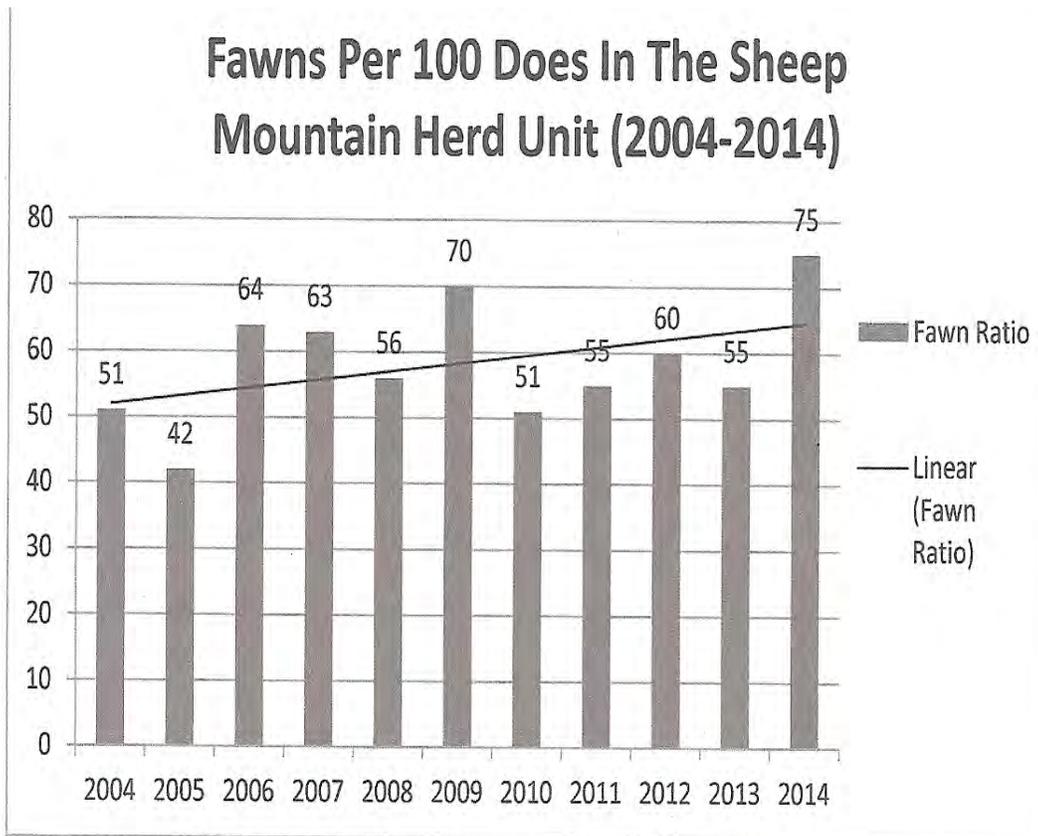


TOPO U.S. 100K
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Coyote Removal 10/2/13- 12/31/14'

My Collection





The Sheep Mountain Herd Unit encompasses Hunt Areas 61, 74, 75, 76 and 77. Fawn ratios have varied over the last 10 years but they seem to be trending up. During the winters of 2007, 2009 and 2010 we experienced an increase in winter mortalities especially in younger age classes which may also have had an effect on fawn recruitment. Severe drought persisted in the spring of 2012 through the spring of 2013 and may have led to the decrease in the 2013 fawn ratio. Mild winter, above average spring moisture, and 2 years of coyote removal on parturition range has led to the highest fawn ratio in over a decade for this herd in 2014.

As stated on the cover sheet, ground and aerial activities will continue until 12/31/2015 as time and conditions permit. Very few mule deer were observed during the 1st years' work on the project. It appeared that the weather conditions during the last few years are impacting the population. Quite a few mule deer were observed during the 2nd years' work in the same project areas as the previous year. It is our hope that by removing coyotes in this project area coupled with the increase in moisture, the mule deer population will be able to increase or sustain its numbers over the next year/years.

Please feel free to contact me if there are any questions or concerns.

Sincerely,

Craig Acres

Staff Biologist USDA/APHIS/WS'

Cc: Files

1/7/2014

APENDIX B
SHEEP MOUNTAIN MULE DEER HERD UNIT OBJECTIVE REVIEW

SHEEP MOUNTAIN MULE DEER HERD UNIT AND OBJECTIVE REVIEW

Prepared by: Lee Knox, Laramie Senior Wildlife Biologist

The herd unit concept is based on distinct populations and minimal interchange ($\leq 10\%$) with neighboring populations. The Sheep Mountain Mule Deer Herd Unit (SMMDHU) occupies an estimated 2,500 square miles in southeastern Wyoming, ranging from the city of Cheyenne west to the Snowy Range divide, and from the Colorado/Wyoming state line north to Highway 287/30 and Interstate 80 (Figure 1). The herd unit encompasses hunt areas 61, 74, 75, 76 and 77. Landownership varies from private lands with limited public access to public lands easily accessible. The current Postseason Population Management Objective was last reviewed in 1987 when it was increased from 10,000 to 15,000 mule deer. The herd unit is managed under recreational guidelines which prescribe to maintain a ratio of 20 to 29 bucks:100 does.

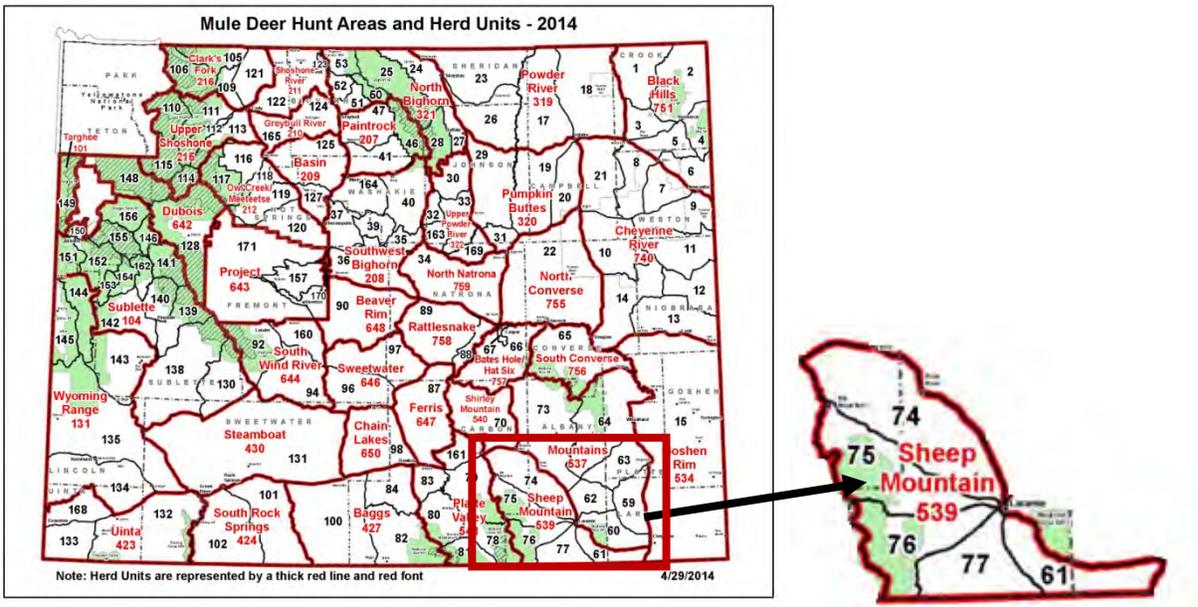


Figure 1. 2014 Wyoming mule deer herd units. The Sheep Mountain Mule Deer Herd Unit is highlighted.

POPULATION OBJECTIVE REVIEW

The postseason population objective for this herd unit is currently 15,000 mule deer. The 2014 post-season population estimate was approximately 5,600 mule deer with the population stabilizing after a decline from 7,500 mule deer in 2009 (Figure 2). The postseason population objective is based upon both biological and social factors, including, but not limited to: winter range carrying capacity, hunter needs, landowner needs and tolerance, land status, and competition with other wild and domestic animals. The postseason population estimate is determined by modeling herd dynamics using harvest data and preseason herd classification data.

The SMMDHU population model has been further refined by addition of both adult female and juvenile survival data from research projects conducted in neighboring herds.

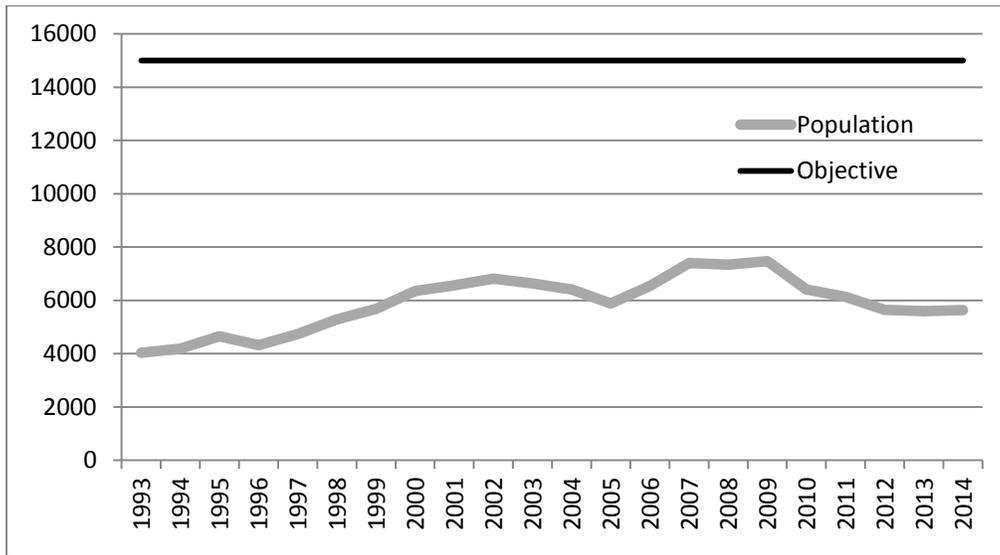


Figure 2. Population estimates and objective for the Sheep Mountain Mule Deer Herd Unit, 1993-2014.

CURRENT HERD UNIT MANAGEMENT STRATEGIES

Hunt areas 61, 74, 75, 76, and 77 are managed through a general season structure and recreational guidelines. Although landownership and habitats differ between hunt areas, the same season structure has been maintained due to the overall population size being below objective which requires a conservative management strategy across all hunt areas in the herd unit.

LANDOWNER AND PUBLIC INVOLVMENT

Surveys were mailed to 107 landowners that owned a minimum of 640 acres in the SMMDHU. Of the 107 letters mailed, 24 completed surveys were returned. At the postseason public meetings in Saratoga, Wheatland, Torrington, Laramie, and Cheyenne, questionnaires were provided to the public, similar to those mailed to the landowners. Only one questionnaire was returned.

Overall, 63% of the landowners that responded were dissatisfied with the current mule deer population (Figure 3). When asked why, 65% of dissatisfied landowners responded that there were too few mule deer, while 5% responded that there were too many mule deer (Figure 4).

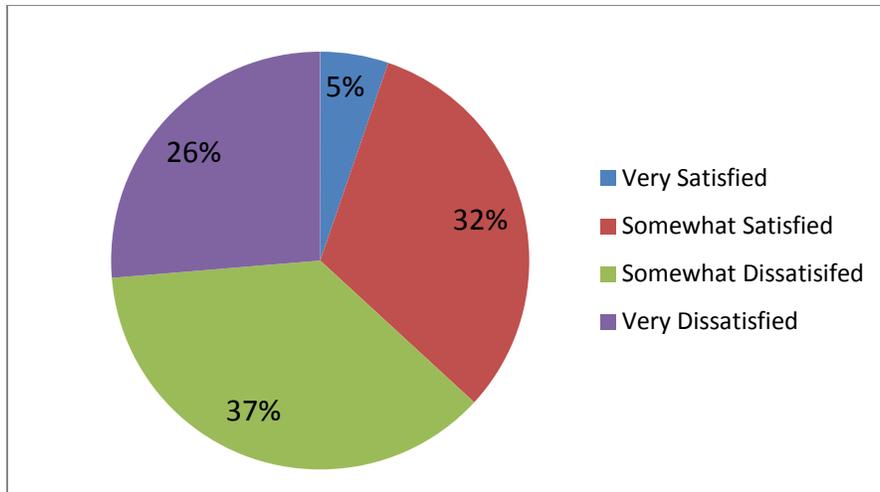


Figure 3. Current landowner satisfaction with the SMMDHU population.

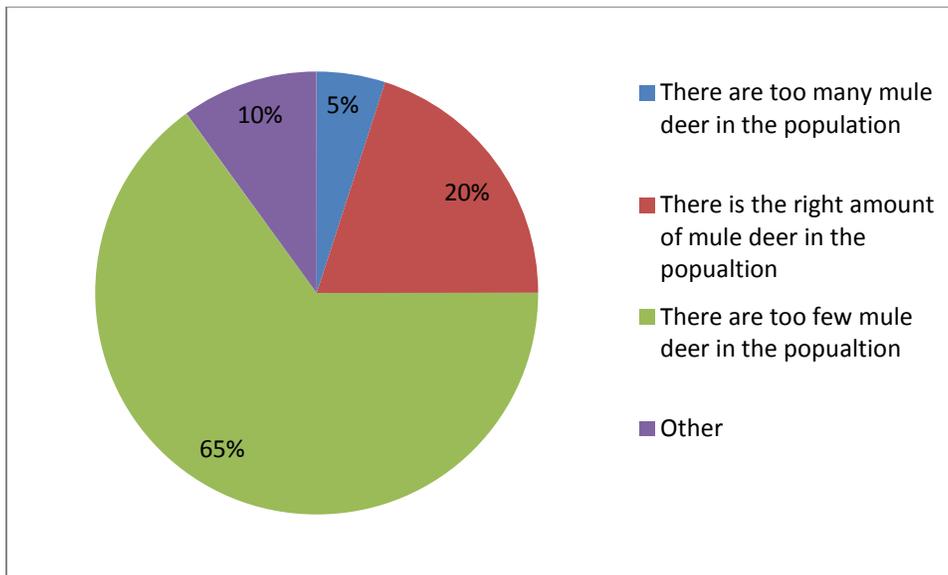


Figure 4. Landowner response as to why they were satisfied/dissatisfied. .

Sixty-seven percent of the landowners surveyed believed that the current population objective of 15,000 mule deer was correct (Figure 5). Only 16% believed it should be lowered. Historically, the population was estimated to be near 15,000 mule deer for only a short period in the early 1990s. Using the current model, the population estimate has not been over 8,000 mule deer at any time during the past 20 years (Figure 2).

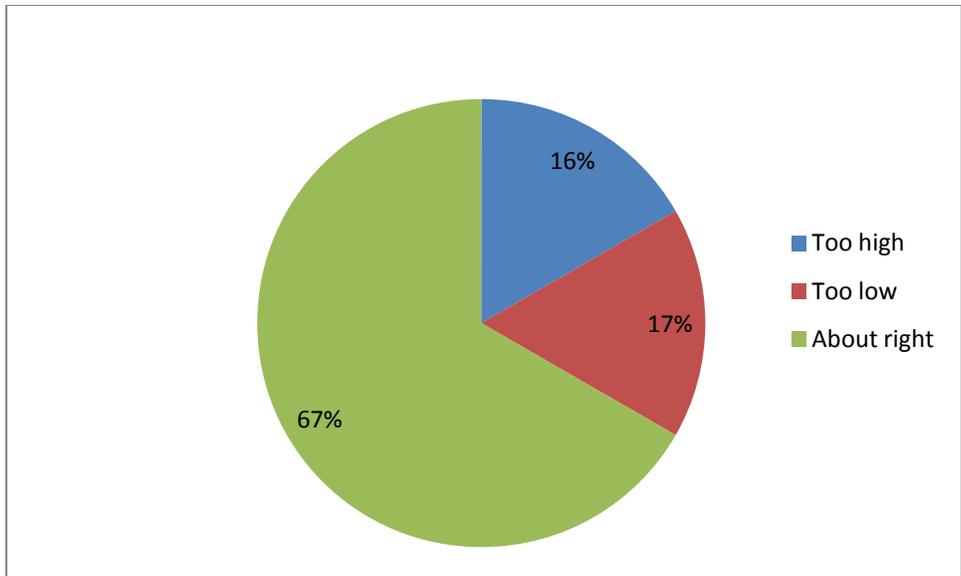


Figure 5. Landowner opinion of the current population objective of 15,000 mule deer.

Harvest has been on a steady decline from 984 mule deer in 2004 to 197 mule deer in 2013. The 2014 harvest saw a slight increase to 290 mule deer (Figure 6). Hunter success has declined precipitously since 2004 (Figure 7). Overall hunter numbers have declined by more than 1,000 over the last decade, indicating low satisfaction with the SMMDHU (Figure 6).

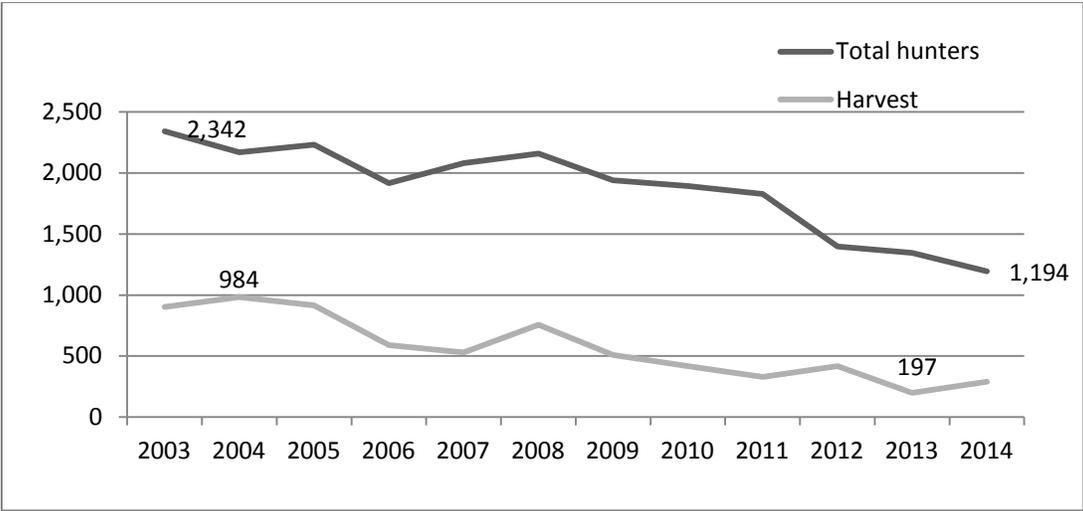


Figure 6. Number of hunters and mule deer harvested in the SMMDHU from 2003-2014.

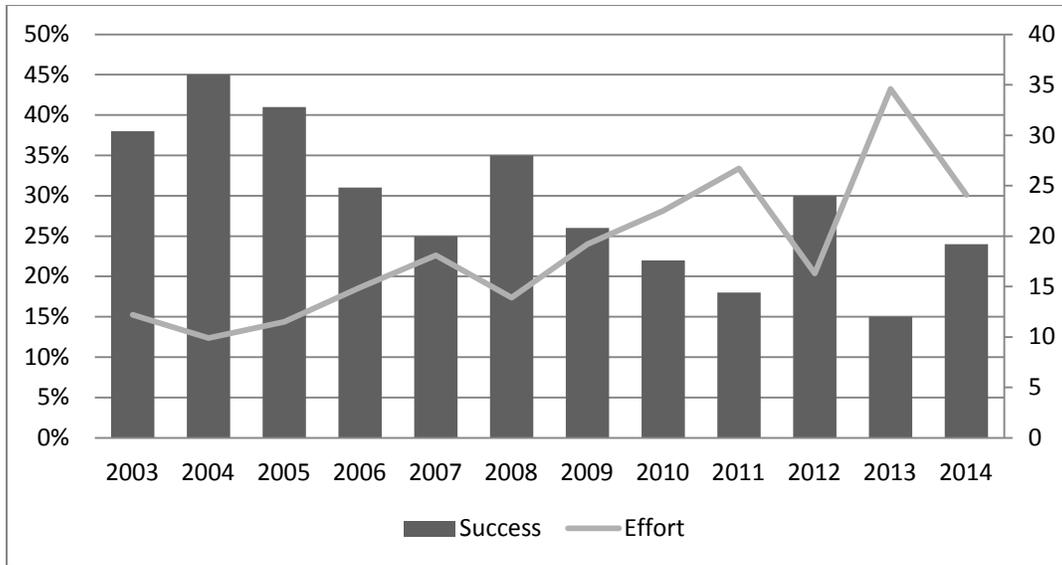


Figure 7. Hunter success and effort, measured as days per harvest, from 2003 to 2014.

RECOMMENDATION

Through the Wyoming Mule Deer Initiative process, public meetins, and landowner meetings, the current population objective and whether it should be lowered to an achievable level has been discussed with the public. The current population objective of 15,000 mule deer is unrealistic considering the current population model estimates and current habitat conditions. Public meetings were held in Wheatland, Laramie, Cheyenne, Saratoga, and Casper to propose a new objective of 10,000 mule deer. A total of 80 members of the public attended the meetings. We received five surveys back, all in favor of reducing the current population objective from 15,000 to 10,000 mule deer. A postseason population objective of 10,000 deer may still be difficult to obtain in five years, especially considering past population trends, but it is more palatable to the landowners and the public. If after five years, the population objective is not attained, this objective should be reviewed again.

Appendix A

List of Landowners Contacted

March 13, 2015

Dear Landowner,

The Wyoming Game and Fish Department (Department) is seeking your assistance in the future management of big game wildlife in your area. During the spring of 2015, the Department will review the herd unit management objectives for several big game herd units including the Sheep Mountain Mule Deer Herd Unit. Enclosed in this letter you will find a short survey for the herd unit your property is located within and postage-paid return envelope. Please complete the survey questions, provide additional comments if you desire, and mail the survey in the enclosed return envelope.

The herd unit management objective is the “goal” which the Department manages big game wildlife towards. For most big game herd units in Wyoming, the Department manages big game wildlife towards a numeric management objective, usually identified as a postseason population estimate.

Many of Wyoming’s big game wildlife rely on habitat located on private lands. Therefore, landowner opinions on herd unit management objectives are important to Department. The comments we receive from your completed surveys will be used in part to formulate Department recommendations for the future herd unit management objectives. Changes in the herd unit management objective could result in increasing harvest opportunities to decrease the number of big game animals, or conversely, changes could result in reducing harvest opportunities in order to increase the number of big game animals. For planning purposes, the Department would like to identify management objectives which are considered biologically achievable within the next five years.

Thank you for taking the time to share your thoughts and opinions with us. If you have any questions please contact Lee Knox (307) 760-7348. We look forward to receiving your survey and working with you on the future management of Wyoming’s Wildlife.

Sincerely,

Lee Knox
Laramie Wildlife Biologist
LK/lk

LANDOWNER	CITY	STATE
Ralph Brokaw	MC FADDEN	WY
4L LAND & CATTLE CO LTD	LARAMIE	WY
9H RANCH LLC, A WY LLC	LARAMIE	WY
ABSAROKA CONSOLIDATED ENTERPRISES, LLC	CHEYENNE	WY
ARTHUR, STEPHEN L; RUTH D	CHEYENNE	WY
AVERY, RICHARD; CINDY	LARAMIE	WY
BAR LAZY C BAR, LLC, A WY LLC	LARAMIE	WY
BASIN RANCH CO	ELK MOUNTAIN	WY
BATH FAMILY LTD	TIE SIDING	WY
BATH LAND COMPANY	LARAMIE	WY
BEAR CREEK CATTLE COMPANY	MC FADDEN	WY
BERTHEL LAND & LIVESTOCK, A	CHEYENNE	WY
GAY H. SHORE	DENVER	CO
BOOTH LAND & LIVESTOCK LLC, A CO LLC	LUCERNE	CO
BOWEN ROLAND E AND CHERYL J	ELK MOUNTAIN	WY
BUTTERS, CAROLINE A TRUST	LOVELL	WY
CENTENNIAL 91 RANCH, LLC	CENTENNIAL	WY
COTTON HOLDINGS, LLC, A WY LLC	LARAMIE	WY
CRAIG, DENNIS P; CARLA LIV TRUST	FORT COLLINS	CO
CROONBERG RANCH INC	LARAMIE	WY
DALLAROSA-HANDRICH, DYLAN	LARAMIE	WY
DEERWOOD RANCH LLC	LARAMIE	WY
DOLAN, REX L REV TR ET AL	CHEYENNE	WY
DOUBLE UNDERBIT LLC	LARAMIE	WY
DUCK CREEK GRAZING ASSOC INC	EATON	CO
DUMIRE LES AND SHELLY CO TRUSTEES	MC FADDEN	WY
DUNMIRE RANCH CO OF WY	MCFADDEN	WY
DUNN, RANDY J	LARAMIE	WY
DUNN, THOMAS G; NANCY J REV TR	LARAMIE	WY
EAST CANYON RANCH INC	WELLINGTON	CO
FAESSLER FARMS LTD, A NE LTD PTRNSHP	CHEYENNE	WY
FISCHER, GENE E; MARYLYNN A	FORT COLLINS	CO
FISH CREEK RANCH PRESERVE	TIE SIDING	WY
FLYING HEART RANCH LLC. A WY LLC	LARAMIE	WY
FLYING Z ENTERPRISES, LLC	LARAMIE	WY
GARDNER, DANIEL R; JACQUELYN G	PARACHUTE	CO
GOEMAN, DONALD L REV TRUST	TIE SIDING	WY
GREEN, ROBERT E ET UX	GRANITE CANON	WY
HAMAKER, J D & CANDIS L	CENTENNIAL	WY
HANSEN DOUBLE X RNCH LTD PTNRSHP	CHEYENNE	WY
HARNDEN, PAT	TIE SIDING	WY
HARRIS RANCH LLC, A WY LLC	BOSLER	WY
HERMAN DARLENE G AND ROBERTA L AND	ELK MOUNTAIN	WY

HI ALLEN RANCH LLC	MEDICINE BOW	WY
IRON BAR HOLDINGS LLC	ELK MOUNTAIN	WY
JANKOVSKY'S ROCK RIVER RNCH, LLC	ARLINGTON	WY
JOHNSON 99 RANCH, LIMITED	LARAMIE	WY
JOHNSON ROBERT JOHN JR AND	ELK MOUNTAIN	WY
JOHNSON, MARK E; MARGARET	LARAMIE	WY
KAY, SHIRLEY; KAY, MATTHEW J	LARAMIE	WY
KEMP, JOHN L & LOIS KAY	LARAMIE	WY
KILPATRICK, WM C REV TRUST	TIE SIDING	WY
KING RANCH COMPANY LP	CHEYENNE	WY
LARAMIE RIVER HOLDINGS, LLC,	LARAMIE	WY
LEWIS RANCHES LLC	LARAMIE	WY
LINDSTROM, GRANT L	LARAMIE	WY
LISTEN LAND LLLP	LARAMIE	WY
LOGAN, WILLIAM J, JR	FORT COLLINS	CO
LONE TREE RANCH INC	LIVERMORE	CO
MARIAH LAND HOLDINGS, LLC, A WY LLC	LARAMIE	WY
MC GILL JOHN M AND JOAN W TRUSTEES	LARAMIE	WY
MC LOUGHLIN HOLDINGS LLC	CHEYENNE	WY
MCKINSEY, RAYMOND L LIV TRUST	LARAMIE	WY
MEDICINE BOW RIVER RNCH OF WY LLC	FORT WAYNE	IN
MENKE RANCH	ELK MOUNTAIN	WY
MISTERLY LEWIS E JR AND GAYLE ANN	BREA	CA
NEVPET BOSWELL RANCH LLC	CHEYENNE	WY
NUNN, JUSTIN T REVOCABLE TRUST	LARAMIE	WY
OVERLAND TRAIL CORPORATION	AURORA	CO
OWENS, JULIE A REVOCABLE LIVING TRUST	CHEYENNE	WY
PAGE FAMILY LTD PARTNERSHIP	LARAMIE	WY
PARKER, JOHN B & SHAARON B FAMILY TRUST	KEENESBURG	CO
PETERS, PETER JOHN	LAPORTE	CO
PETERSEN, BRENT R	EVANSTON	WY
PITCHER, TIMOTHY	LARAMIE	WY
PRINCE, ELEANOR FRACKER	BUFORD	WY
RAY, MICHAEL	LAKESWOOD	CO
REMOUNT RANCH LLC	DENVER	CO
REYES, JUAN D; JONI S	WHEATLAND	WY
RICHARDSON ALBERT SHORTY WILLING TRUSTEE	ELK MOUNTAIN	WY
RICHARDSON JOANN KAY	LANDER	WY
ROCK RIVER RANCHES INC	ROCK RIVER	WY
ROGERS, JAMES P; LEONA GAY REV TR	LARAMIE	WY
RUGGLES, RAYMOND LAWRENCE &	LARAMIE	WY
SCHERER ROBERT L II	LARAMIE	WY
SEYMOUR NANCY L AND	MEDICINE BOW	WY
SHIMMERHORN RANCH LLC, AN AZ LLC	CHEYENNE	WY
SHOPNECK, ROBERT M & CATHERINE	DENVER	CO
SIMON, JAMES E., CO, A WY CORP	LARAMIE	WY
SIMS LAND AND LIVESTOCK INC	ROCK RIVER	WY

SMITH FAMILY PROPERTIES LLC, A WY LLC	LARAMIE	WY
SPEISER, DAVID T & KATHLEEN T REV TRUST	LARAMIE	WY
SPIEGELBERG, GARY W; JOANN K LIV TRUST	LARAMIE	WY
STAGE LAND CO, LLC	LARAMIE	WY
STEWART, EARLE W LIVING TRUST	CHEYENNE	WY
SWAN RANCH LLC	CHEYENNE	WY
SWANSON REVOCABLE LIVING TRUST	LARAMIE	WY
TALBOTT RANCH, INC, A WY CORP	LARAMIE	WY
T-K RANCH	LARAMIE	WY
UL RANCH CO	ELK MOUNTAIN	WY
WAGON TRAIL RANCH, LLC, A WY LLC	DENVER	CO
WEAR, JAMES C; SILVYA A	LARAMIE	WY
WEAVER RANCH, INC	FORT COLLINS	CO
WENBURG TRUST	LARAMIE	WY
WILLADSEN, HELEN MARIA	GREELEY	CO
WOOLF RANCH INC ETAL	LARAMIE	WY
WYOHERZ, LLC	LARAMIE	WY

Appendix B

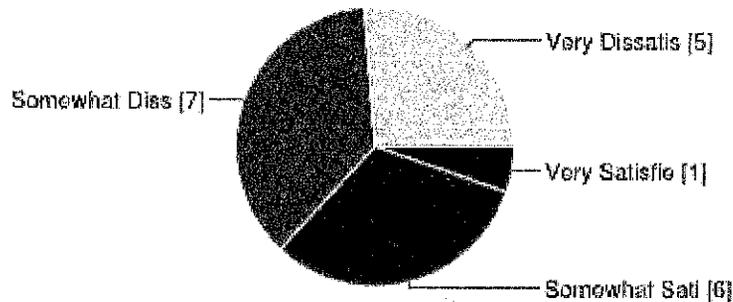
Surveys and Tallies of Survey responses

24 responses

[View all responses](#) [Publish analytics](#)

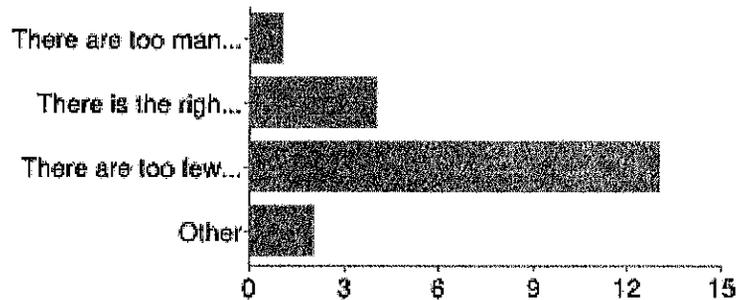
Summary

How satisfied are you with the current Sheep Mountain mule deer population



Very Satisfied	1	4.2%
Somewhat Satisfied	6	25%
Somewhat Dissatisfied	7	29.2%
Very Dissatisfied	5	20.8%

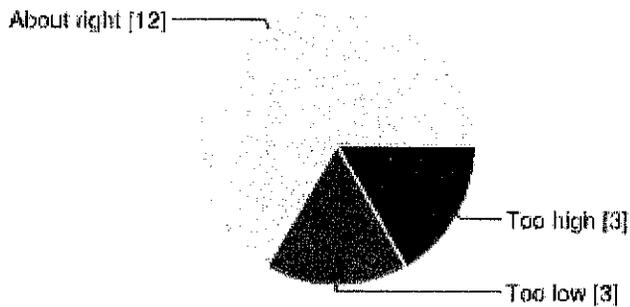
Please Indicate why you selected the response you did for question 1



There are too many mule deer in the population	1	4.2%
There is the right amount of mule deer in the population	4	16.7%
There are too few mule deer in the population	13	54.2%
Other	2	8.3%

Do you think the current post-season population objective of 15,000 mule deer

is:



Too high	3	12.5%
Too low	3	12.5%
About right	12	50%

Additional comments

We don't own any ground in this management area.

Please don't waste your postage and printing costs- Our opinion as landowners matter not on what you do.

I know very little about the mule deer population on Sheep Mountain. My guess is that your management area extends to the Rock Creek valley and that is why you sent this to me. As for the McFadden area where we live, there is nothing to talk about. The whitetail deer have pushed all the mule deer out of here. We see a small herd at Rock River.

Not familiar enough with deer in targeted area to make a valid opinion. Earle Steward
1917 S. Second Ave Cheyenne, WY 82007

1. The deer have not recovered from wasting disease and slaughter by Colorado Game dept. I used to have hundreds here thru the winter. Now I'm fortunate if I see 5 or 6. 2. This area should return to "restricted" area (6)-- drawing only. Since becoming a "general area" hunters are driving me crazy!! I can hardly get any work done and I dare not leave from Oct to Feb. Trespassing, gates open, fences cut, pastures smashed, wounded animals left to die, property damage or missing. We are too close to major population areas to allow general area hunting! General area=open to all (to many!!!) -Robert Green

I attended a couple of your meetings. You talk about habitation private land being important, but you have no private land habitat program. In fact i read and heard a negative attitude about working with private landowners. You talk about working with USFS but openly express how hopeless it is to more USFS. So- I wonder if you are in there to win or just look good losing.

We have noticed an increase in the number of deer during the last two years. The Remount Ranch is only 4000 acres so I don't know if that reflects the deer population for

all of our area. We don't allow hunting on the property and that may be the reason for the increase.

This past year is the most deer i have seen on our land but we don't think it to much as of right now.

Lets be realistic about the numbers. 15000 is too high, unachievable and not a number that could be maintained. Our elk are gone and the deer are returning. I am more pleased to share the land with the deer than the elk.

Have a reasonable and achievable objective to meet, and continue to grow herd.

They are gone.... NONE. As a species they probably wont survive, wouldn't that be sad! They consume a lot of our grass. Thank you for your efforts.

In the 20 years we have owned the ranch, I have not heard any mountain on or near our property referred to as Shirley Mountain, so I guess I can't answer any questions about the Shirley Mountain mule deer population. If it helps you, in the 20 years we have owned the ranch we have only taken two mule deer bucks, and there appears to be fewer deer today. Berthel Land & Livestock 307-630-5453

We are in the middle of a 30 year dry cycle. How much hast that affected the population? Predators need to be kept in check. To many elk competing for habitat.

Hi Lee this is Gary Browning love to help Game and Fish, and mule deer. Call at 307-760-0966 or stop by 120 Hart Rd and we can visit.

Mule deer population on Chimney Rock Ranch is very low- Bruce Lewis

Make all snowy range areas limited quota's for mule deer! NO general license to close to urban populations.

We have experienced a subjective decrease in mule deer over the last 25 years on our meadow lands. I would like to see a few more deer and a few less antelope. We do have an increase in whitetail.

Email

scottnapril@carbonpower.net

wyoherz@msn.com

nlbath@hotmail.com

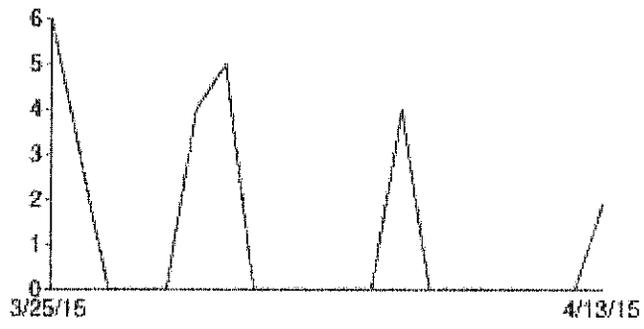
lsbb1@yahoo.com

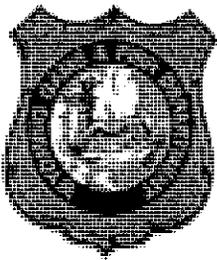
jsdingo@yahoo.com

sbangert@cobizfinancial.com

sigel_a@yahoo.com

laramieridge@gmail.com





WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4699

wgfd.wyo.gov

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MATTHEW H. MEAD

DIRECTOR
SCOTT TALBOTT

COMMISSIONERS
RICHARD KLOUDA - President
CHARLES PRICE - Vice President
MARK ANSELM
AARON CLARK
KEITH CULVER
MIKE HEALY
T. CARRIE LITTLE

Sheep Mountain Mule Deer Herd Unit Objective Review

1. How satisfied are you with the current Sheep Mountain mule deer population:

- Very Satisfied
 Somewhat Satisfied
 Somewhat Dissatisfied
 Very Dissatisfied

2. Please indicate why you selected the response you did for question 1.

- There are too many animals in the population
 There is the right amount of animals in the population
 There are too few animals in the population
 Other _____

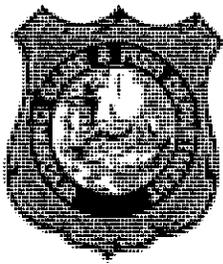
3. What do you think about the current post-season population objective of 15,000 (12,000-18,000) mule deer?

- Current Herd Objective Needs to Increase
 Current Herd Objective Needs to Decrease
 Current Herd Objective is Acceptable

4. If you have additional comments, please share them in the space below:

If, in the future, you would like to be contacted through email please provide your email address below.

THANK YOU for your participation!



WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4699

wgfd.wyo.gov

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PATRICK GRANK
KEITH CULVER
T. CARRIE LITTLE
DAVID RAEI

Sheep Mountain Mule Deer Herd Unit Objective Review Sportsman's Survey

We propose to decrease the management objective from 15,000 to 10,000 mule deer postseason.
(Current population estimate is ~ 5,600)

I support this proposal

I do not support this proposal

Comments:

It is so far below objective lowering it to 10,100 is OK.

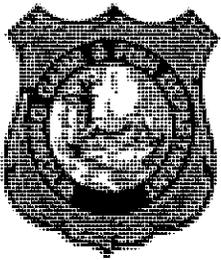
Make the RMEF projects/money good for all species - elk, mule deer, moose, etc.

Not just elk.

If, in the future, you would like to be contacted through email please provide your email address below.

[Signature]
3/25/15

THANK YOU for your participation!



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We propose to decrease the management objective from 15,000 to 10,000 mule deer postseason.
(Current population estimate is ~ 5,600)

I support this proposal

I do not support this proposal

Comments:

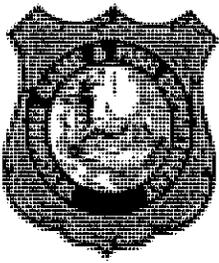
Need to Revisit objective in 5 years + maybe raise IT

Do we need to change IT to limited quota seasons?

If, in the future, you would like to be contacted through email please provide your email address below.

Mcc Ha.2005 @ Gmail.com

THANK YOU for your participation!



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5400 Bishop Blvd. Cheyenne, WY 82006

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Sheep Mountain Mule Deer Herd Unit Objective Review Sportsman's Survey

We propose to decrease the management objective from 15,000 to 10,000 mule deer postseason.
(Current population estimate is ~ 5,600)

I support this proposal

I do not support this proposal

Comments:

Why? What's the point of the objective change? If the highest the population has been (since 1993) is 8k, why would the objective change be needed?

* Question answered.

If, in the future, you would like to be contacted through email please provide your email address below.

PTaylor01@hotmail.com

THANK YOU for your participation!

Appendix C

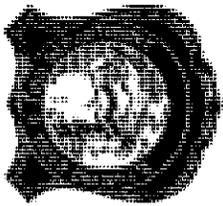
Hunter Satisfaction Survey

MULE DEER
HUNTER SATISFACTION WITH OVERALL QUALITY OF HUNT
 BY HERD UNIT
 UNWEIGHTED
2014

HERD	RESIDENCY	NUMBER OF HUNTERS	SATISFACTION WITH OVERALL QUALITY OF HUNT *				
			VERY SATISFIED	SATISFIED	NEUTRAL	DISSATISFIED	VERY DISSATISFIED
539. Sheep Mountain	Nonresident	33	33.3%	48.5%	15.2%	3.0%	0.0%
	Resident	300	15.3%	30.3%	24.3%	21.3%	8.7%
	Total	333	17.1%	32.1%	23.4%	19.5%	7.8%

Appendix D

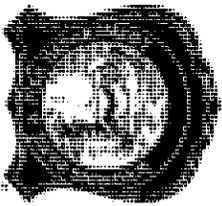
Objective Review Sign in Sheets



Post Hunting Season Meeting
Laramie, Jan. 16, 2015

Please Sign In

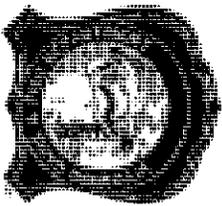
Name	Email	Phone	Mailing Address
1. Mitchell Anderson	michell.k.anderson@gmail.com	307-399-3628	11 Burr Ln, Laramie 82072
2. Eric Anderson	eric.anderson@wyo.gov	307-760-4440	11 BARRO LN, LARAMIE, 82072
3. Zack Koch	ZackKoch1@verizon.com	307-742-9251	123 S. Colorado Ave / Laramie
4. Bill Turner	WYBowhunter@gmail.com	(307) 760-8997	1517 Skelton Dr. Laramie
5. Buzz Hettrick	buzzandpat@msn.com	(307) 760-8683	1778 Eagle Crest CT / Laramie
6.			
7.			
8.			
9.			
10.			
11.			
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16.			
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18.			



Post Hunting Season Meeting
Cheyenne - Jan. 15, 2015

Please Sign In

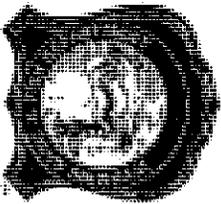
Name	Email	Phone	Mailing Address
1. Paul Wood	PRWood@gmail.com	630-7671	6030 Syracuse Rd 82009
2. Jim Mallon	JMS76@AOL.COM	635-1314	9115 Phillips Pl
3. Phoenix Burt		635-1314	6200 Ridge Rd
4. Brian Tanlie	briant1985@gmail.com	307-214-1071	1411 Gettysburg Drive
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			



Post Hunting Season Meeting
Cheyenne - Jan. 15, 2015

Please Sign In

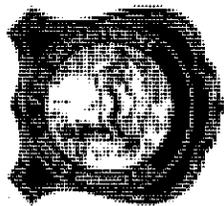
Name	Email	Phone	Mailing Address
1. Bruce Nelson	pot hook 641@yahoo.com	307 245 9276	1299 Hwy 215 Pine Bluffs
2. Jim Trussler	Jim Trussler@brennen.net	308-249-2348	3107 Arson Valley Rd Cheyenne 82001
3. Mike DeMartino	michael.demartino@billyfranchise.com	307-487-5211	7241 Fox Tail Rd Cheyenne 82009
4. Tony Rotherford	SEWING@WUXEXENATIC.COM	631-1418	1508 BARBERRY RIDGE CHEYENNE 82009
5. Neal Perkins	buglelike.ppl.com	307 286 3456	2415 Channell Dr Chey Wyo 82009
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Post Hunting Season Meeting
Cheyenne – Jan. 15, 2015

Please Sign In

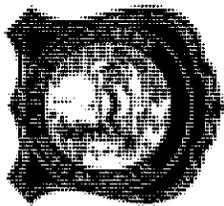
Name	Email	Phone	Mailing Address
1. G.D. EVANS	GANGETR@HOTMAIL	571 941 5587	6090 CR 212 FINE DUNERS
2. JEFF BEYER	jeff.beyer@wyo.gov	307-637-5378	7534 Legley Pleny CHEYENNE
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Post Hunting Season Meeting
Torrington – Jan. 12. 2015

Please Sign In

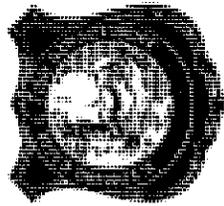
Name	Email	Phone	Mailing Address
1. Pat Pyle			
2. Larry Pyle			
3. Craig Marsh			
4. Bud Patterson	bud.patterson@gmail.com	307-620-1106	
5. Corey Steinmetz	cochece1998@ymail.com	307-534-5870	8498 cemetery Rd. Lyle WY 82223
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Post Hunting Season Meeting
Wheatland, Jan. 17, 2015

Please Sign In

Name	Email	Phone	Mailing Address
1. Myron Wankuri	wankuri@f.g.a.com	307 322 3220	3056 W Walnut Wheatland WY 82201
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Post Hunting Season Meeting
Hanna - Jan. 14, 2015

Please Sign In

Name	Email	Phone	Mailing Address
1. DAVID ZANCANELLA	vqlyturkey-101@yahoo.com	(307) 760-5306	4 York Ranch Rd Douglas
2. Robert Patton	bob.pattson@gmail.com	307 325-7848	Box 478 Hanna, 82325
3. Karen Patton	" "	" "	" " " "
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Wyoming Game and Fish Department
Season Setting and Chapter 23
Public Information Meeting/Open House
Sign-in Form

Date: March 23, 2015

Meeting Location: Wheatland

	NAME	CITY
1.	Freddie L Goetz	Wheatland Wyo
2.	Dale Widrich	Guernsey WY
3.	MAX Garner	Guernsey WY
4.	John Castle	Guernsey, WY
5.	KENT YARBROUGH	WHEATLAND, WYO
6.	Daryl Titrum	Wheatland WY
7.	Myron Clark	Wheatland
8.	Bob Wilson	Wheatland
9.	Jerry Loeffelheim	Wheatland
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**Wyoming Game and Fish Department
 Season Setting and Chapter 23
 Public Information Meeting/Open House
 Sign-in Form**



Date: March 23, 2015

Meeting Location: Wheatland

	NAME	CITY
1.	<i>Ray Lane</i>	
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**Wyoming Game and Fish Department
 Season Setting and Chapter 23
 Public Information Meeting/Open House
 Sign-in Form**



Page 1 of 2

Date: March 24, 2015

Meeting Location: Torrington

	NAME	CITY
1.	Larry Pyle	
2.	Pat Pyle	
3.	Dusty Southworth	
4.	Tom Southworth	
5.	Art Davis	Torrington
6.	Bud Peterson	Veteran
7.	Bob Fentsch	LITTLE WY.
8.	Timothy Barkman	Lingle WY
9.	ALAN BESKE	HAWK SPRINGS
10.	JOHN RINEHART	LaGrange
11.	Dennis Yost	Torrington
12.	Butch DVORAK	Torrington, WY
13.	Cory Rinehart	LaGrange
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**Wyoming Game and Fish Department
 Season Setting and Chapter 23
 Public Information Meeting/Open House
 Sign-in Form**



Page 2 of 2

Date: March 24, 2015

Meeting Location: Torrington

	NAME	CITY
1.	Pearl Dickens	Torrington
2.	AT Dickens	"
3.	Craig Marsh	Torrington
4.	Robert Glauk	Torrington
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Wyoming Game and Fish Department
 Season Setting and Chapter 23
 Public Information Meeting/Open House
 Sign-in Form



Date: March 26, 2015

Meeting Location: Cheyenne

	NAME	CITY
1.	HUFF DAVID J.	CHEYENNE,
2.	Dan Conrad	Cheyenne
3.	Neal Perkins	Cheyenne
4.	DAVID HAYS	Chey
5.	MARION RUPERT	chey
6.	JIM BURNEY	chey
7.	Don & Roy Stewart	Cheyenne
8.	Paul Wood	Cheyenne
9.	Scott Karban	Cheyenne
10.	JOSHUA KARBAN	Cheyenne
11.	Clay Rouse	Cheyenne
12.	Dale Critchfield	Cheyenne
13.	Dede Merklin	Cheyenne
14.	Kathy Berkis	Cheyenne
15.	Jim Fichten	Cheyenne
16.	Jeff Renner	Cheyenne
17.	Rick Miller	Cheyenne
18.	John Schubert	Cheyenne
19.	Don Magnuson	Eaton, Co
20.	STEVE ECKERT	Cheyenne
21.	Rim Lytle	Cheyenne
22.	Kelly Lytle	Cheyenne
23.	Kathleen Lytle	Cheyenne
24.	Charles Cwo	Cheyenne
25.	Brian Foster	Pine Bluffs

Wyoming Game and Fish Department
Season Setting and Chapter 23
Public Information Meeting/Open House
Sign-in Form



Date: March 26, 2015

Meeting Location: Cheyenne

	NAME	CITY
1.	Craig Oceanek	Cheyenne
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**Wyoming Game and Fish Department
 Season Setting and Chapter 23
 Public Information Meeting/Open House
 Sign-in Form**



Date: March 23, 2015

Meeting Location: Saratoga

	NAME	CITY
1.	Dave Sturm	Saratoga
2.	Darryl Lowry	Emery
3.		
4.	Will Ward	Saratoga
5.	PAT Rollison	SARATOGA
6.	Tim May	Inverness
7.	Randy Smith	Saratoga
8.	Bill Gaudesi	SARATOGA
9.	Mark Condit	SARATOGA
10.	Rob Pelt	Emery
11.	Scott Kerbs	Saratoga
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**Wyoming Game and Fish Department
 Season Setting and Chapter 23
 Public Information Meeting/Open House
 Sign-in Form**



Date: March 23, 2015

Meeting Location: Saratoga

	NAME	CITY
1.	Leonard Johnson	Saratoga
2.	Pat Malone	Saratoga
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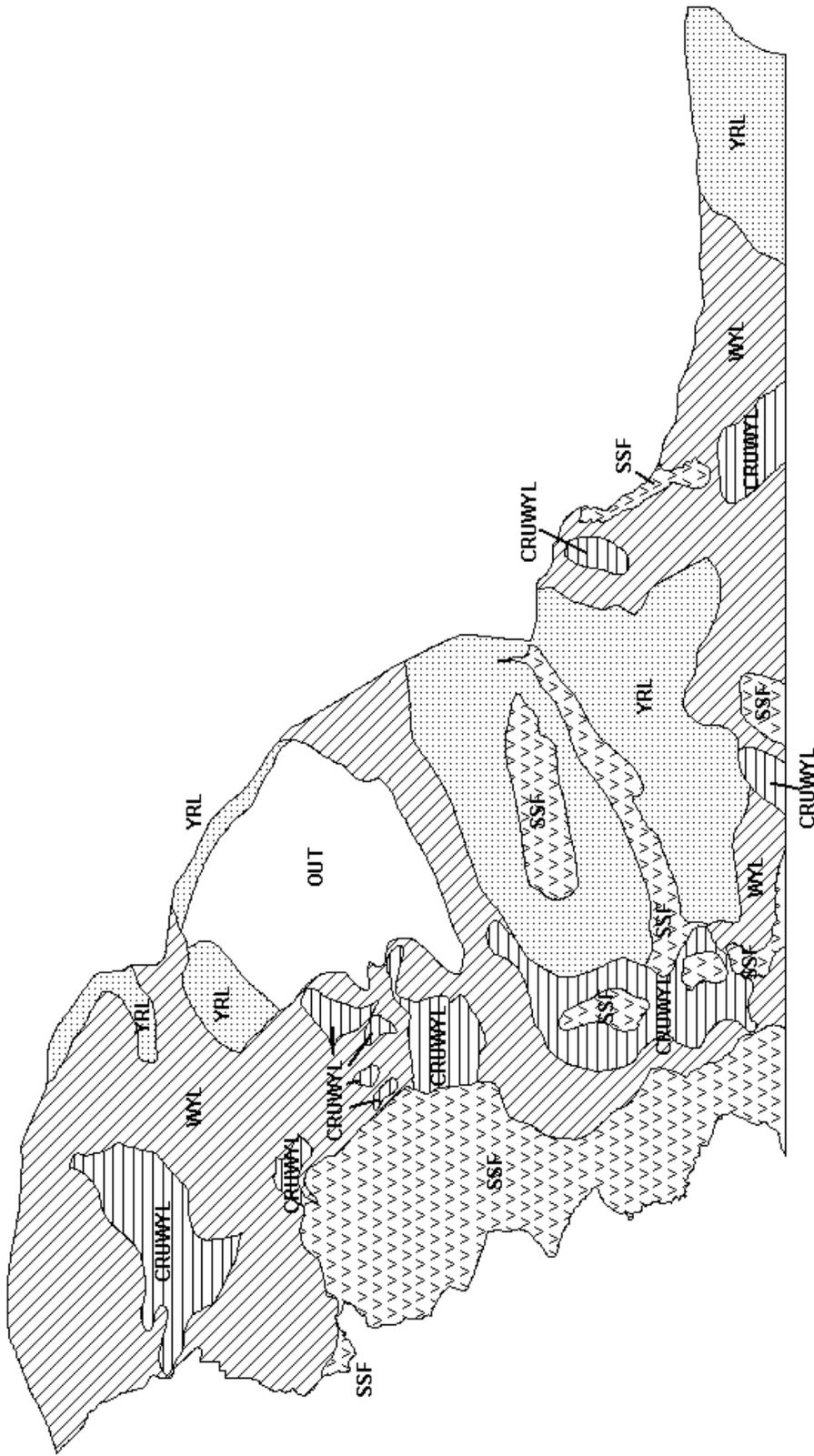
Wyoming Game and Fish Department
 Season Setting and Chapter 23
 Public Information Meeting/Open House
 Sign-in Form



Date: 3/26, 2015

Meeting Location: Laramie

	NAME	CITY
1.	Pete Kontaxos	Laramie WY
2.	Chris Wood	Laramie WY
3.	Alex May	Laramie WY
4.	Buzz Hefrick	Laramie WY
5.	ERIC ANDERSON	LARAMIE WY
6.	Michell Anderson	Laramie, WY
7.	DAVE MULLENIS	LARAMIE, WY
8.	Wade Roberts	Laramie, WY
9.	Tyler Sims	McFadden, WY
10.	Kelby Scott	Laramie WY
11.	RAY GAYSON	Boston, WY
12.	FERRY DAYTON	Laramie, WY
13.	Sidney Barker	Laramie WY
14.	Dick Naumann	Laramie WY
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Mule Deer (MD539) - Sheep Mountain
 HA 61, 74-77
 Revised - 8/88

2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD540 - SHIRLEY MOUNTAIN

HUNT AREAS: 70

PREPARED BY: WILL SCHULTZ

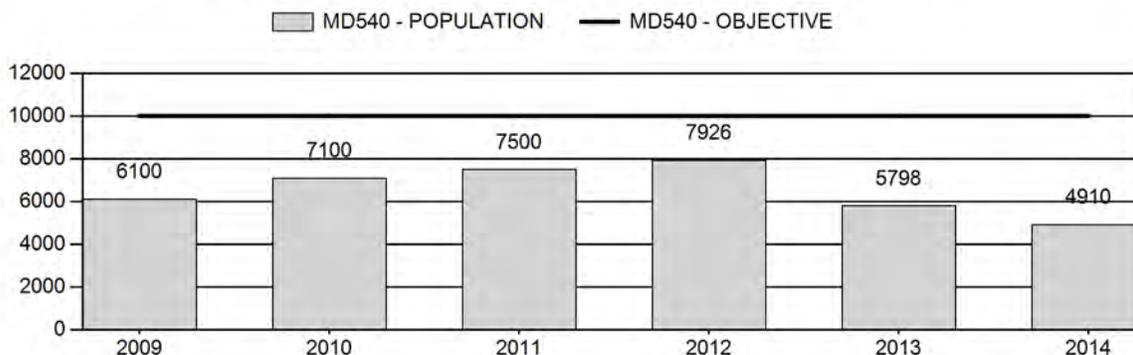
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	6,885	4,910	5,000
Harvest:	342	207	236
Hunters:	759	557	600
Hunter Success:	45%	37%	39%
Active Licenses:	769	567	600
Active License Success:	44%	37%	39%
Recreation Days:	3,042	2,134	2,134
Days Per Animal:	8.9	10.3	9.0
Males per 100 Females	28	30	
Juveniles per 100 Females	57	50	

Population Objective ($\pm 20\%$) :	10000 (8000 - 12000)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-50.9%
Number of years population has been + or - objective in recent trend:	20
Model Date:	5/11/2015

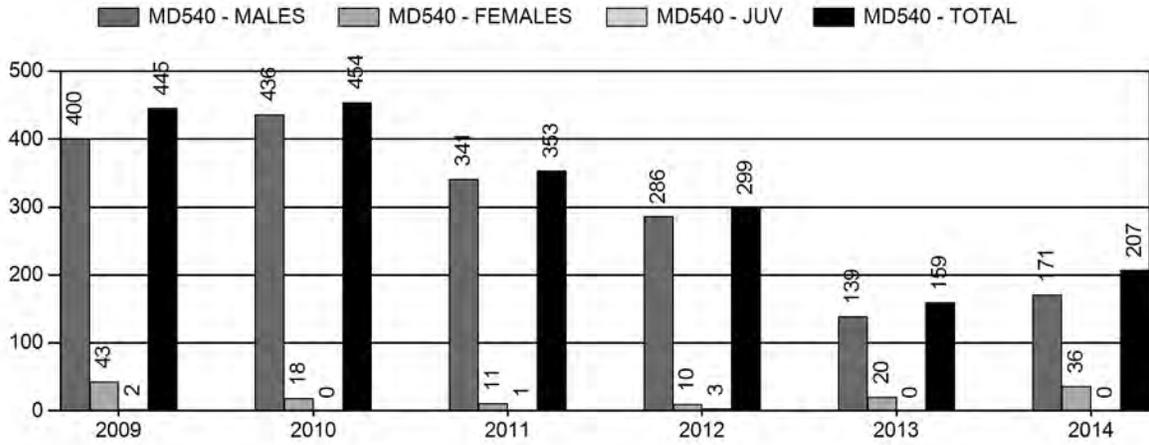
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.8%	1%
Males ≥ 1 year old:	22.7%	17%
Juveniles (< 1 year old):	0.2%	0%
Total:	4.4%	4%
Proposed change in post-season population:	-4.9%	1%

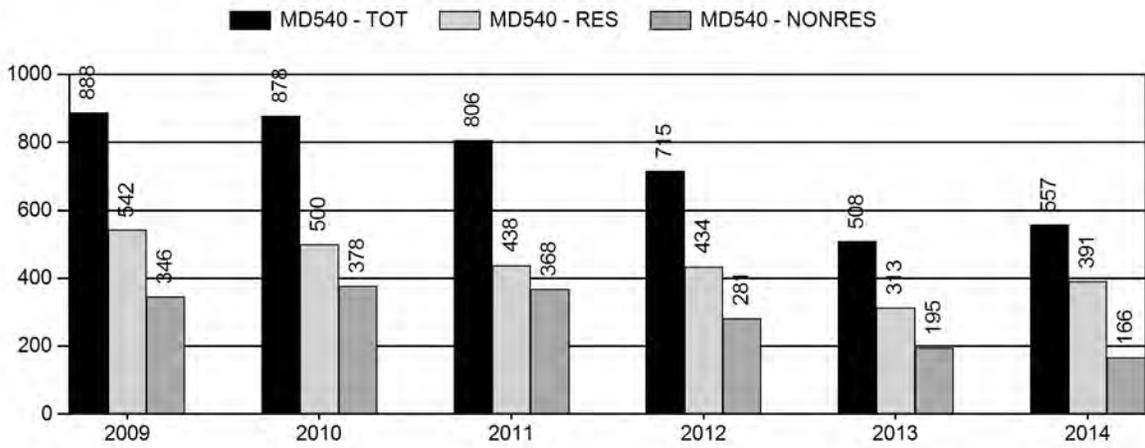
Population Size - Postseason



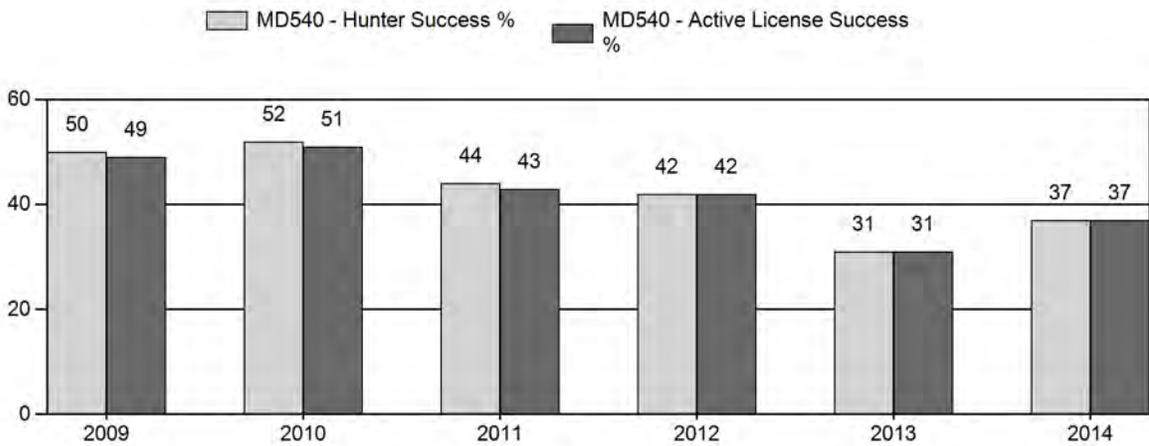
Harvest



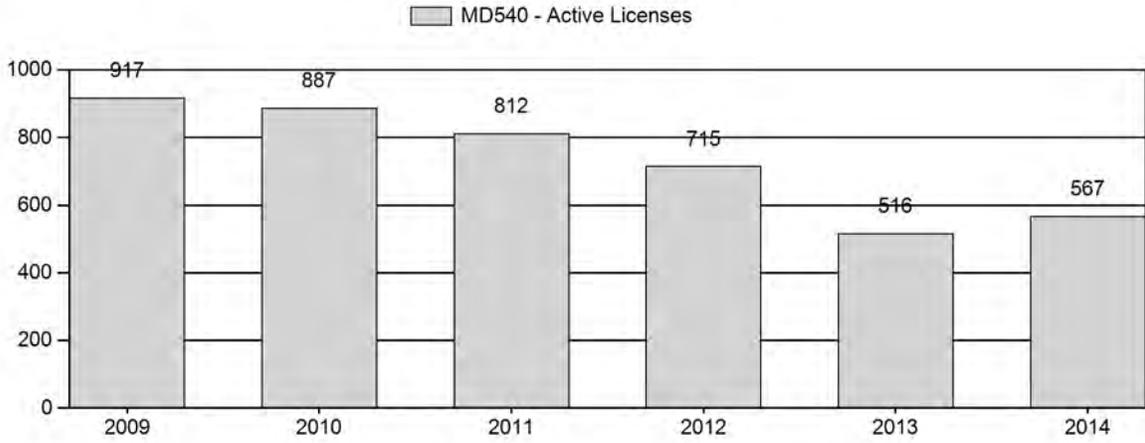
Number of Hunters



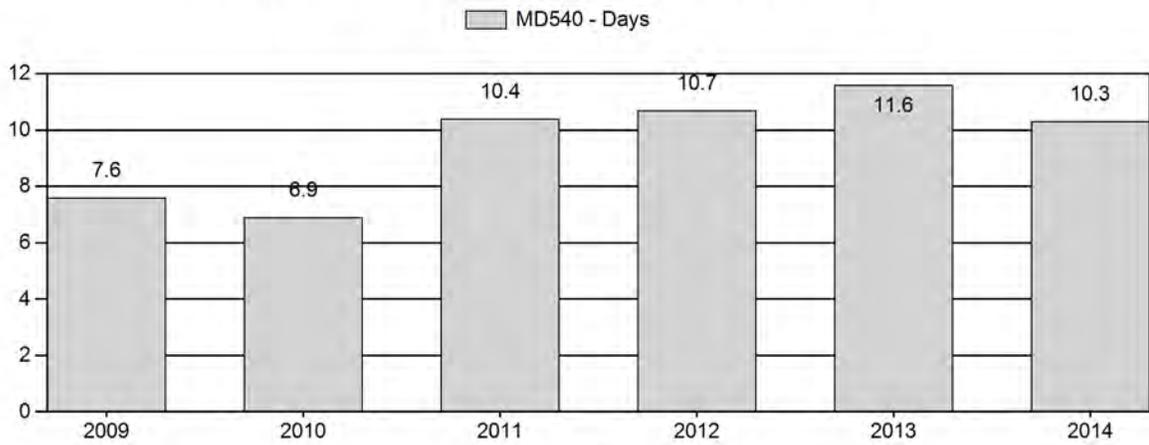
Harvest Success



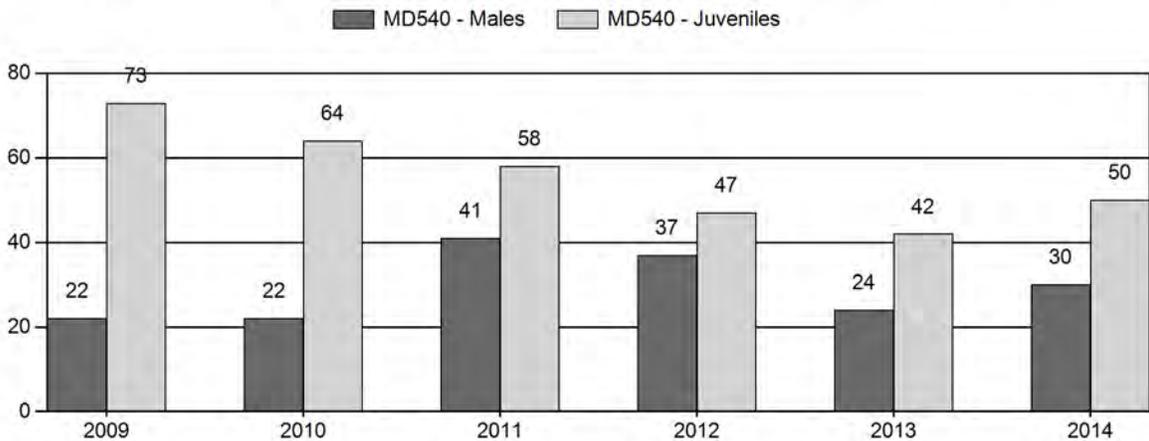
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD540 - SHIRLEY MOUNTAIN

Year	Post Pop	MALES								FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	2+ CIs 1	2+ CIs 2	2+ CIs 3	2+ UnCIs	Total	%	Total	%	Total	%	Ylg			Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult	
2009	6,100	10	0	0	0	38	48	11%	216	51%	157	37%	421	913	5	18	22	± 4	73	± 9	59	
2010	7,100	24	0	0	0	18	42	12%	190	54%	122	34%	354	958	13	9	22	± 5	64	± 9	53	
2011	7,500	29	0	0	0	37	66	20%	162	50%	94	29%	322	1,079	18	23	41	± 7	58	± 9	41	
2012	7,926	16	0	0	0	39	55	20%	149	54%	70	26%	274	1,033	11	26	37	± 7	47	± 9	34	
2013	5,798	26	0	0	0	32	58	14%	246	60%	103	25%	407	997	11	13	24	± 4	42	± 6	34	
2014	5,589	20	21	9	1	0	51	17%	170	56%	85	28%	306	915	12	18	30	± 6	50	± 8	38	

Shirley Mountain Mule Deer (MD540)
Hunt Area 70
2015 Hunting Seasons

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
70		Oct. 15	Oct. 21		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
	6	Oct. 15	Nov. 30	25	Limited quota	Doe or fawn valid on private land

Nonresident Region D Quota: 400

Hunt Area	Type	Quota change from 2014
Herd Unit Total		None

Management Evaluation

Current Management Objective: 10,000 (8,000-12,000)

Management Strategy: Recreational

2014 Postseason Population Estimate: 4,900

2015 Proposed Postseason Population Estimate: 5,000

2014 Hunter Satisfaction: 51% Satisfied, 22% Neutral, 27% Dissatisfied

Mule deer in the Shirley Mountain herd unit are managed toward a numeric objective of 10,000. The population was estimated using a spreadsheet model developed in 2012 and update in 2014. The herd is managed for recreational opportunity. The objective was reviewed in 2015 and the final proposal will be reviewed by the Game and Fish Commission in July of 2015.

Herd Unit Issues

The Shirley Mountain herd unit is comprised of a mixture of habitat and landownership types. Hunter access to public lands containing mule deer habitat is considered good. Small groups of mule deer are considered nuisances and create damage in a localized area on the west side of Shirley Mountain, along Lost and Sage Creeks. Trends in mule deer numbers are in decline while interest from both residents and nonresidents in hunting in this herd unit have increased over the past 5 years. Expansion of wind farms in the eastern half of this herd unit is eminent.

Weather

Weather in this herd unit was relatively normal during the past bio-year. Precipitation amounts were average, to slightly above average at all elevations throughout the herd unit. No significant prolonged periods of extreme heat or cold temperatures were observed or extreme snow loading in lower elevation winter ranges. Timing of precipitation and amounts received during key growth periods for cool season grasses and

preferred transitional range and winter range shrub species was excellent. Weather patterns most likely had a positive influence on mule deer. Mild fall temperatures and lack of persistent snows allowed for mule deer to spend greater amounts of time on summer and fall transition ranges providing additional relief for winter ranges that have historically been over utilized. For specific meteorological information for the Shirley Mountain herd unit the reviewer is referred to the following link: <http://www.ncdc.noaa.gov/cag/>

Habitat

Habitat conditions improved in 2014 with an increase in amounts of precipitation received and the timeliness of when it was received. Precipitation received in April and May resulted in excellent growth of cool season grasses and forbs, and above average leader growth on preferred key shrubs. 2012 has been recognized as one of the worst droughts on record, and annual growth of key forages monitored finally returned to levels seen prior to 2012. Utilization rates of key winter range shrubs documented in the spring of 2014 was within acceptable use limits in most areas. Shrub habitats receiving treatments thru prescribed fire or mowing continue to outperform areas not receiving treatment from an overall production standpoint.

The limited number of habitat transects that have been established throughout the Laramie Region have not provided sufficient data to make reliable assumptions of habitat quantity or quality and consequently heavily influence population management for any particular big game specie. The vast majority of shrub habitats are still in need of treatment to improve nutritive content and overall leader production potential.

Shrub communities within the Laramie Region that are annually assessed by game wardens, wildlife biologists, and terrestrial habitat biologists, include: true mountain mahogany, antelope bitterbrush, skunk brush sumac, big sagebrush, and four-wing saltbush. A majority of these transects were established approximately 12–13 years ago. Transects were established for several different reasons, including: measuring habitat response prior to or following treatments (i.e. prescribed fire, wildfire, mowing), concern over historic or current domestic livestock or wild ungulate utilization levels, selection of, “Representative habitats,” utilized by wildlife on identified winter ranges, and to compare present results with historic data sets.

Field Data

2014 Postseason classifications were conducted from the ground in late November. A less than adequate sample size (n=306) was 25% lower than the 2013 sample size. Yearling buck ratios increased by 1 buck to 12/100 does. However, a significant increase in the yearling buck ratios usually observed after the implementation of a 3-points or more on either antler limitation has not been realized in this herd unit. The adult buck ratio increased 28% in 2014 to 18/100 does. The overall buck ratios increased from 26/100 does in 2013 to 30/100 does in 2014. This increase was attributed to reducing the nonresident Region D quota in 2014.

Fawn ratios increased from 42/100 does in 2013, which was the lowest fawn ratio observed during the past 25 years, to 50/100 does in 2014. This increase was attributed to mild winter conditions experienced by pregnant does and timely spring and summer precipitation which resulted in improved nutrition for lactating does. However, the observed fawn ratio was below the trend for this herd unit and did not result in an increased population estimate for 2014.

Harvest Data

Overall, harvest and satisfaction rates increased in 2014. This marked the second year of the 3-points or more on either antler limitation in this herd unit. The antler point restriction was implemented as an additional protection specifically for yearling bucks. General season lengths had already been incrementally reduced to the current 7-day season during previous years to protect overall buck numbers. The final 2014 WGFD deer harvest survey report indicated 557 active general licensed hunters' harvested 207 mule deer for an overall success rate of 37%. General season buck harvest increased 18% and hunter numbers increased 10%, as compared with the 2013 hunting season statistics. The percentage of hunters with harvest survey satisfaction ratings of satisfied, or very satisfied, increased 10% to 51% in 2014.

Population

In 2014, we selected to use the TSJ,CA model. Although the TSJ,CA model had the highest AICc score at 142, when compared with the CJ,CA, and SCJ, SCA model scores, (95 and 91 respectively), it allowed for better alignment of the predicted buck ratios with the observed buck ratios. It also produced the lowest and most biologically plausible postseason population estimate for 2014. The TSJ,CA models tend to simulate mule deer population dynamics better than the other models because fawn survival rates are allowed to fluctuate on an annual basis with great variability, similar to survival rates that have been documented in numerous investigations (Andy Holland, Colorado Division of Parks & Wildlife, pers. comm.). We also incorporated 3 abundance estimates into this model (Strickland, et. al 1994).

We rated this model as poor, and not biologically defensible. This rating was based on criteria identified in the user's guide for the WGFD spreadsheet model, and primarily due to less than adequate sample sizes for postseason classification counts (Morrison 2012).

This herd unit is considered to contain significantly less mule than the spreadsheet models estimate. Given the openness of the landscape, and well defined herd unit boundaries, we consider the observed harvest rates and classification sample sizes were not representative of a population estimated at this magnitude. The declining trend depicted in the spreadsheet model's population estimates does appear to be representative of the observed mule deer abundance in this herd unit. Without other information such as a recent independent population estimate or long-term survival data to incorporate into the models, accuracy of estimates will continue to be unknown.

Management Summary

The 2015 hunting season included a 7-day General season for antlered mule deer, 3 points or more on either antler, or any white-tailed deer hunting. The point restriction continued to provide protection for yearling buck mule deer. Type 6, private land doe or fawn licenses were prescribed to reduce damage and nuisance deer issues in the Lost and Sage Creek areas.

The Region D nonresident quota was retained at 400 licenses to align hunter opportunity with the current mule deer resource. This will also improve hunter satisfaction for both nonresidents and resident hunters alike.

Literature Cited

Morrison, T. 2012. User Guide: Spreadsheet Model for Ungulate Population data. Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie. USA. 41 pp.

Bibliography of Herd Specific Studies

McDaniel G. W., F. G. Lindzey. 1991. Seasonal Movements, Population Characteristics and Habitat Use of Mule Deer in the Shirley Mountain Area, Central Wyoming. Wyoming Cooperative Fishery and Wildlife Research Unit. University of Wyoming, Laramie. 64 pp.

Strickland, D., L.L. McDonald, G. Johnson, W. Erickson, D. Young Jr., and J. Kern. 1994. An Evaluation of Mule Deer Classifications From Helicopter and Ground Surveys. Western Ecosystems Technology, Inc. Cheyenne. 61pp.

INPUT	
Species:	MULE DEER
Biologist:	SCHULTZ
Herd Unit & No.:	SHIRLEY MD540
Model date:	5/11/2015

Clear form

MODELS SUMMARY			Relative AICc	Fit	Notes
C,J,CA	Constant Juvenile & Adult Survival	97	106		
SC,J,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	97	106	<input type="checkbox"/> C,J,CA Model <input type="checkbox"/> SC,J,SCA Mod	
TS,J,CA	Time-Specific Juvenile & Constant Adult Survival	36	142	<input checked="" type="checkbox"/> TS,J,CA Model	

Check best model to create report

Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population		Predicted Posthunt Population		Total	Objective		
	Field Est	Field SE		Juveniles	Total Males	Females	Total			Juveniles	Total Males
1991	7991	1552	2364	1646	3454	7464	2350	998	3229	6578	10,000
1992	5796	1959	1719	1699	3585	7003	1660	963	3026	5649	10,000
1993	4540	1075	742	1146	2889	4778	692	586	2290	3568	10,000
1994			1175	772	2212	4159	1175	448	2212	3834	10,000
1995			1591	613	2104	4309	1591	387	2104	4082	10,000
1996			1464	645	2087	4205	1464	395	2097	3956	10,000
1997			1307	801	2239	4347	1307	627	2239	4173	10,000
1998			1415	802	2165	4383	1415	597	2165	4177	10,000
1999			1335	912	2237	4484	1335	531	2237	4104	10,000
2000			1487	983	2425	4895	1487	653	2425	4565	10,000
2001			1196	849	2347	4392	1196	481	2347	4023	10,000
2002			1675	885	2462	5022	1675	570	2462	4707	10,000
2003			1656	928	2527	5111	1656	581	2527	4764	10,000
2004			1705	900	2545	5150	1705	601	2545	4851	10,000
2005			1314	1190	2833	5336	1311	817	2804	4933	10,000
2006			1558	1215	2895	5668	1555	810	2846	5211	10,000
2007			1735	1307	3028	6069	1730	745	2968	5443	10,000
2008			1797	1296	3175	6268	1787	914	3102	5804	10,000
2009			2134	1130	2980	6243	2131	690	2932	5754	10,000
2010			1948	1159	3054	6162	1948	679	3034	5662	10,000
2011			1934	1354	3344	6632	1933	979	3332	6244	10,000
2012			1503	1214	3203	5919	1499	894	3192	5585	10,000
2013			1246	1055	2997	5298	1246	902	2975	5123	10,000
2014			1362	1012	2764	5138	1362	824	2724	4910	10,000
2015			1357	1147	2753	5257	1357	927	2714	4997	10,000
2016											10,000
2017											10,000
2018											10,000
2019											10,000
2020											10,000
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2023											10,000

Survival and Initial Population Estimates

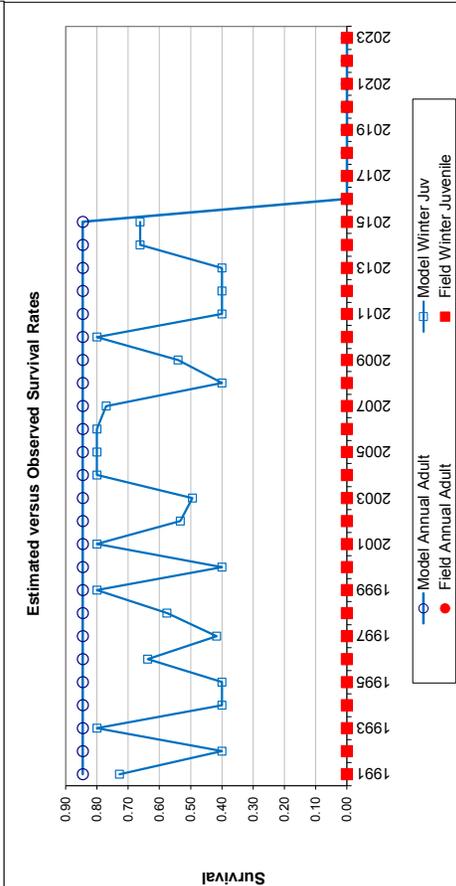
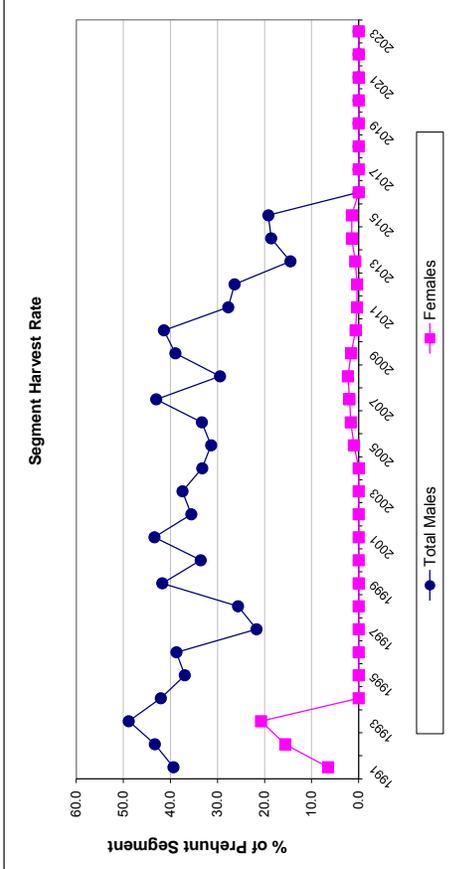
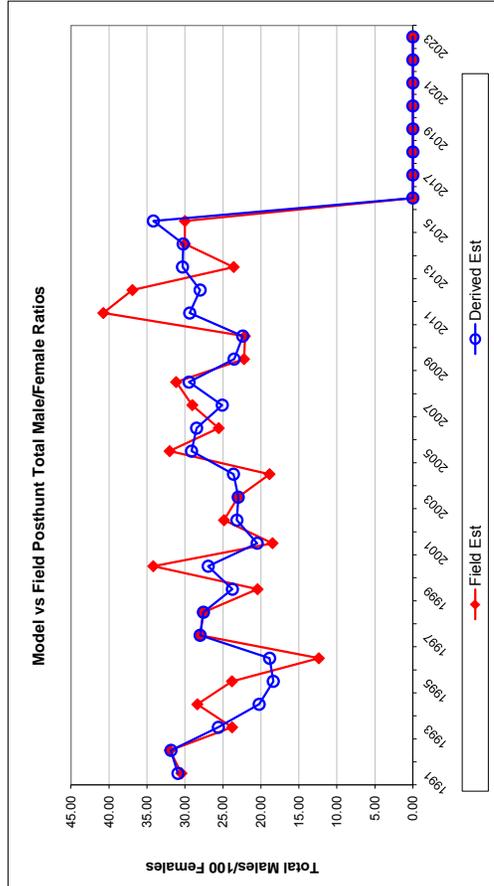
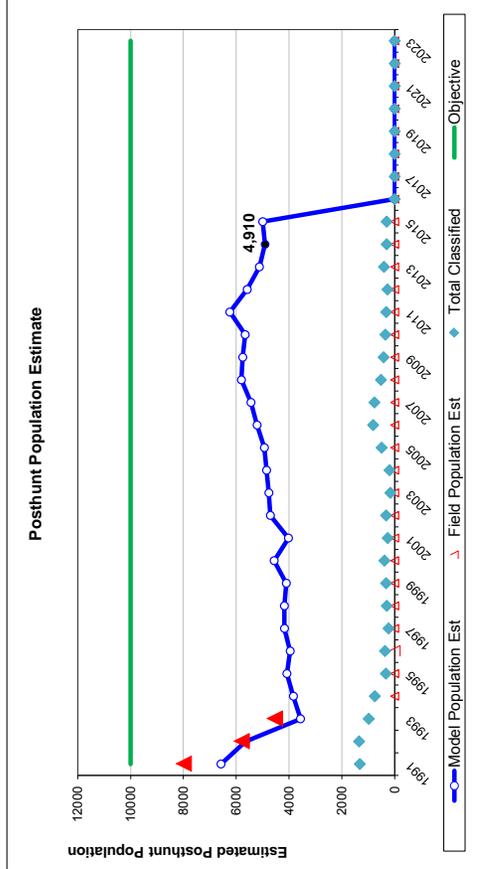
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est.	Field Est. SE	Model Est.	Field Est. SE
1991	0.73		0.85	
1992	0.40		0.85	
1993	0.80		0.85	
1994	0.40		0.85	
1995	0.40		0.85	
1996	0.64		0.85	
1997	0.42		0.85	
1998	0.58		0.85	
1999	0.80		0.85	
2000	0.40		0.85	
2001	0.80		0.85	
2002	0.53		0.85	
2003	0.49		0.85	
2004	0.80		0.85	
2005	0.80		0.85	
2006	0.80		0.85	
2007	0.77		0.85	
2008	0.40		0.85	
2009	0.54		0.85	
2010	0.80		0.85	
2011	0.40		0.85	
2012	0.40		0.85	
2013	0.40		0.85	
2014	0.66		0.85	
2015	0.66		0.85	
2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				

Parameters:	Optim cells
Adult Survival =	0.845
Initial Total Male Pop/10,000 =	0.100
Initial Female Pop/10,000 =	0.323

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		
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/o bull adj	Field SE					Total Males	Females	
1991		72.77	4.40	30.92	30.46	2.47	13	559	204	806	39.4	6.5	
1992		54.85	3.43	31.83	31.99	2.42	54	669	508	1231	43.3	15.6	
1993		30.20	2.48	25.60	23.79	2.15	46	509	545	1100	48.9	20.7	
1994		53.13	4.42	20.23	28.37	2.96	0	295	0	295	42.0	0.0	
1995		75.60	8.89	18.37	23.81	4.19	0	206	0	206	37.0	0.0	
1996		69.60	7.66	18.85	12.38	2.62	0	227	0	227	38.7	0.0	
1997		58.40	8.60	28.00	28.00	5.35	0	158	0	158	21.7	0.0	
1998		65.38	8.33	27.57	27.56	4.75	0	187	0	187	25.6	0.0	
1999		59.67	7.26	23.75	20.44	3.69	0	346	0	346	41.7	0.0	
2000		61.31	7.05	26.94	34.17	4.80	0	300	0	300	33.6	0.0	
2001		50.96	7.00	20.49	18.47	3.73	0	335	0	335	43.4	0.0	
2002		68.05	8.23	23.16	24.85	4.28	0	286	0	286	35.6	0.0	
2003		65.52	11.16	22.99	22.99	5.70	0	316	0	316	37.4	0.0	
2004		66.98	10.27	23.61	18.87	4.60	0	272	0	272	33.2	0.0	
2005		46.76	4.97	29.13	32.01	3.90	2	339	26	367	31.3	1.0	
2006		54.63	4.31	28.46	25.55	2.66	3	368	44	415	33.3	1.7	
2007		58.29	4.74	25.09	29.02	3.02	4	511	54	569	43.0	2.0	
2008		57.61	5.74	29.46	31.16	3.85	9	347	66	422	29.5	2.3	
2009		72.69	7.62	23.53	22.22	3.55	2	400	43	445	38.9	1.6	
2010		64.21	7.45	22.39	22.11	3.77	0	436	18	454	41.4	0.6	
2011		58.02	7.52	29.37	40.74	5.95	1	341	11	353	27.7	0.4	
2012		46.98	6.81	28.00	36.91	5.82	3	291	10	304	26.4	0.3	
2013		41.87	4.91	30.32	23.58	3.44	0	139	20	159	14.5	0.7	
2014		50.00	6.64	30.23	30.00	4.79	0	171	36	207	18.6	1.4	
2015		50.00	6.64	34.16	30.00	4.79	0	200	36	236	19.2	1.4	
2016													
2017													
2018													
2019													
2020													
2021													
2022													
2023													

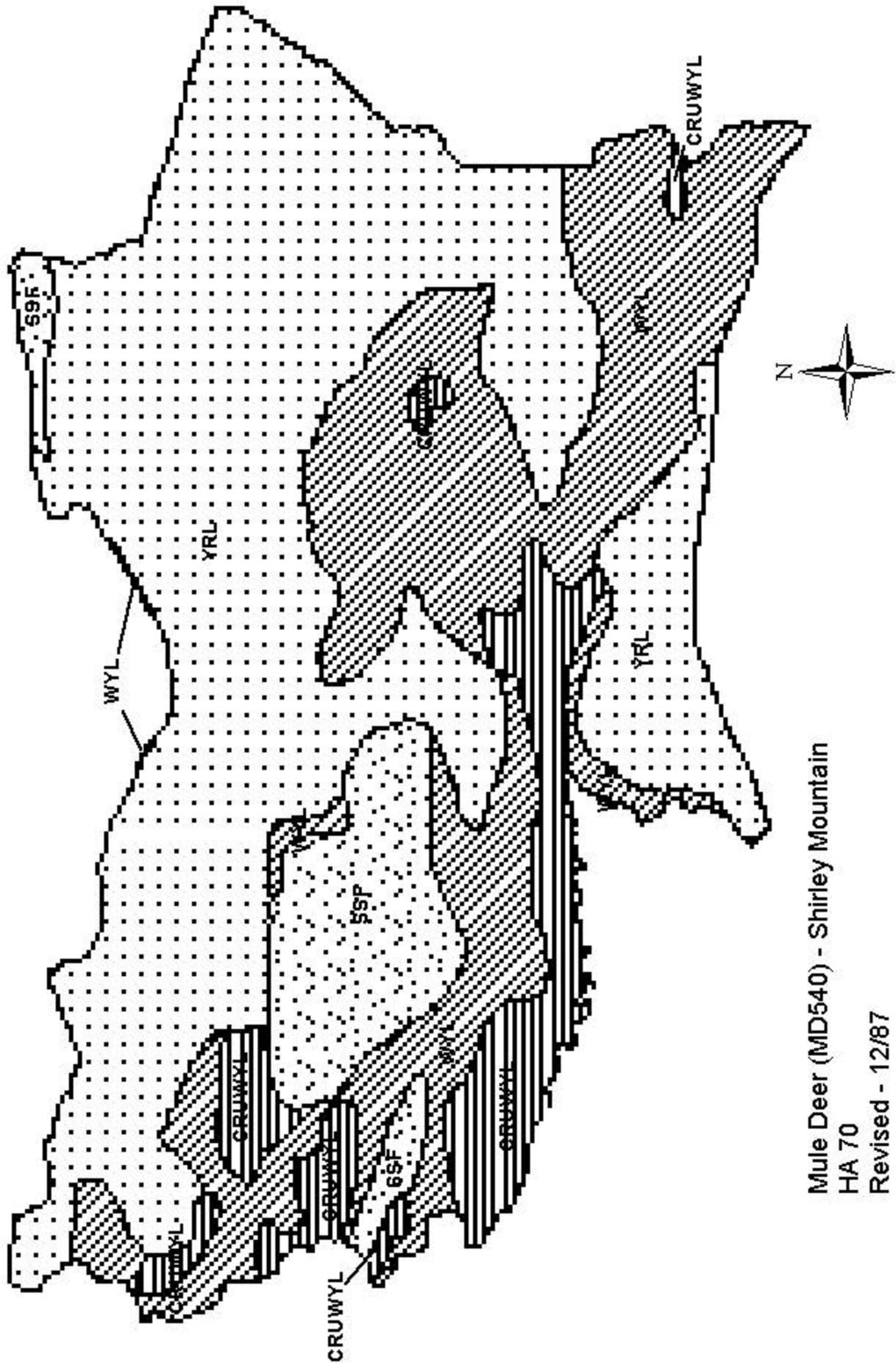
FIGURES



Comments:

Source of 1991-1993 abundance estimates: Strickland, D., L.L. McDonald, G. Johnson, W. Erickson, D. Young Jr., and J. Kern. 1994. An Evaluation of Mule Deer Classifications From Helicopter and Ground Surveys. Western Ecosystems Technology, Inc. Cheyenne. 61pp.

END



Mule Deer (MD540) - Shirley Mountain
 HA 70
 Revised - 12/87

2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD541 - PLATTE VALLEY

HUNT AREAS: 78-81, 83, 161

PREPARED BY: WILL SCHULTZ

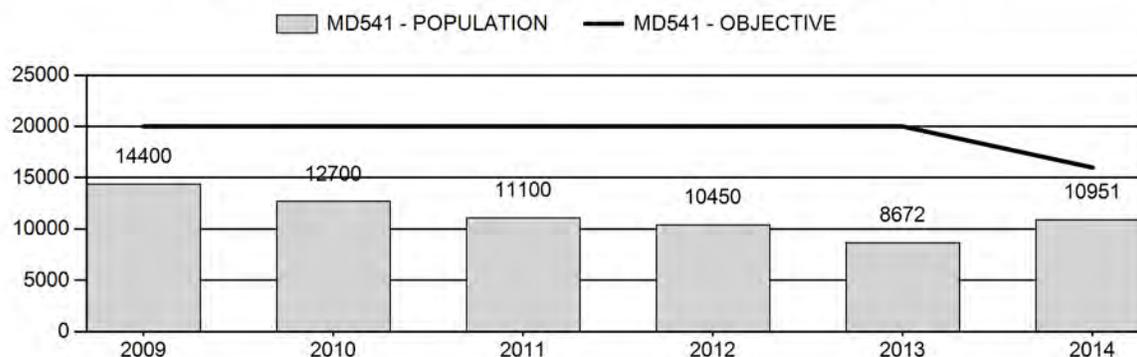
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	11,464	10,951	10,981
Harvest:	687	528	528
Hunters:	2,371	934	934
Hunter Success:	29%	57%	57 %
Active Licenses:	2,413	934	934
Active License Success:	28%	57%	57 %
Recreation Days:	12,876	5,388	5,388
Days Per Animal:	18.7	10.2	10.2
Males per 100 Females	28	36	
Juveniles per 100 Females	55	63	

Population Objective (± 20%) :	16000 (12800 - 19200)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-31.6%
Number of years population has been + or - objective in recent trend:	8
Model Date:	2/19/2015

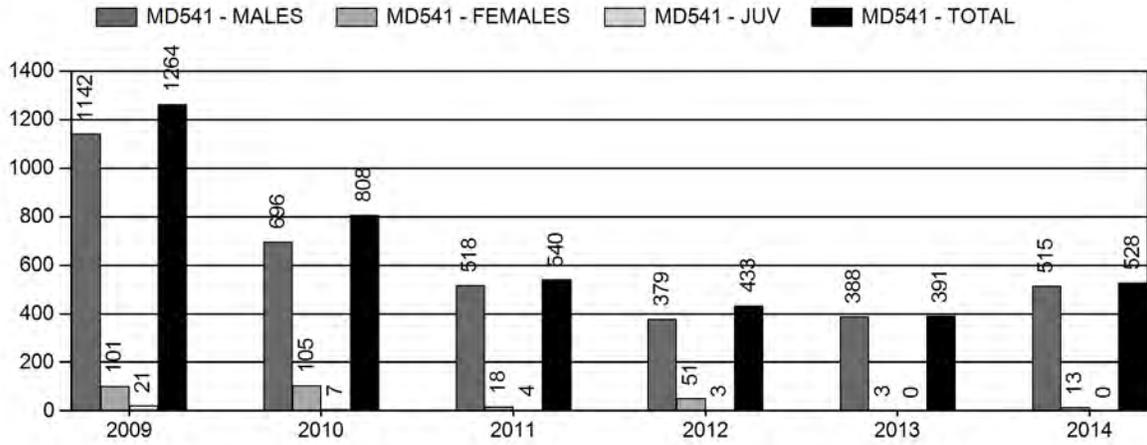
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.1%	0.1%
Males ≥ 1 year old:	26.4%	19%
Juveniles (< 1 year old):	0%	0%
Total:	4.6%	5%
Proposed change in post-season population:	-5.1%	0.03%

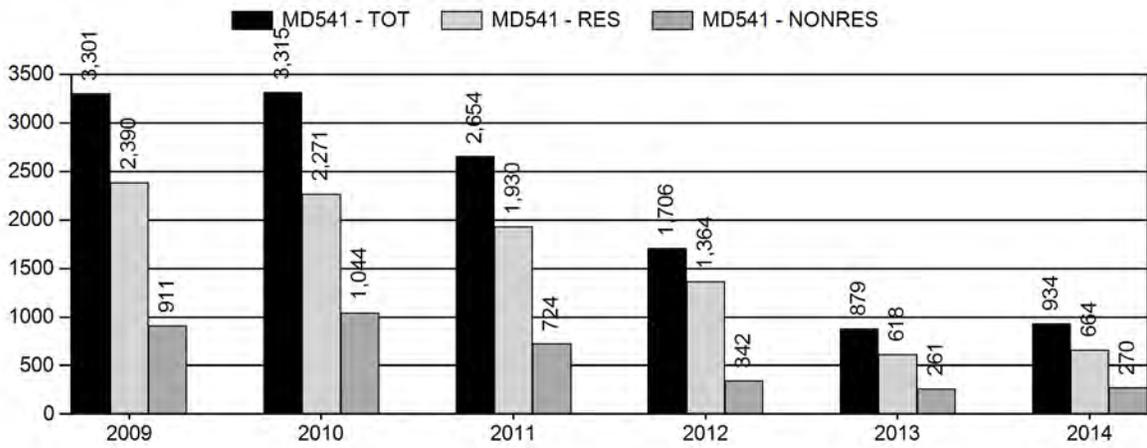
Population Size - Postseason



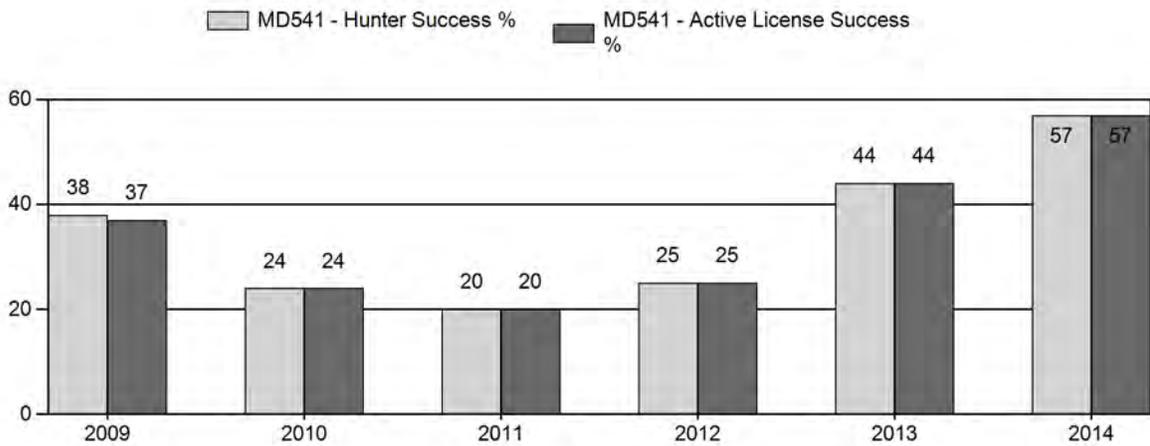
Harvest



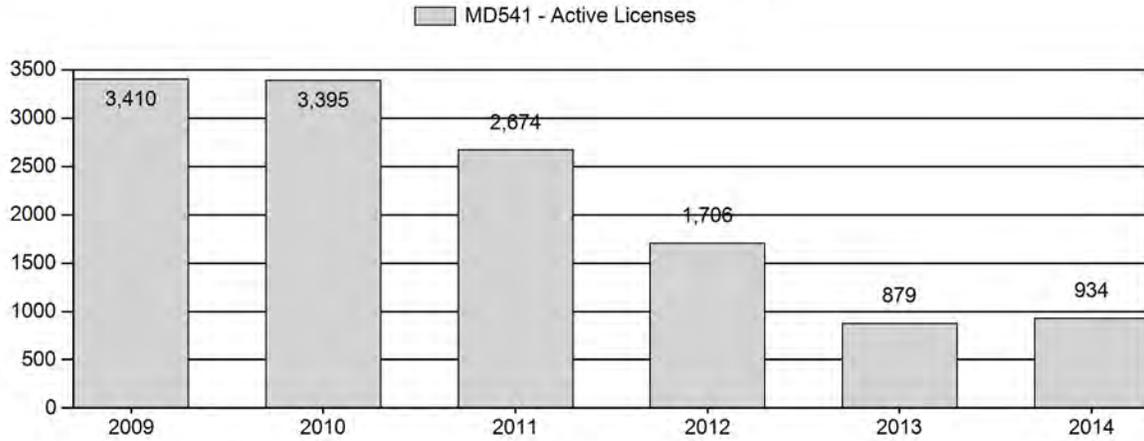
Number of Hunters



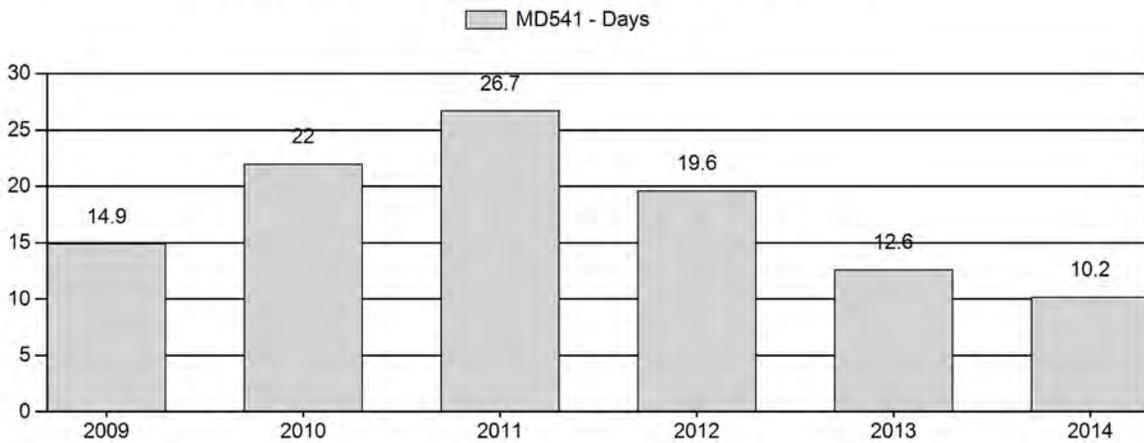
Harvest Success



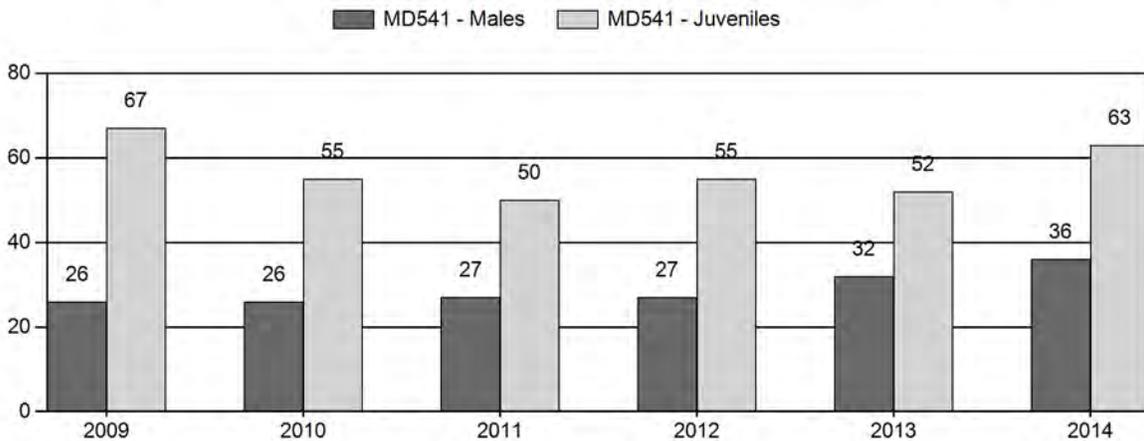
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD541 - PLATTE VALLEY

Year	Post Pop	MALES								FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	2+ CIs 1	2+ CIs 2	2+ CIs 3	UnCIs	Total	%	Total	%	Total	%	Ylng			Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult	
2009	14,400	65	0	0	0	207	272	13%	1,047	52%	700	35%	2,019	1,053	6	20	26	± 2	67	± 4	53	
2010	12,700	111	0	0	0	222	333	14%	1,265	55%	701	30%	2,299	1,094	9	18	26	± 2	55	± 3	44	
2011	11,100	125	0	0	0	392	517	15%	1,895	56%	947	28%	3,359	999	7	21	27	± 1	50	± 2	39	
2012	10,450	70	0	0	0	143	213	15%	794	55%	438	30%	1,445	980	9	18	27	± 2	55	± 4	43	
2013	8,672	136	0	0	0	209	345	17%	1,092	55%	565	28%	2,002	937	12	19	32	± 2	52	± 3	39	
2014	10,951	85	549	448	151	0	319	18%	888	50%	560	32%	1,767	964	10	26	36	± 3	63	± 4	46	

**Platte Valley Mule Deer (MD541)
Hunt Areas 78-81, 83 & 161
2015 Hunting Seasons**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
78	1	Oct. 1	Oct. 14	300	Limited quota	Antlered mule deer or any white-tailed deer
79	1	Oct. 1	Oct. 14	300	Limited quota	Antlered mule deer or any white
80, 83	1	Oct. 1	Oct. 14	200	Limited quota	Antlered mule deer or any white
81	1	Oct. 1	Oct. 14	200	Limited quota	Antlered mule deer or any white
161	1	Oct. 1	Oct. 14	25	Limited quota	Antlered mule deer or any white

Hunt Area	Type	Quota change from 2014
Herd Unit Total		None

Management Evaluation

Current Management Objective: 16,000 (12,800 – 19,200)

Management Strategy: Recreational

2014 Postseason Population Estimate: 11,000

2015 Proposed Postseason Population Estimate: 11,000

2014 Hunter Satisfaction: 62% Satisfied, 21% Neutral, 17% Dissatisfied

Mule deer in the Platte Valley herd unit are managed toward a numeric objective of 16,000. The population was estimated using a spreadsheet model developed in 2012 and updated in 2014. The herd is managed for recreation opportunity. The objective was reviewed in 2014 and reduced to a postseason population estimate of 16,000 mule deer (Appendix A).

Herd Unit Issues

Fieldwork for several Platte Valley Habitat Partnership projects was initiated during this past year in this herd unit. The University of Wyoming Cooperative Unit continued to analyze data from the Platte Valley sightability survey evaluation and telemetry projects. A meeting was held in February, in Saratoga, to update the public about Platte Valley Mule Deer Mule Deer Plan accomplishments.

Efforts to reduce predators of mule deer in the Platte Valley were continued during this period. Carbon County Predator Management District completed the second year of a 3-year coyote removal project.

Weather

Weather in this herd unit was relatively normal during the past bio-year. Precipitation amounts were average, to slightly above average at all elevations throughout the herd unit. No significant prolonged periods of extreme heat or cold temperatures were observed or extreme snow loading in lower elevation winter ranges. Timing of precipitation and amounts received during key growth periods for cool season grasses and preferred transitional range and winter range shrub species was excellent. Weather patterns most likely had a positive influence on mule deer. Mild fall temperatures and lack of persistent snows allowed for mule deer to spend greater amounts of time on summer and fall transition ranges providing additional relief for winter ranges that have historically been over utilized. For specific meteorological information for the Platte Valley herd unit the reviewer is referred to the following link: <http://www.ncdc.noaa.gov/cag/>

Habitat

Habitat conditions improved in 2014 with an increase in amounts of precipitation received and the timeliness of when it was received. Precipitation received in April and May resulted in excellent growth of cool season grasses and forbs, and above average leader growth on preferred key shrubs. 2012 has been recognized as one of the worst droughts on record, and annual growth of key forages monitored finally returned to levels seen prior to 2012. Utilization rates of key winter range shrubs documented in the spring of 2014 was within acceptable use limits in most areas. Shrub habitats receiving treatments thru prescribed fire or mowing continue to outperform areas not receiving treatment from an overall production standpoint.

The limited number of habitat transects that have been established throughout the Laramie Region have not provided sufficient data to make reliable assumptions of habitat quantity or quality and consequently heavily influence population management for any particular big game specie. The vast majority of shrub habitats are still in need of treatment to improve nutritive content and overall leader production potential.

Shrub communities within the Laramie Region that are annually assessed by game wardens, wildlife biologists, and terrestrial habitat biologists, include: true mountain mahogany, antelope bitterbrush, skunk brush sumac, big sagebrush, and four-wing saltbush. A majority of these transects were established approximately 12–13 years ago. Transects were established for several different reasons, including: measuring habitat response prior to or following treatments (i.e. prescribed fire, wildfire, mowing), concern over historic or current domestic livestock or wild ungulate utilization levels, selection of, “Representative habitats,” utilized by wildlife on identified winter ranges, and to compare present results with historic data sets.

Field Data

The 2013 Platte Valley Herd Unit postseason classification ratios were 36 bucks and 63 fawns/100 does; based on an adequate sample of 1,767 mule deer. The buck ratio increased 11% in 2014. This increase was attributed to the combination of both a conservative limited quota hunting season and greater over winter survival than in recent years. The observed fawn ratio at 63 fawns/100 does was 17% greater than the previous year. A mild winter and timely precipitation contributed to providing improved habitat conditions and increased nutrition for mule deer.

Harvest Data

2014 marked the second year for limited quota hunting in the Platte Valley herd unit. Each hunt area was prescribed a license quota specific to that hunt area. The same quotas from 2013 were retained in 2014 as they had permitted harvest success to attain the PVMDI Mule Deer Plan goal of at least 40%. A total of 934 active licensed hunters harvested 515 bucks and 13 does. Overall harvest success increased from 44% in 2013 to 57% in 2014 and buck harvest increased 11% to 55%. Similarly to the 2013 harvest rate, the 2014 harvest rate was attributed to the increased survival rates, a season length of 14-days, and perhaps most importantly, a reasonable alignment of hunter numbers with the current mule deer resource. The increased harvest success rate translated into an increase in the number hunters who selected a harvest survey satisfaction rating of satisfied, or very satisfied. Hunter satisfaction increased from 57% in 2013, to 62% in 2014.

Harvest rates of yearling bucks increased in 2014. Yearling bucks made up 26% of the buck harvest. This was an increase of 14% over 2013. Field checked harvest data from previous years indicated on average, greater than 25% of the buck harvest consisted of yearling bucks. The increased number of yearling bucks observed in 2014 harvest was attributed to more yearlings being conspicuously available due to increased survival for the 2013 fawn cohort due to the mild over-winter conditions.

Population

We continued the use of the TSJ,CA spreadsheet model in 2014. This model provided the balance of allowing juvenile survival rates to be optimized for alignment with observed population dynamics, while maintaining a constant survival rate for adult mule deer in model simulations. The TSJ,CA model also offered the best AICc score of the suite of spreadsheet models. TSJ,CA model aligned very well with abundance estimates for this herd unit and corroborated with the observations from field managers and the public.

We rated this model as fair, and biologically defensible in our evaluation. This rating was based on criteria identified in the user's guide for the WGFD spreadsheet model (Morrison 2012).

Management Summary

In 2015, the limited quota licenses numbers and season length will remain the same as in 2014. This hunting season framework will continue to support the goals identified in the Platte Valley Mule Deer Plan. Overall, hunters and other stakeholders appear to be very satisfied with the improvements we have made in mule deer management in this herd unit. Predator management and habitat improvement projects will also continue in 2015 as means to improve and sustain mule deer and their habitat in the Platte Valley herd unit. In 2016, we will conduct an in depth collaborative review and analysis of the Platte Valley Mule Deer Plan, including the limited quota hunting season framework.

Literature Cited

Morrison, T. 2012. User Guide: Spreadsheet Model for Ungulate Population data Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie. USA. 41 pp.

Bibliography of Herd Specific Studies

Newman, J. 1968. Deer Distribution and Movement Studies. Final Report. Wyoming Game and Fish Department, Cheyenne.

Strickland, M. D. 1975. An investigation of the factors affecting the management of a migratory mule deer herd in southeastern Wyoming – the Snowy Range. Ph.D. Dissertation, University of Wyoming, Laramie. 171 pp.

Yost, J. 2009. North Park Deer Movement and Distribution Study Update - March, 2009. Colorado Division of Wildlife, Steamboat Springs. 4 pp.

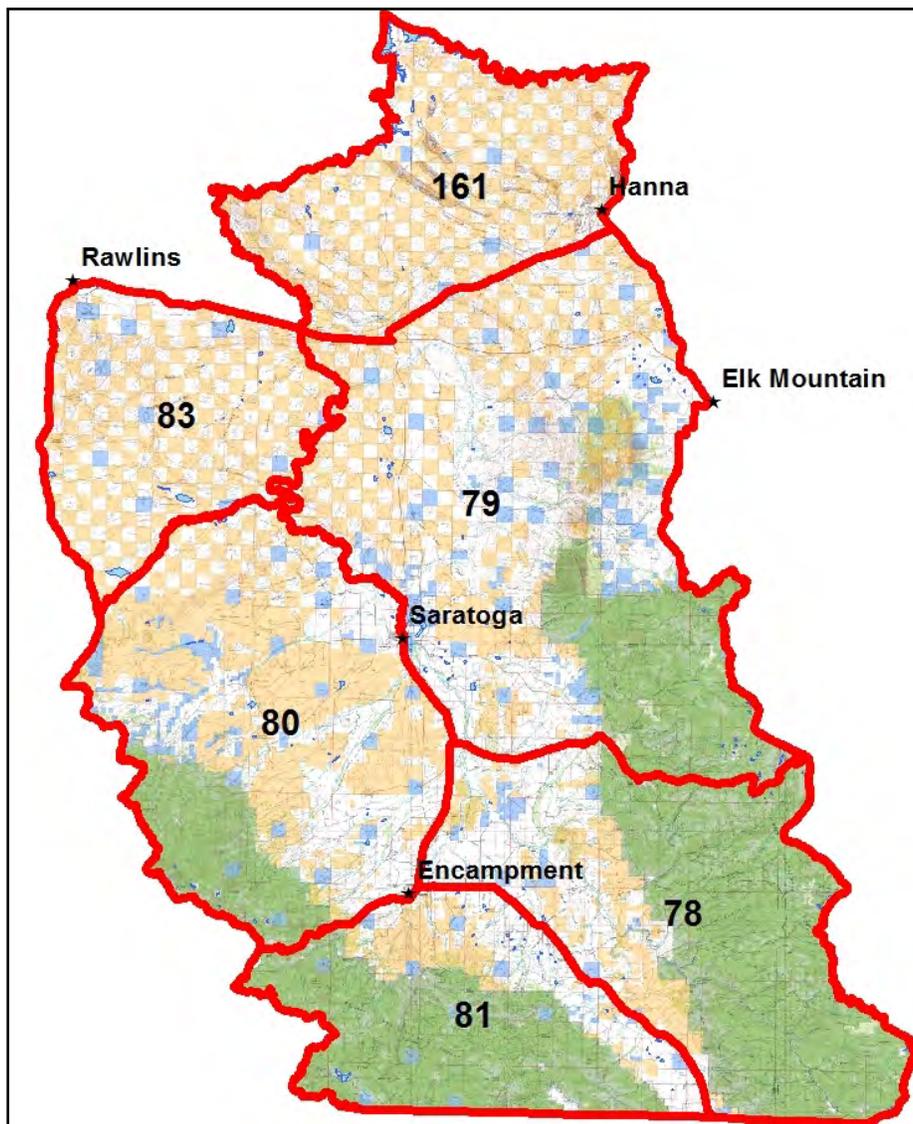
Wyoming Game and Fish Dept. 2012. 2012 v.110512 Platte Valley Mule Deer Plan. Wyoming Game and Fish Department, Cheyenne. 90 pp.

2014 PLATTE VALLEY MULE DEER HERD UNIT AND POPULATION OBJECTIVE REVIEW

Prepared by: Will Schultz, Saratoga Wildlife Biologist

The Platte Valley mule deer herd unit is located in south central Wyoming and consists of deer Hunt Areas 78, 79, 80, 81, 83, and 161 (Figure 1). Hunt Areas 78 and 79 are located on the west slope of the Snowy Range, and Hunt Areas 80 and 81 are located on the east slope of the Sierra Madre Range, in the Medicine Bow Mountains. Hunt Areas 83 and 161 are located immediately adjacent in the northern portion of the herd unit and contain drier and less productive habitats. Hunt Areas 83 and 161 are included in the herd unit because mule deer that summer in high elevation mountain habitat in the southern portion of the herd unit migrate to winter ranges in these hunt areas during winter (Ward et al. 1976).

Figure 1. A map of the Platte Valley mule deer herd unit and hunt areas located in south central Wyoming.



The Platte Valley herd unit contains 7,045 km² of delineated seasonal mule deer range. Elevations range from 1,951 m along the North Platte River to just over 3,658 m at Medicine Bow Peak. Habitat types include alpine meadows, subalpine and montane forests, mountain shrub, sagebrush-grasslands, grasslands, cottonwood riparian, and agricultural croplands. Landownership in the herd unit is a mixture consisting of 41% private, 28% US Forest Service, 25% Bureau of Land Management, 5% State Land and Investment Board, and 1% Wyoming Game and Fish Commission.

POPULATION OBJECTIVE REVIEW

Wyoming Game and Fish Department (WGFD) uses postseason population objectives as a guide for mule deer management at the herd unit level. The postseason population objective is the desired number of mule deer remaining in the herd unit after the annual hunting season has been completed. Generally, if the population estimate is above the population objective, WGFD will propose changes to the herd unit's next hunting seasons which will increase harvest and reduce the number of mule deer toward the population objective. Conversely, if the population estimate is below the population objective, WGFD will propose changes to the herd unit's next hunting seasons which will decrease harvest and increase the number of mule deer toward the population objective.

An actual count of all mule deer in a herd unit would be, for all practical purposes, impossible to complete. Therefore, WGFD develops herd unit population estimates using a computer-based population model. Data collected annually through hunter-harvest surveys and postseason mule deer sex and age classification surveys are incorporated into the population models. The population estimate produced by the computer-based population model is used to determine where the herd unit's mule deer population is at in relation to the established population objective.

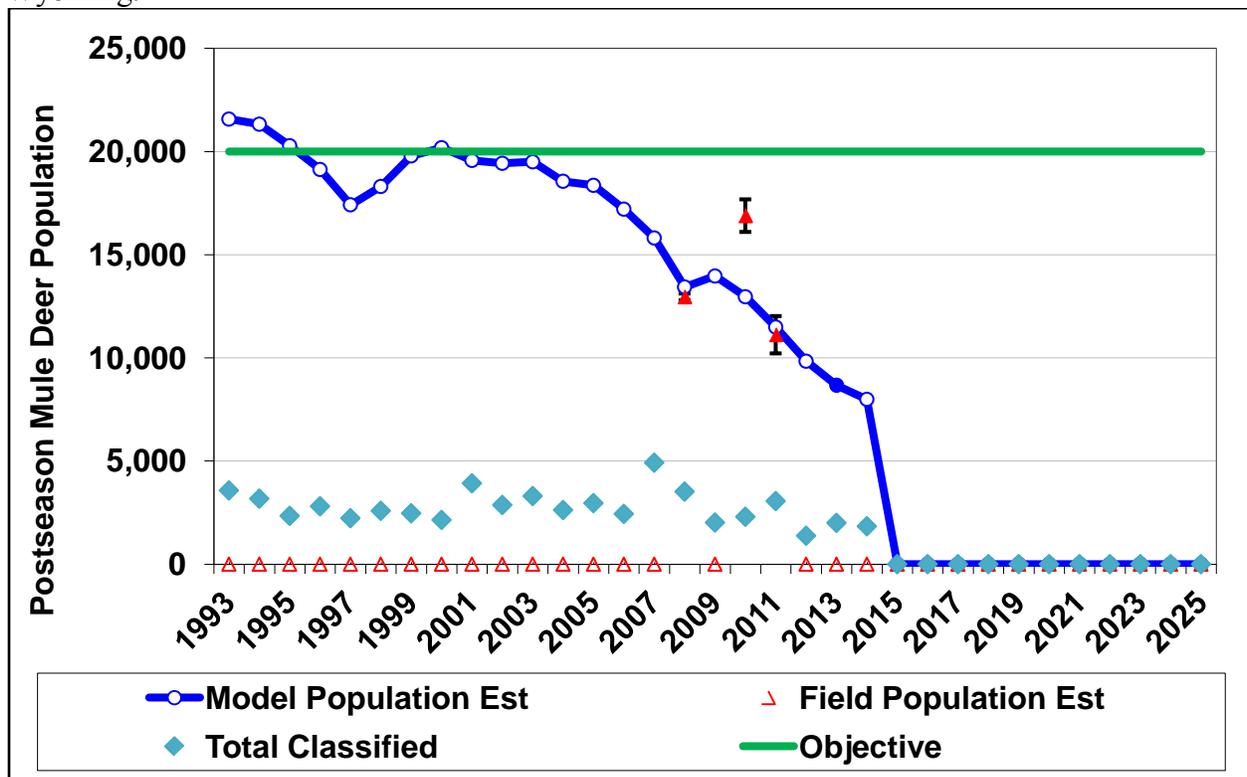
Annual population estimates for the Platte Valley herd unit are currently produced using a computer-based, spreadsheet population model (Morrison 2012). Hunter-harvest surveys and postseason mule deer sex and age classification survey sample sizes have been adequate for producing estimates with acceptable 80% confidence intervals. Retrospective comparisons of population estimates produced by the spreadsheet model are lower than those previously reported using the POP-II population model. Generally, the spreadsheet model's estimates are considered more accurate than the previous POP-II population model. Additionally, WGFD has conducted 3 mule deer sightability surveys (Unsworth et. al.1999) in this herd unit. Abundance estimates from these sightability surveys were incorporated into the spreadsheet model to improve the population estimate's accuracy.

Postseason mule deer population objectives for the Platte Valley herd unit have been adopted and subsequently changed following periodic reviews of both biological and social considerations. These considerations have included, but were not limited to: changes in the herd unit boundary delineation, changes in quantity and quality of habitat, sportsmen desires, and landowner desires/tolerance.

A postseason population objective of 20,000 mule deer was first established for the Platte Valley herd unit in the late 1970s. In 1982, the population objective was decreased to 15,000 mule deer due to the removal of the South Ferris area (Hunt Area 86) from the herd unit. It was returned to 20,000 again in 1987 because stakeholders desired seeing the population maintained at what was estimated at that time to be approximately 20,000 mule deer. The population objective has been retained at 20,000 since 1987.

The 2013 postseason population estimate was 8,700 mule deer. Since 2004, the annual population estimates have declined precipitously in trend (Figure 2). Although there are many factors believed to be contributing cumulatively to the decline, the direct and indirect impacts from severe winters and drought are considered to be the most significant factors.

Figure 2. 1993-2013 Platte Valley herd unit postseason mule deer population estimates, Wyoming.



CURRENT MANAGEMENT STRATEGIES BY HUNT AREA

All hunt areas in the Platte Valley herd unit are managed under the recreational management strategy. This strategy directs WGFD to manage harvest opportunity to maintain 20-29 bucks/100 does in the herd unit postseason.

In 2012, WGFD collaboratively developed the Platte Valley Mule Deer Plan (WGFD 2012) and subsequently began to implement additional strategies identified in this plan to improve the quality of the hunting experience in this herd unit. These strategies included: a.) changing

hunting season structure from traditional general seasons to limited quota seasons; b.) set a goal to achieve a buck harvest success rate of 40%; c.) set a goal of at least 20% of field-checked harvested bucks meeting an antler spread of 24" or more; and d.) set a goal of at least 60% of the harvest survey respondents replying they were "satisfied" or "very satisfied" with their hunting experience. These additional management strategies will be reviewed collaboratively in 2016 to determine if they have improved the quality of the hunt to a satisfactory level, and whether or not to continue their use.

RECOMMENDED HERD UNIT OBJECTIVE AND MANAGEMENT STRATEGIES BY HUNT AREA

WGFD recommends the population objective for the Platte Valley herd unit be reduced to a level which is presently considered both biologically achievable, and sustainable. We recommend reducing the postseason population objective from 20,000 mule deer to 16,000 mule deer. We also recommend maintaining the recreational management strategy for all hunt areas in the Platte Valley herd unit.

Two years ago, WGFD began the long overdue task of reviewing objectives for all big game herd units in Wyoming, to be completed over the course of the next 5-years. At the root of this effort was a genuine need to update the objectives with goals which were both biologically achievable, and sustainable. Much has changed since many of these herd unit objectives were last reviewed. Most notably, changes in the ability of the habitat to sustain the population levels which had been previously met in many herd units.

An indicator of the habitat's inability to continue to support mule deer population levels previously observed in many herd units has been reduced recruitment rates for mule deer. A declining trend in recruitment has been documented in almost every herd unit in Wyoming, as well as in many areas across the west. This declining trend has been primarily attributed to changes in the ability of habitat to provide the specific forage, cover, and security required by mule deer. Changes in seral stages of vegetative communities to less productive stages, severe drought which has reduced annual forage production, and the conversion of habitat to residential and energy development, all have cumulatively reduced habitat for mule deer.

While the recommended population objective is 20% less than the current objective of 20,000 mule deer, 16,000 mule deer is 46% greater than the current population estimate of 8,700 mule deer. In an effort to halt the mule deer decline and reverse the population trend, WGFD has recently implemented several efforts which should enhance the ability of the Platte Valley herd unit to sustain mule deer. WGFD has begun to implement several landscape scale habitat improvement projects under the Platte Valley Habitat Partnership (WGFD 2013). WGFD has supported efforts to reduce large carnivore and predator populations in this herd unit in an attempt to increase mule deer recruitment. While the benefits of these and other efforts may not be immediately realized, we believe they will assist in the recovery of mule deer.

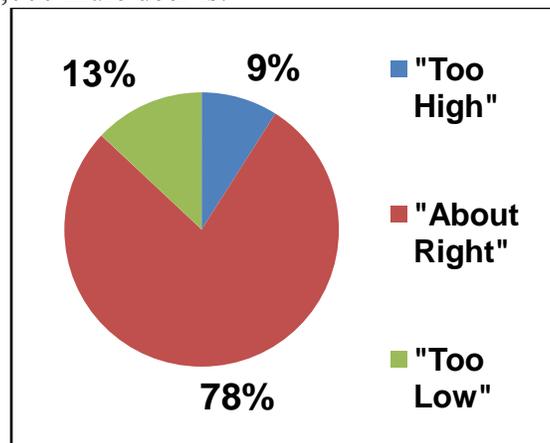
LANDOWNER, AGENCY, AND PUBLIC INVOLVEMENT

WGFD made a concerted effort to provide stakeholders with an opportunity to be involved in the review of the Platte Valley mule deer herd unit population objective, and to provide comment on the recommendations. Mule deer are a species of great concern for many of the stakeholders who participated in the review process. There was almost a unanimous desire by all stakeholders during this process to see the current number of mule deer (estimate = 8,700) increased. However, opinions varied on what population objective should be recommended for a future management goal.

Landowner Involvement

In February of 2014, a letter describing objective review process and a survey were sent to all landowners (n=123) who owned at least 160 acres in the Platte Valley herd unit (ATTACHMENT A). We received completed surveys from 36 landowners; for a return rate of 29% (ATTACHMENT B). Seventy-eight percent (78%) of the landowners indicated they thought the current population objective was “About Right.” Nine percent (9%) of the landowners indicated the population objective was, “Too High,” (Figure 3.)

Figure 3. Platte Valley herd unit landowner survey responses to the question, “Do you think the population objective of 20,000 mule deer is:”



In May of 2014, WGFD sent a postcard to these same landowners describing the recommendation to reduce the population objective from 20,000 mule deer to 16,000 mule deer (ATTACHMENT C). The postcard included an invitation to the landowners to attend upcoming objective recommendation meetings. The postcard also listed an email address where landowners could send their comments electronically. No comments were received from the landowners.

Agency Involvement

In May of 2014, WGFD met with representatives from the US Forest Service (Wendy Haas - Medicine Bow/Routt National Forest); Bureau of Land Management (Heath Cline - Rawlins Field Office); USDA/Natural Resource Conservation Service (Mark Shirley - Saratoga District); and the Saratoga, Encampment, Rawlins Conservation District (Jack Berger and Joe Parsons). WGFD presented a review of the Platte Valley herd unit population objective and the

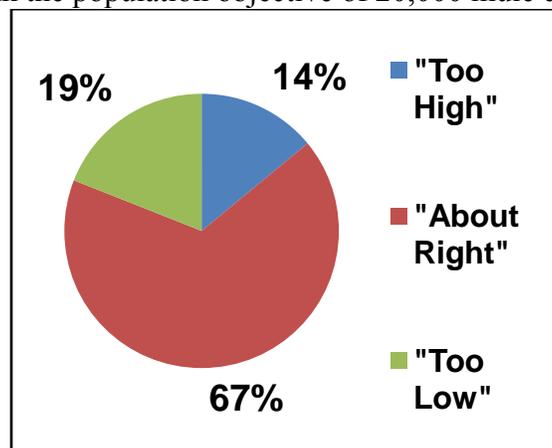
recommendation. This discussion lasted approximately 2 hours. Agency personnel appeared to be supportive of the recommendation.

A letter was received from the Carbon County Predator Management District Board expressing they did not support the recommendation to reduce the population objective from 20,000 mule deer to 16,000 mule deer (ATTACHMENT D).

Public Involvement

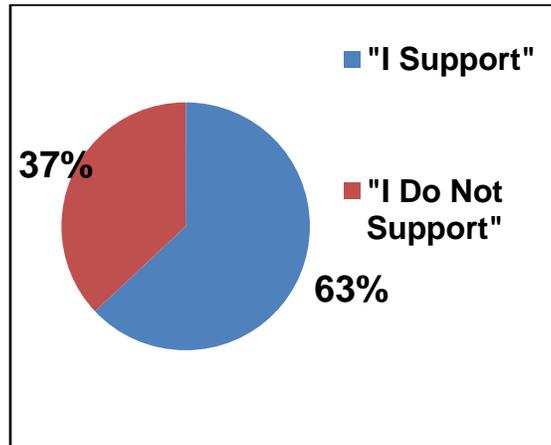
In March of 2014, population objective review meetings were held in conjunction with season-setting public information gathering meetings in Cheyenne, Laramie, and Saratoga. Meeting attendees were asked to fill out sportsperson surveys regarding their attitudes towards current mule deer numbers and the current population objective (ATTACHMENT E). A total of 110 people attended these meetings and we received 21 completed surveys, for a return rate of 19% (ATTACHMENT F). Sixty-seven percent (67%) of the survey respondents indicated they thought the current population objective was "About Right," and 14% thought the population objective was, "Too High," (Figure 4.)

Figure 4. Platte Valley herd unit public objective review meeting attendee survey responses to the question, "Do you think the population objective of 20,000 mule deer is:"



In May of 2014, population objective recommendation meetings were held in Cheyenne, Laramie, Saratoga, and Wheatland. Meeting attendees were asked to fill out surveys indicating whether or not they supported the proposed population objective recommendation. A total of 21 people attended these 4 meetings and we received 8 completed surveys; for a return rate of 38% (ATTACHMENT G). Sixty-three percent (63%) of the survey respondents indicated they supported the recommendation to reduce the population objective from 20,000 mule deer to 16,000 mule deer (Figure 5).

Figure 5. Platte Valley herd unit public objective recommendation meeting attendee survey responses to the statement, "Propose to decrease the population objective from 20,000 to 16,000 mule deer for the next 5-years."



LITERATURE CITED

- Morrison, T. 2012. User Guide: Spreadsheet Model for Ungulate Population data. Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie. USA. 41 pp.
- Unsworth, J. W., F. A. Leban, E. O. Garton, D. J. Leptich, and P. Zager. 1999. Aerial Survey: User's Manual. Electronic Edition. Idaho Department of Fish & Game, Boise, Idaho. USA.
- Ward, A. L., J. J. Cupal, G. A. Goodwin and H. D. Morris. 1976. Effects of highway construction and use on big game populations. Rept. No. FHWA-RD-76-174, Federal Highway Administration, Washington, D.C. USA.
- Wyoming Game and Fish Department [WGFD]. 2012. 2012 v.110512 Platte Valley Mule Deer Plan. Wyoming Game and Fish Department, Cheyenne. USA. 90 pp.
- _____. 2013. Platte Valley Habitat Partnership's (PVHP) Mule Deer Habitat Plan, May 22, 2013. Wyoming Game and Fish Department, Cheyenne. USA. 99 pp.

14 March 2014

Dear Landowner,

The Wyoming Game and Fish Department (WGFD) is seeking your assistance in the future management of big game wildlife in your area. During the spring of 2014, WGFD will review the herd unit management objectives for several big game herd units such as Platte Valley mule deer, Elk Mountain pronghorn, and Big Creek pronghorn. Enclosed in this letter you will find a short survey for each herd unit your property is located in, and postage-paid return envelope. Please complete the survey questions, provide additional comments if you desire, and mail the survey in the return envelope.

The herd unit management objective is the “benchmark” which WGFD manages big game wildlife towards. For most big game herd units in Wyoming, WGFD manages big game wildlife towards a numeric management objective, usually identified as a specific postseason population estimate.

Many of Wyoming’s big game wildlife rely on habitat located on private lands. Therefore, landowner opinions on herd unit management objectives are important to WGFD. The comments we receive from your completed surveys will be used in part to formulate WGFD recommendations for the future herd unit management objectives. Changes in the herd unit management objective could result in increasing harvest opportunities to decrease big game numbers, or conversely, changes could result in reducing harvest opportunities in order to increase big game numbers.

We also would like to invite you to one of the upcoming public meetings to discuss herd unit management objectives. Locations and dates are listed below:

- Saratoga Town Hall, March 26, 7:30 p.m.
- Laramie Fire Hall #3, March 27, 7:30 p.m.

Thank you for taking the time to share your thoughts and opinions with us. We hope to see you at one of the upcoming meetings. If you have any questions please contact Will Schultz at 307-326-3020. We look forward to receiving your survey and working with you on the future management of Wyoming’s Wildlife.

Sincerely,



Will Schultz
Saratoga Wildlife Biologist
WS/ws

Platte Valley Mule Deer Herd Unit

Deer Hunt Areas: 78, 79, 80, 81, 83, & 161
Management Objective: 20,000 mule deer
2013 Postseason Population Estimate: 8,800 mule deer
Last Management Objective Review: 1987

1. Please circle the hunt area where the majority of your property is located (see map on back):

Hunt Area 78 79 80 81 83 161

2. How satisfied are you with the current number of mule deer wintering in the Platte Valley herd unit (current estimate is 8,800 mule deer):

Very Satisfied Somewhat Satisfied Somewhat Dissatisfied Very Dissatisfied

3. If you answered somewhat dissatisfied or very dissatisfied, please indicate why.

There are too many mule deer in the herd unit
 There are too few mule deer in the herd unit
 Other _____

4. Do you think the herd unit management objective of 20,000 mule deer is:

Too high
 Too low
 About right

5. Would you support combining Hunt Area 80 and Hunt Area 83 into one hunt area for future hunting seasons?

Yes
 No
 I am neither for or against

6. Would you support dividing Hunt Area 161 along the Big Ditch? This would result in the southern portion of Hunt Area 161 being combined into Hunt Area 79 and the northern portion of Hunt Area 161 being combined into Hunt Area 70, for future hunting seasons.

Yes
 No
 I am neither for or against

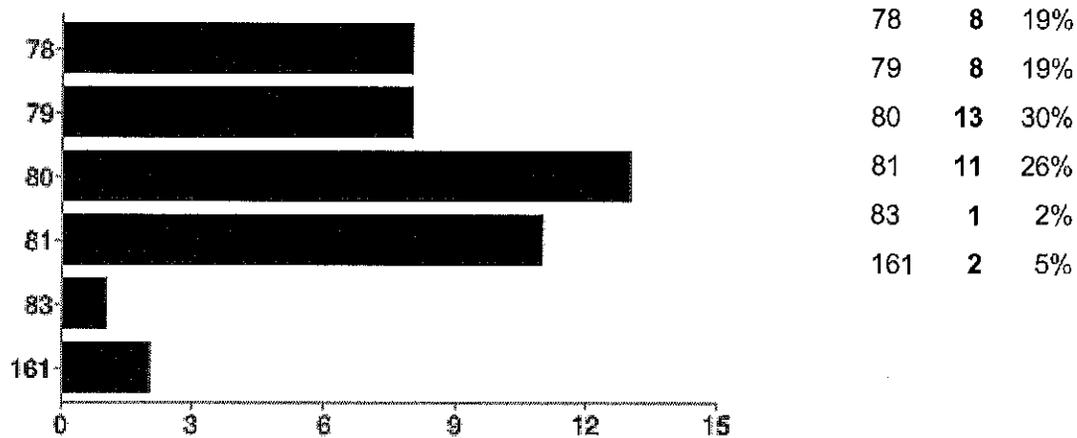
SURVEY IS CONTINUED ON BACK

36 responses *Platte Valley MD*

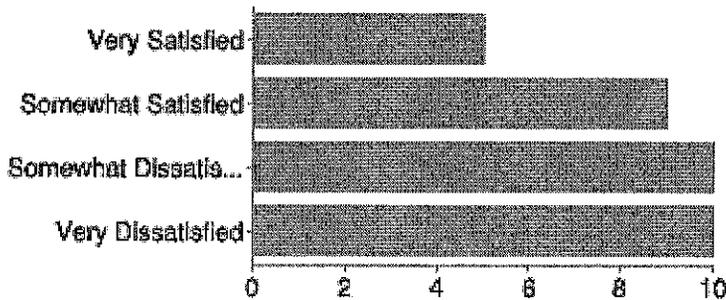
[View all responses](#) [Publish analytics](#)

Summary

Please circle the hunt area where the majority of your property is located

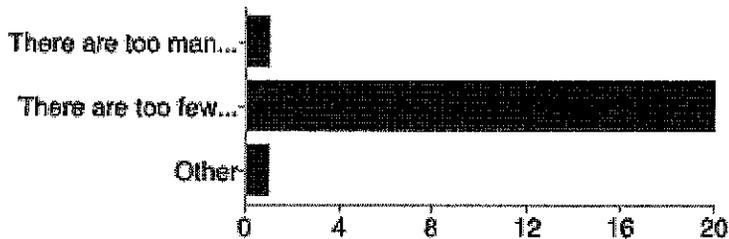


How satisfied are you with the current number of mule deer wintering in the Platte Valley herd unit



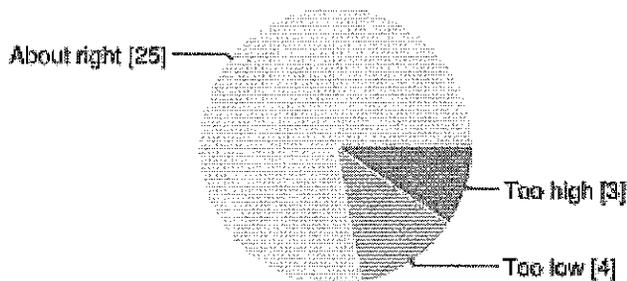
Very Satisfied	5	15%
Somewhat Satisfied	9	26%
Somewhat Dissatisfied	10	29%
Very Dissatisfied	10	29%

3. If you answered somewhat dissatisfied or very dissatisfied, please indicate why



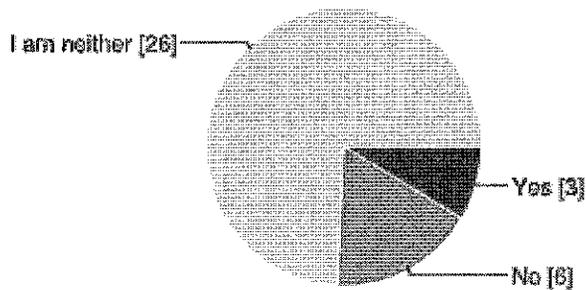
There are too many mule deer in the herd unit	1	5%
There are too few mule deer in the herd unit	20	91%
Other	1	5%

Do you think the herd unit management objective of 20,000 mule deer is



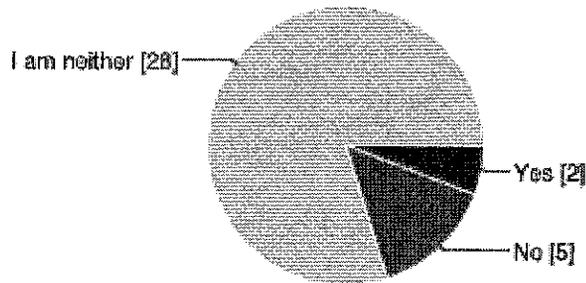
Too high	3	9%
Too low	4	13%
About right	25	78%

Would you support combining Hunt Area 80 and Hunt Area 83 into one hunt area for future hunting seasons



Yes	3	9%
No	6	17%
I am neither for or against	26	74%

Would you support dividing Hunt Area 161 along the Big Ditch? This would result in the southern portion of Hunt Area 161 being combined into Hunt Area 79 and the northern portion of Hunt Area 161 being combined into Hunt Area 70, for future hunting seasons.



Yes	2	6%
No	5	14%
I am neither for or against	28	80%

Comments

We trust your judgement on this! **I hope the G&F continues to search for the reasons for the deer population decline.** **In reference to question 5 & 6: Why? For what reason?: And why was the last management objective review done in 1987?!?! Why are you always 5-10 years behind in your management goals! This may be the reason why WY G&F needs to be more pro-active on their management and in a more timely fashion. By the time G&F reacts it is usually too late. Poor game management!** **Probably better to keep 79 separate.** **As an out of state property owner (the property was a family homestead) Conservation of water is my primary concern. Thank you. -Shirlee Bumpass

I believe at the present time you(G&F) are trying to improve these herd numbers & quality, Keep up the good work! **Like to see the white tail different than mule deer so numbers are not completely destroyed.** **Will: We had quite a few nice bucks in the yard in November. Not any where near the numbers during the winter that we had 10 years ago. We do not see as many but we will have 6-8 pairs during the summer. -Dick Gray PS-Back in May**

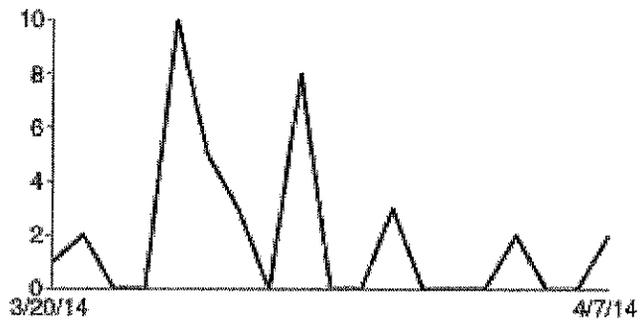
Too many hunter's and Mountain Lions. **I think the G&F does a good job managing all our wildlife.** **I think hunting pressure is too high quota system would provide a better hunting experience and allow for more trophy animals. The lower county north of Sage Creek is better winter habitat and should not be managed the same as higher elevation areas. Good Luck**

How do wintering numbers of mule deer in Platte Valley translate to summer numbers in the higher elevations of hunt areas 80 & 81? (The summer numbers on our property seem very low)

Don't understand your antelope policy. Have resident herd of 75+or- at all times and I have no say in who I can allow in to hunt them. -DHanson PO Box 388 Saratoga

The mule deer are being out-competed by the elk. Reduce the elk population & the mule deer population will increase.

Number of daily responses



Meeting Dates

Cheyenne, May 6th, 6:00 p.m.,
WGFD Office Building, Elk Room

Laramie, May 8th, 6:00 p.m.,
Fire Hall #3

Saratoga, May 22th, 6:00 p.m.,
Town Hall

Herds Covered

Big Creek Pronghorn
(Hunt Area 51)

Elk Mountain Pronghorn
(Hunt Area 50)

Platte Valley Mule Deer
(Hunt Areas 78,79,80,81,83,161)

WGFD Public Meeting

Wyoming Game and Fish Department wants to invite you to attend one of the upcoming meetings to discuss herd unit management objective proposals. Earlier this year, we held meetings in these communities asking for your input. Now, we would like to present to you the proposals we developed with the help of your earlier input:

- Recommend increasing the management objective to 800 pronghorn from 600 pronghorn for the Big Creek Pronghorn Herd Unit.
- Recommend maintaining the current management objective of 5,000 pronghorn for the Elk Mountain Pronghorn Herd Unit.
- Recommend decreasing the management objective to 16,000 mule deer from 20,000 mule deer for the Plate Valley Mule Deer Herd Unit.

Your input at these upcoming meetings is important to us! Recommendations, and your input from these meetings, will be presented to the Wyoming Game and Fish Commission in July

For more information please contact:

Saratoga Wildlife Biologist, Will Schultz, 307-326-3020



Contact us via email at wgflaramiecomments@wyo.gov

May 21, 2014

Carbon County Predator Management District

814 Illinois Street

Rawlins, WY 82301

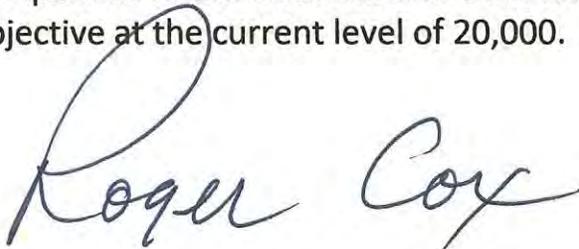
Wyoming Game and Fish Department

Laramie Regional Office

528 S. Adams

Laramie, WY 82070

Today at our regular board meeting we discussed the proposal to decrease the Platte Valley Mule Deer objective from 20,000 to 16,000. In light of the predator control work we have done on the Big Creek antelope project, and the ongoing Platte Valley mule deer fawning area project we are not in favor of the reduction. The Big Creek project has had very favorable results (in fact allowing for a proposed increase of the area 51 antelope objective) and we are hoping that the mule deer project will also be successful enough that it can be expanded. We feel that it is pre-mature to reduce the objective on mule deer at this time. There has been a huge effort to increase this population and a decrease in the objective does not send the proper message. The mule deer is a very important component to the economics of the Platte Valley and we would like to keep the objective at the current level of 20,000.

A handwritten signature in cursive script that reads "Roger Cox". The signature is written in dark ink and is positioned below the main body of text.

Roger Cox, President

Sportsperson Survey

Platte Valley Mule Deer Herd Unit

1. Please circle the hunt area where you spend the majority of your time hunting mule deer:
Hunt Area 78 79 80 81 83 161 elsewhere

2. How satisfied are you with the current number of mule deer wintering in the Platte Valley herd unit (current estimate is 8,800 mule deer):
 Very Satisfied Somewhat Satisfied Somewhat Dissatisfied Very Dissatisfied

3. If you answered somewhat dissatisfied or very dissatisfied, please indicate why.
 There are too many mule deer in the herd unit
 There are too few mule deer in the herd unit
 Other _____

4. Do you think the herd unit management objective of 20,000 mule deer is:
 Too high
 Too low
 About right

5. Would you support combining Hunt Area 80 and Hunt Area 83 into one hunt area for future hunting seasons?
 Yes
 No
 I am neither for or against

6. Would you support dividing Hunt Area 161 along the Big Ditch? This would result in the southern portion of Hunt Area 161 being combined into Hunt Area 79 and the northern portion of Hunt Area 161 being combined into Hunt Area 70, for future hunting seasons.
 Yes
 No
 I am neither for or against

Elk Mountain and Big Creek Pronghorn Herd Unit

7. Please circle the hunt area where you spend the majority of your time hunting pronghorn:
Hunt Areas 50 51 elsewhere

8. How satisfied are you with the current number of pronghorn in the **Elk Mountain herd unit** (current estimate is 3,800 pronghorn):
 Very Satisfied Somewhat Satisfied Somewhat Dissatisfied Very Dissatisfied

SURVEY IS CONTINUED ON BACK

9. If you answered somewhat dissatisfied or very dissatisfied, please indicate why.

- There are too many pronghorn in the herd unit
- There are too few pronghorn in the herd unit
- Other _____

10. Do you think the herd unit management objective of 5,000 pronghorn in the **Elk Mountain herd unit** is:

- Too high
- Too low
- About right

11. How satisfied are you with the current number of pronghorn in the **Big Creek herd unit** (current estimate is 800 pronghorn):

- Very Satisfied
- Somewhat Satisfied
- Somewhat Dissatisfied
- Very Dissatisfied

12. If you answered somewhat dissatisfied or very dissatisfied, please indicate why.

- There are too many pronghorn in the herd unit
- There are too few pronghorn in the herd unit
- Other _____

13. Do you think the herd unit management objective of 600 pronghorn in the **Big Creek herd unit** is:

- Too high
- Too low
- About right

Comments - If you have additional comments, please share them in the space below:

If, in the future, you would like to be contacted through email please provide your name and email address below.

THANK YOU for your participation!

SPORTSPERSON SURVEY

9 Surveys Saratoga PIGM 12 Surveys Lar & Chey PIGMs 21 Surveys ALL PIGMs

1. Please circle the hunt area where you spend the majority of your time hunting mule deer:

78	4	4	8
79	4	4	8
80	4	4	8
81	2	3	5
83			0
161			0
Elsewhere	1	3	4

2. How satisfied are you with the current number of mule deer wintering in the Platte Valley herd unit (8,800 mule deer):

Very Satisfied	1	1
Somewhat Satisfied	4	7
Somewhat Dissatisfied	3	7
Very Dissatisfied	4	11

3. If you answered somewhat dissatisfied or very dissatisfied, please indicate why.

Too Many	0
Too Few	20
Other	0

4. Do you think the herd unit management objective of 20,000 mule deer is:

Too High	0	3	3
Too Low	1	2	3
About Right	7	7	14

5. Would you support combining Hunt Area 80 and Hunt Area 83 into one hunt area for future hunting seasons?

Yes	2	4	6
No	2	2	4
Neither	4	6	10

SPORTSPERSON SURVEY

9 Surveys
Saratoga PIGM

12 Surveys Lar &
Chey PIGMs

21 Surveys
ALL PIGMs

6. Would you support dividing Hunt Area 161 along the Big Ditch?

Yes

3

6

9

No

0

0

Neither

5

6

11

9
0
11

Herd Unit Management Objective Proposal Meeting
Saratoga Town Hall – 6:00 PM, 22 May 2014

Platte Valley Mule Deer

Current population estimate = 8,800 mule deer

Propose to decrease the management objective from 20,000 to 16,000 mule deer for the next 5-years.

_____ **I support this proposal**

_____ **I do not support this proposal**

Elk Mountain Pronghorn

Current population estimate = 3,800 pronghorn

Propose to maintain the management objective of 5,000 pronghorn for the next 5-years.

_____ **I support this proposal**

_____ **I do not support this proposal**

Big Creek Pronghorn

Current population estimate = 800 pronghorn

Propose to increase the management objective from 600 to 800 pronghorn for the next 5-years.

_____ **I support this proposal**

_____ **I do not support this proposal**

Comments: _____

INPUT
 Species: MULE DEER
 Biologist: WILL SCHULTZ
 Herd Unit & No.: PLATTE MDS41
 Model date: 02/19/15

MODEL EVALUATION: FAIR

Clear form

MODELS SUMMARY		Fit	Relative AICc	Notes
CJ,CA	Constant Juvenile & Adult Survival	590	599	
SC,J,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	258	287	
TS,J,CA	Time-Specific Juvenile & Constant Adult Survival	180	275	Best fit & AICc score, juvenile survival constrained to ≥ 0.40 - ≤ 0.70

Population Estimates from Top Model

Year	Posthunt Population Est. Field SE	Trend Count		Predicted Prehunt Population		Predicted Posthunt Population		Objective
		Field Est	Field SE	Juveniles	Total	Juveniles	Total	
1993				5953	3415	14099	23467	20000
1994				7250	3018	11962	22230	20000
1995				6675	3156	11085	20916	20000
1996				6378	3368	10264	20010	20000
1997				5150	3280	9543	17974	20000
1998				5587	3995	9489	19071	20000
1999				6928	4553	9599	21079	20000
2000				7023	5046	10156	22226	20000
2001				5934	4794	10563	21290	20000
2002				6740	4552	10585	21877	20000
2003				6580	4411	10530	21521	20000
2004				5956	4606	10411	20973	20000
2005				6119	4222	10092	20433	20000
2006				5411	4121	10016	19547	20000
2007				4761	3774	9273	17808	20000
2008			163	3989	2908	7919	14816	20000
2009				4849	2822	7479	15351	20000
2010				3983	2896	7288	13967	20000
2011			790	3279	2349	6573	12201	20000
2012			905	3289	2088	5933	11311	20000
2013				2920	2252	5646	10818	20000
2014				3473	2492	5567	11532	20000
2015				3449	2558	5480	11487	20000
2016								16000
2017								16000
2018								16000
2019								16000
2020								16000
2021								16000
2022								16000
2023								16000
2024								16000
2025								16000

Survival and Initial Population Estimates

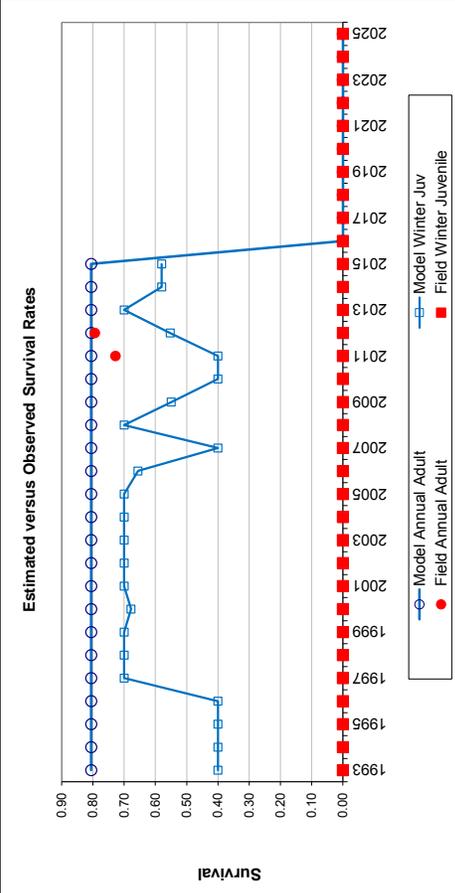
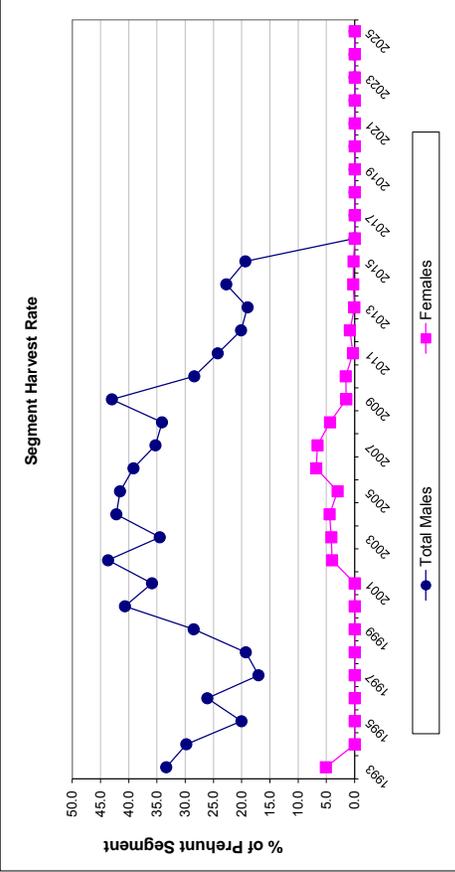
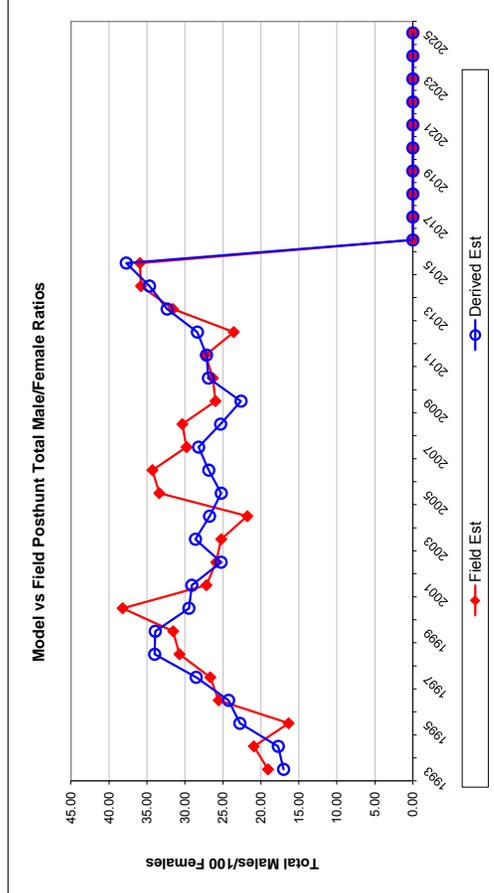
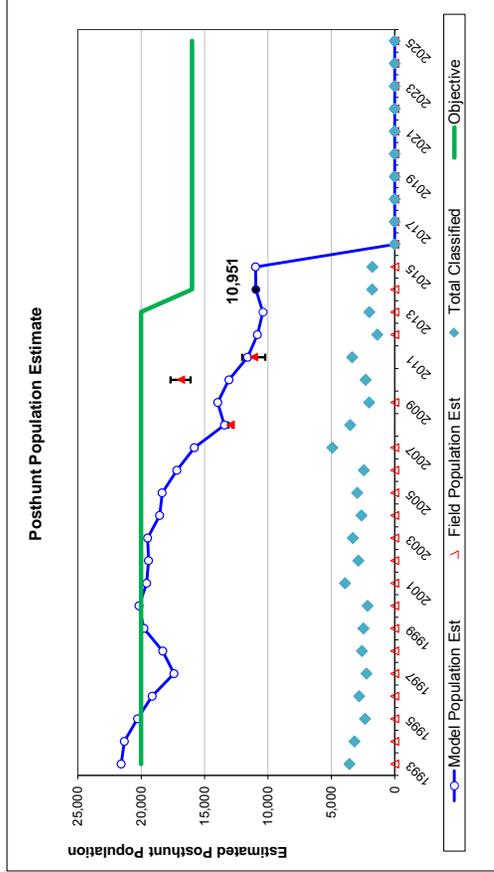
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.40		0.81	
1994	0.40		0.81	
1995	0.40		0.81	
1996	0.40		0.81	
1997	0.70		0.81	
1998	0.70		0.81	
1999	0.70		0.81	
2000	0.68		0.81	
2001	0.70		0.81	
2002	0.70		0.81	
2003	0.70		0.81	
2004	0.70		0.81	
2005	0.70		0.81	
2006	0.66		0.81	
2007	0.40		0.81	
2008	0.70		0.81	
2009	0.55		0.81	
2010	0.40		0.81	
2011	0.40		0.81	0.73
2012	0.55		0.81	0.79
2013	0.70		0.81	0.05
2014	0.58		0.81	
2015	0.58		0.81	
2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				

Parameters:	Optim cells
Adult Survival =	0.805
Initial Total Male Pop/10,000 =	0.228
Initial Female Pop/10,000 =	1.338

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

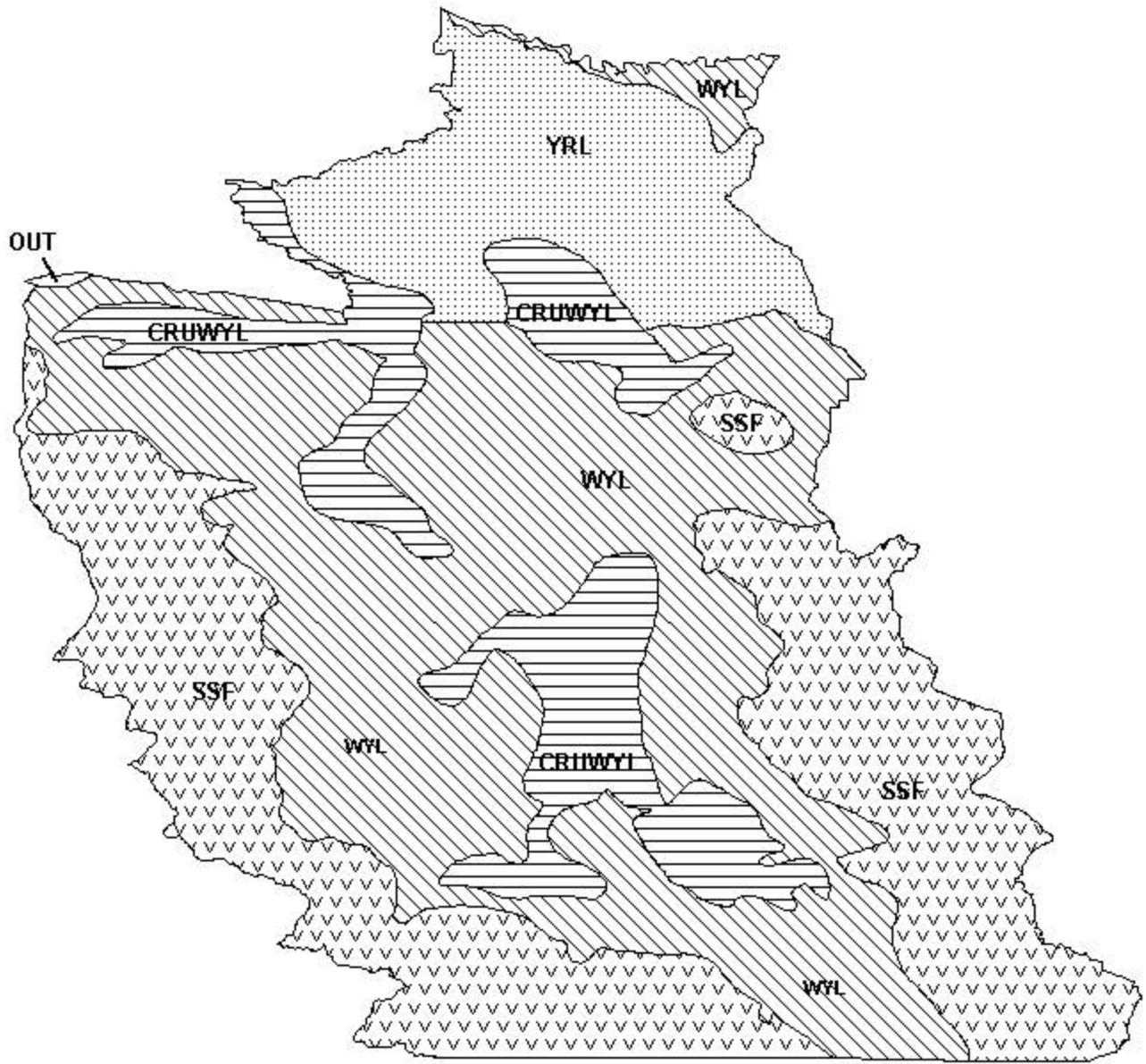
Year	Classification Counts						Harvest						
	Juvenile/Female Ratio			Total Male/Female Ratio			Juv	Males	Females	Total Harvest	Segment Harvest Rate (% of		
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/o bull adj	Field SE					Total Males	Females	
1993		44.29	1.71	17.01	19.06	1.02	25	1036	654	1715	33.4	5.1	
1994		60.61	2.36	17.71	20.93	1.20	0	818	0	818	29.8	0.0	
1995		60.21	2.70	22.77	16.35	1.20	0	575	0	575	20.0	0.0	
1996		62.14	2.60	24.25	25.55	1.46	0	799	0	799	26.1	0.0	
1997		53.97	2.60	28.52	26.66	1.65	0	508	0	508	17.0	0.0	
1998		58.87	2.62	33.98	30.72	1.72	0	700	0	700	19.3	0.0	
1999		72.17	3.20	33.91	31.54	1.85	0	1180	0	1180	28.5	0.0	
2000		69.15	3.36	29.48	38.20	2.26	0	1866	0	1866	40.7	0.0	
2001		56.17	2.03	29.09	27.17	1.27	0	1564	0	1564	35.9	0.0	
2002		65.95	2.71	25.24	25.89	1.48	35	1807	386	2228	43.7	4.0	
2003		64.50	2.47	28.61	25.22	1.35	62	1384	395	1841	34.5	4.1	
2004		59.68	2.57	26.76	21.78	1.35	17	1767	420	2204	42.2	4.4	
2005		62.26	2.58	25.22	33.38	1.72	23	1595	277	1895	41.6	3.0	
2006		57.31	2.66	26.86	34.28	1.90	56	1467	620	2143	39.2	6.8	
2007		54.28	1.77	28.20	29.78	1.20	53	1210	554	1817	35.3	6.6	
2008		52.02	2.03	25.30	30.34	1.43	45	902	314	1261	34.1	4.4	
2009		66.86	3.26	22.61	25.98	1.77	21	1142	101	1264	43.0	1.5	
2010		55.42	2.61	26.91	26.32	1.62	7	696	105	808	28.4	1.6	
2011		49.87	1.99	27.16	27.28	1.35	4	518	18	540	24.3	0.3	
2012		55.86	3.37	28.36	23.57	1.95	3	382	46	431	20.1	0.9	
2013		51.74	2.68	32.34	31.59	1.95	0	388	3	391	19.0	0.1	
2014		62.54	3.37	34.67	35.79	2.33	0	515	13	528	22.7	0.3	
2015		63.06	3.40	37.72	35.92	2.34	0	450	10	460	19.4	0.2	
2016													
2017													
2018													
2019													
2020													
2021													
2022													
2023													
2024													
2025													

FIGURES



Comments: The TSJ,CA model was selected to produce the 2014 postseason population estimate. TSJ,SC model aligns very well with the abundance estimates for this herd unit and provides for an excellent "anchor" for future model development.

END



Mule Deer (MD541) - Platte Valley
 HA 78-81, 83, 161
 Revised - 12/87

