

2015 - JCR Evaluation Form

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

PERIOD: 6/1/2015 - 5/31/2016

 PREPARED BY: GREG
 ANDERSON

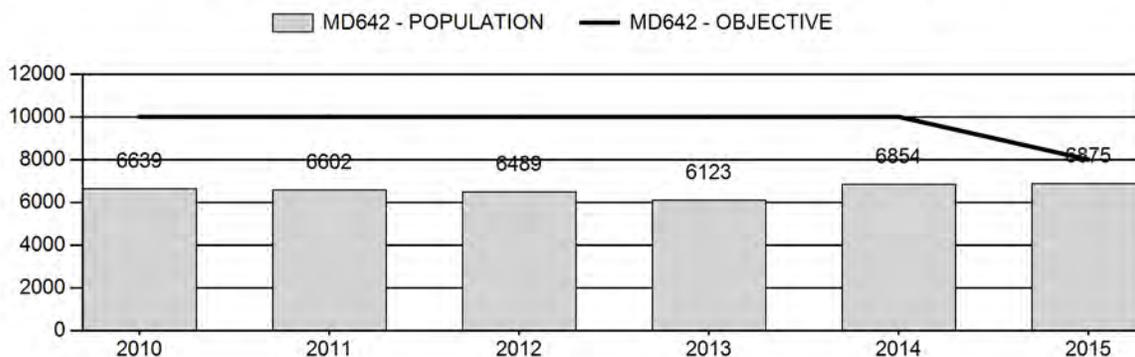
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	6,541	6,875	6,629
Harvest:	458	383	385
Hunters:	1,159	1,166	1,175
Hunter Success:	40%	33%	33 %
Active Licenses:	1,212	1,171	1,180
Active License Success:	38%	33%	33 %
Recreation Days:	6,777	6,660	6,500
Days Per Animal:	14.8	17.4	16.9
Males per 100 Females	28	30	
Juveniles per 100 Females	61	66	

Population Objective (± 20%) :	8000 (6400 - 9600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-14.1%
Number of years population has been + or - objective in recent trend:	0
Model Date:	2/18/2016

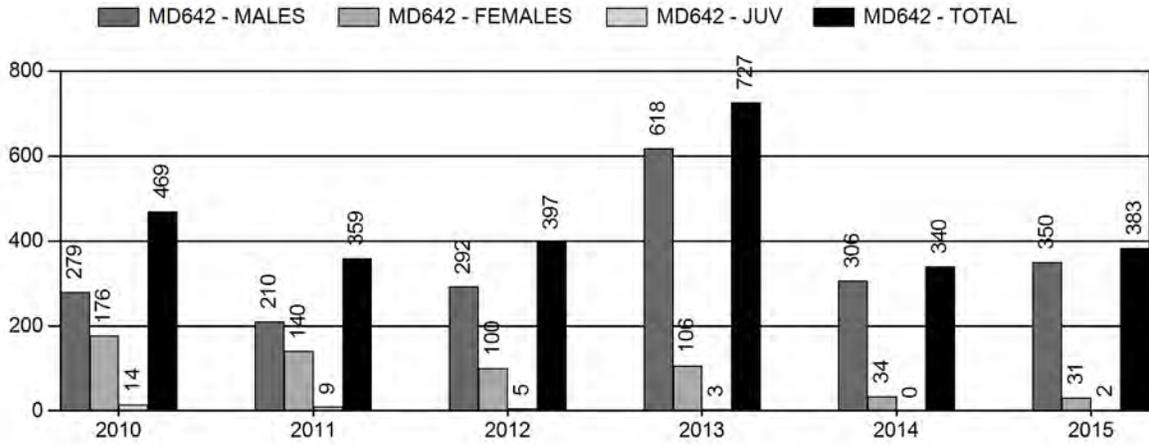
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1%	1%
Males ≥ 1 year old:	27%	28%
Juveniles (< 1 year old):	0%	0%
Total:	5%	5%
Proposed change in post-season population:	+0%	-4%

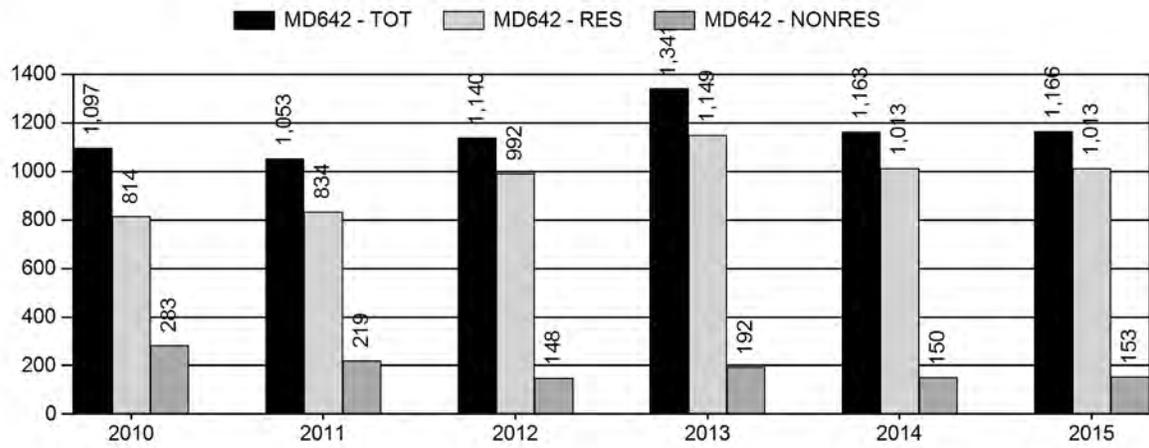
Population Size - Postseason



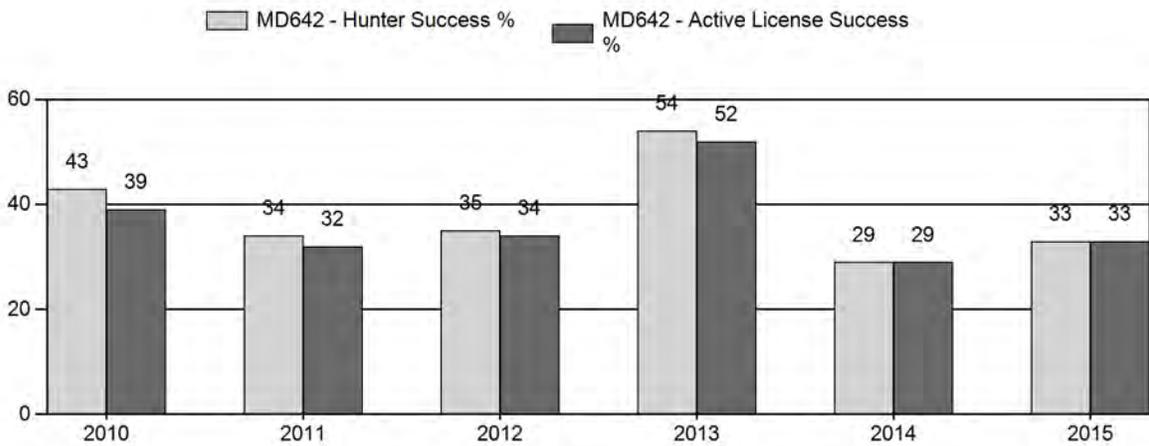
Harvest



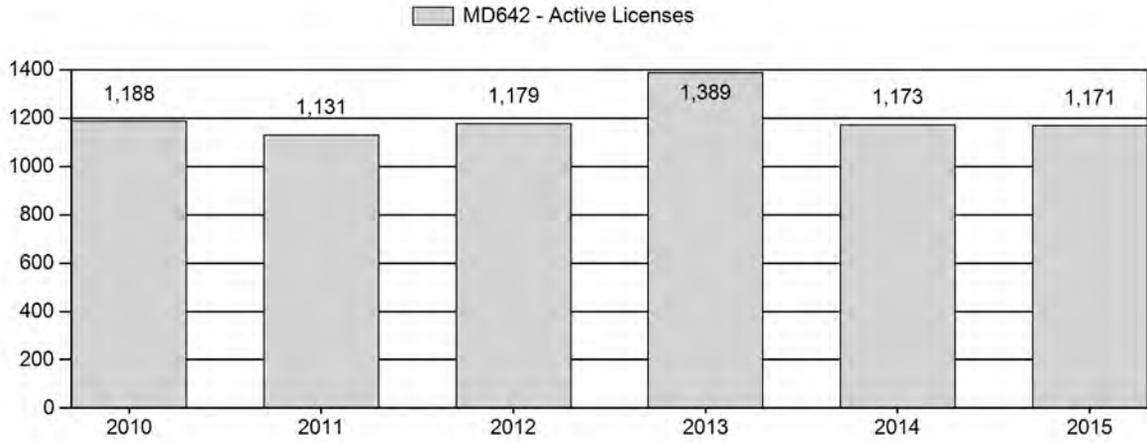
Number of Hunters



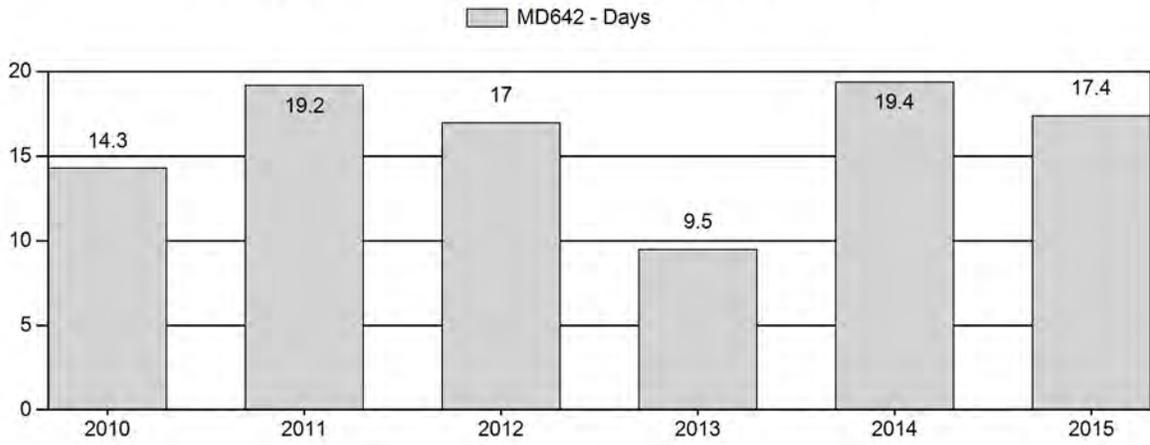
Harvest Success



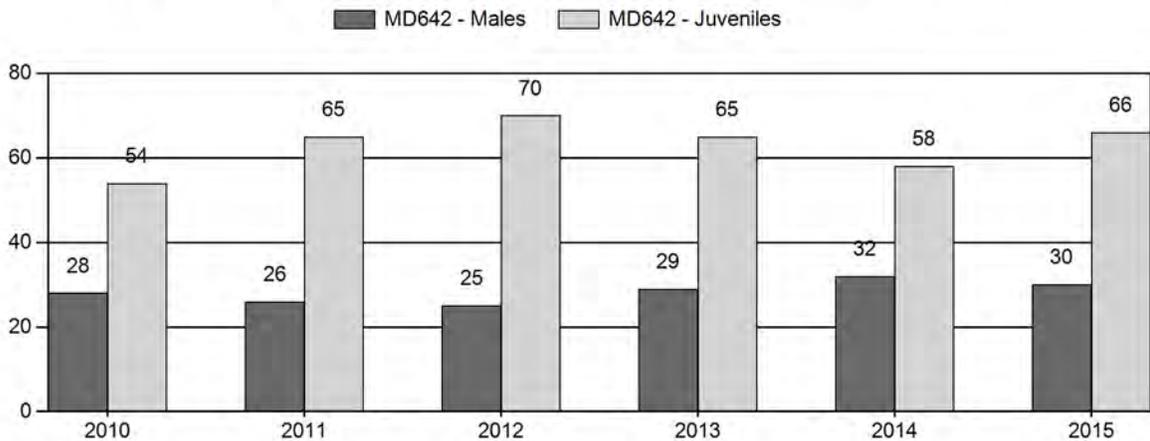
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD642 - DUBOIS

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	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	6,639	61	0	0	0	128	189	15%	683	55%	370	30%	1,242	876	9	19	28	± 3	54	± 4	42
2011	6,602	36	0	0	0	52	88	14%	340	52%	221	34%	649	1,073	11	15	26	± 4	65	± 7	52
2012	6,489	26	0	0	0	78	104	13%	415	51%	291	36%	810	1,232	6	19	25	± 3	70	± 6	56
2013	6,123	73	0	0	0	102	175	15%	605	51%	395	34%	1,175	1,117	12	17	29	± 3	65	± 5	51
2014	6,854	66	0	0	0	110	176	17%	555	53%	320	30%	1,051	980	12	20	32	± 3	58	± 5	44
2015	6,875	69	0	0	0	120	189	15%	628	51%	415	34%	1,232	1,172	11	19	30	± 3	66	± 5	51

**2016 HUNTING SEASONS
DUBOIS MULE DEER (MD 642)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
128		Oct. 1	Oct. 15		General	Antlered mule deer or any white-tailed deer
	1	Nov. 1	Nov. 20	50	Limited quota	Any deer
	3	Nov. 1	Nov. 20	50	Limited quota	Any white-tailed deer
	7	Nov. 1	Nov. 20	25	Limited quota	Doe or fawn valid on private land
148		Sep. 15	Oct. 25		General	Antlered deer
Archery						
128		Sep. 1	Sep. 30			
148		Sep. 1	Sep. 14			

Non Resident Region E Quota: 600

Hunt Area	Type	Quota change from 2015
Total		

Management Evaluation

Current Postseason Population Management Objective: 8,000

Management Strategy: Recreational

2015 Postseason Population Estimate: ~6,900

2016 Proposed Postseason Population Estimate: ~6,600

Management Issues

The Dubois mule deer herd had a revised population objective of 8,000 adopted in 2015. The previous objective of 10,000 had been in place since 1994. Over the 20 years the previous objective had been in place the population was never close to 10,000. Additionally, when the historical population did grow above 8,000 deer damage concerns in the area began to increase dramatically. The new objective is considered a better management target. The herd also has a recreational management strategy.

Deer in this herd unit winter in hunt area 128. It is known many of the deer migrate out of the herd unit in late spring and do not return until early winter. Migration routes and the extent of summer range are unknown. To help define deer movements better a migration/movement study will begin in 2016. It is expected 15 does will be collared in March, 2016 and tracked over

several years to help determine migration routes, summer, and transition range used by deer in the herd unit. Much of the winter range utilized by deer overlaps elk and bighorn sheep winter range and remains relatively untouched by development.

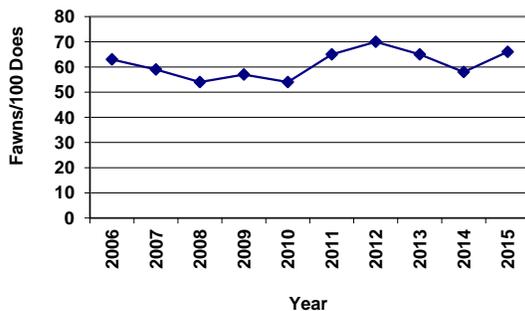
Habitat/Weather

The past year was characterized by mild conditions and good vegetation growth throughout the herd unit. Vegetation transects monitored to determine the amount of forage available on elk winter range revealed herbaceous vegetation production each of the last 2 years was well above the 20-year average for the area. No shrub data is collected in the herd unit, but the good growing conditions undoubtedly resulted in high browse production. Given the good feed resource in 2015, mule deer in the herd unit undoubtedly entered winter in good shape. Fall weather was mild followed by average snow and temperatures in December and January. After January, temperatures moderated and snow cover receded. Given mild to average winter conditions and excellent feed availability, mule deer survival in 2015 is expected to be good.

Field/Harvest Data/Population

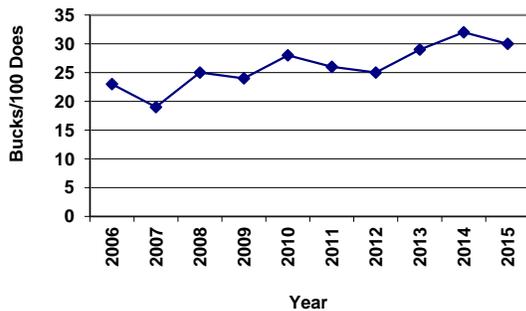
In 2015, personnel classified 1,232 mule deer. The sample exceeded the desired sample size for calculating accurate confidence intervals around age/sex ratios. Annual classification samples generally meet or exceed desired sample sizes in this herd unit. The 2015 classification sample yielded a fawn/doe ratio of 66/100. This was higher than the 2014 ratio of 58/100 but well within the historical recruitment range typically recorded in this herd unit. Despite annual fluctuations, there are no long term recruitment trends evident in this population and fawn production has been remarkably stable for many years (Fig. 1).

Figure 1. Ten year recruitment history for the Dubois mule deer herd.



Although the buck/doe ratio has also been fairly stable long term in the herd unit, there was a noticeable increase over the last several years (Fig. 2). The 2015 ratio of 30/100 was slightly lower than the 2014 ratio of 32/100 but still above the long term average for the herd unit. It is likely above average survival associated with favorable environmental conditions over the last several years resulted in increased buck numbers. It should be noted two management actions were taken in 2012 to facilitate an increase in buck numbers and quality. The general, October season was reduced 7 days that year to curtail pressure on bucks migrating into the herd unit in the second half of October. Also, Type 1 licenses were reduced by 50% to decrease pressure on bucks in November. It is possible these two actions have benefitted buck numbers. If the buck/doe ratio remains above 30/100 there is opportunity to add 7 days back onto the end of the general, October season in the future to provide increased recreational opportunity.

Figure 2. Ten year buck/doe ratio in the Dubois mule deer herd.



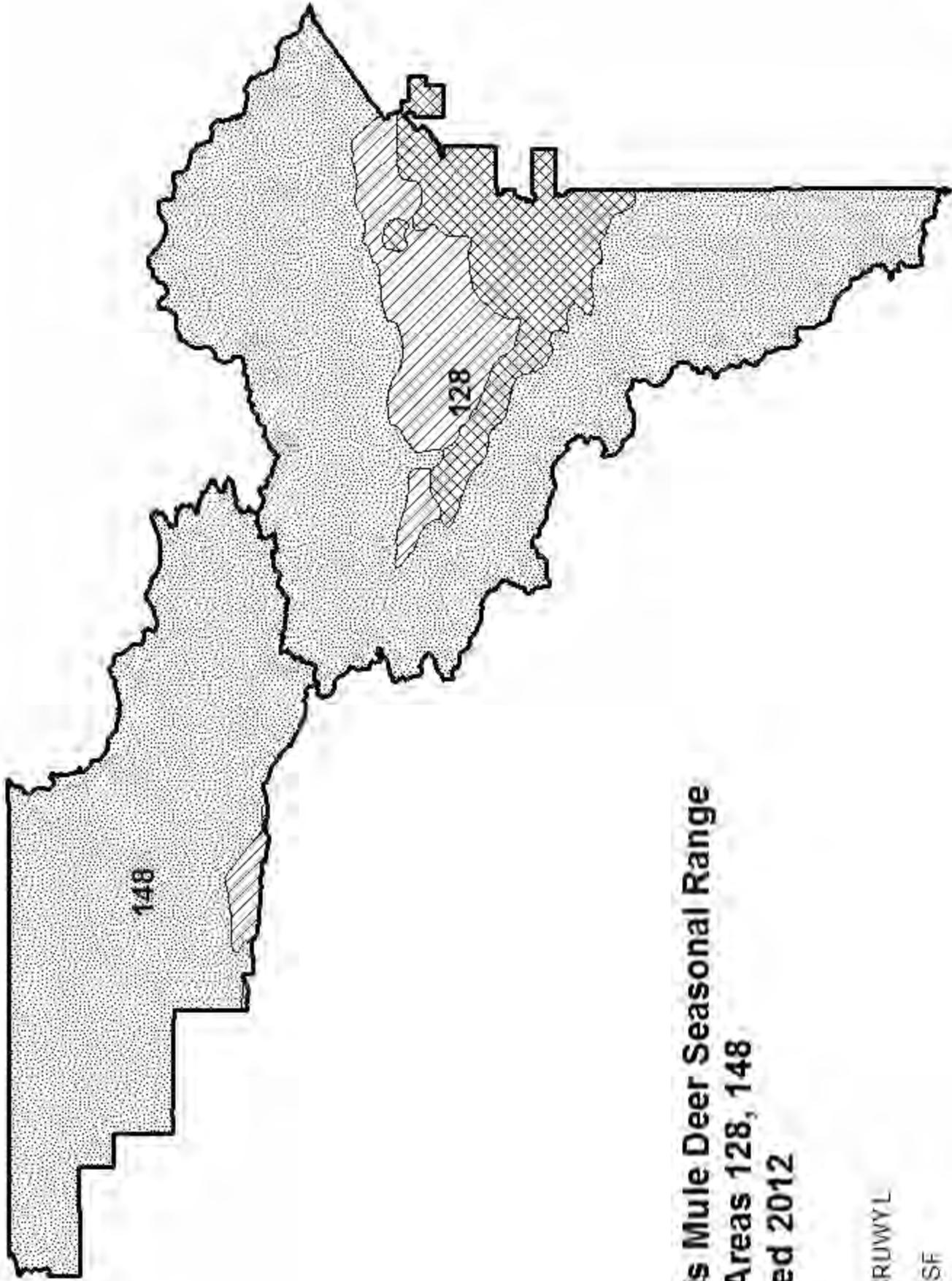
Hunter success during the general, October season tends to be low and is related to the fact many deer are not in the herd unit during that period. Deer typically migrate into the herd unit in late October and are present for the limited quota season in November. Due to the extensive immigration, success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

In 2015 general license hunters had a 27% success rate in hunt area 128 which was slightly higher than the 24% success in 2014. The 2015 success rate was almost identical to the 5-year average of 28%. The days/animal for general license hunters was 20.9 in 2015 compared to 24.2 in 2014 and the 5-year average of 24.8. Both the success rate and days/animal statistic are well within the typical range of variation for hunt area 128 and are unremarkable. Overall, harvest statistics from the last several years do not indicate any major demographic changes in the population.

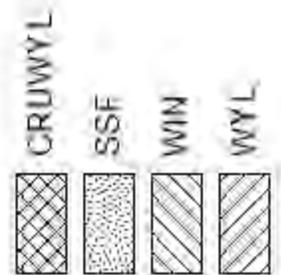
A new spreadsheet model was developed for the population in 2012. The model did not exhibit any erratic behavior with the addition of data in 2015. Each year of the model's use, the TSJ/CA version of the model was selected to track the population. The model AIC value was essentially the same as the other 2 comparative models but the fit was much better. Also the other 2 models produce estimates nearly 2 times as high as the TSJ/CA or other historical models for the herd. The selected model simulates a population over the past 20 years fluctuating between 6,000 and 8,000 deer. More recently, the model indicates the population declined from 2006 through 2012. Since 2012, the population has been stable. The 2015 population estimate is 6,900 and 86% of objective. The model is considered fair given adequate age/sex ratio data but lacking survival estimates.

Management Summary

The 2016 hunting season is designed to maintain recreational opportunity at the same level as the 2015 season. With no season changes proposed, 2016 harvest is expected to be very similar to 2015 harvest. Given average winter conditions and recruitment, the population is expected to be relatively stable at 6,600 deer in 2016.



**Dubois Mule Deer Seasonal Range
Hunt Areas 128, 148
Revised 2012**



2015 - JCR Evaluation Form

SPECIES: Mule Deer

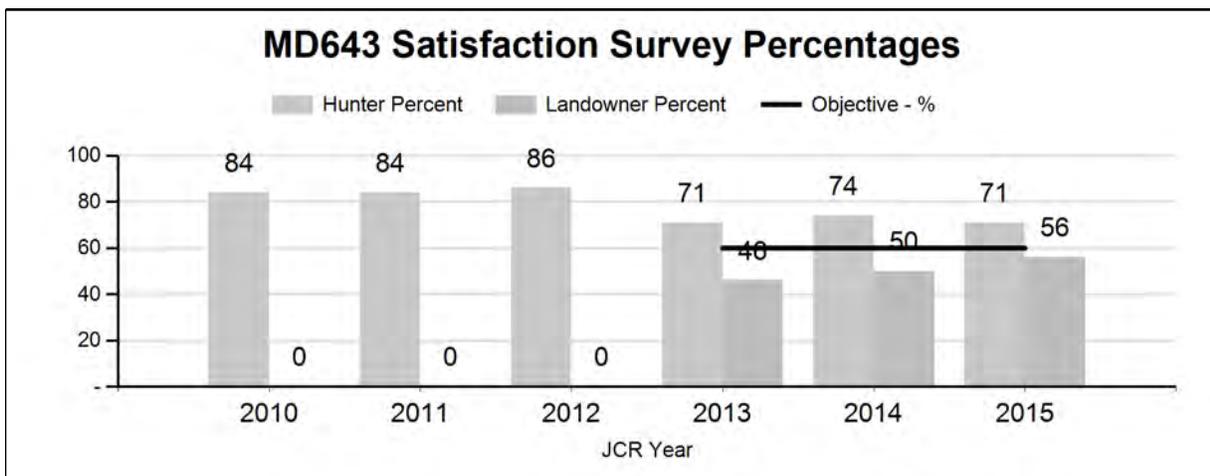
PERIOD: 6/1/2015 - 5/31/2016

HERD: MD643 - PROJECT

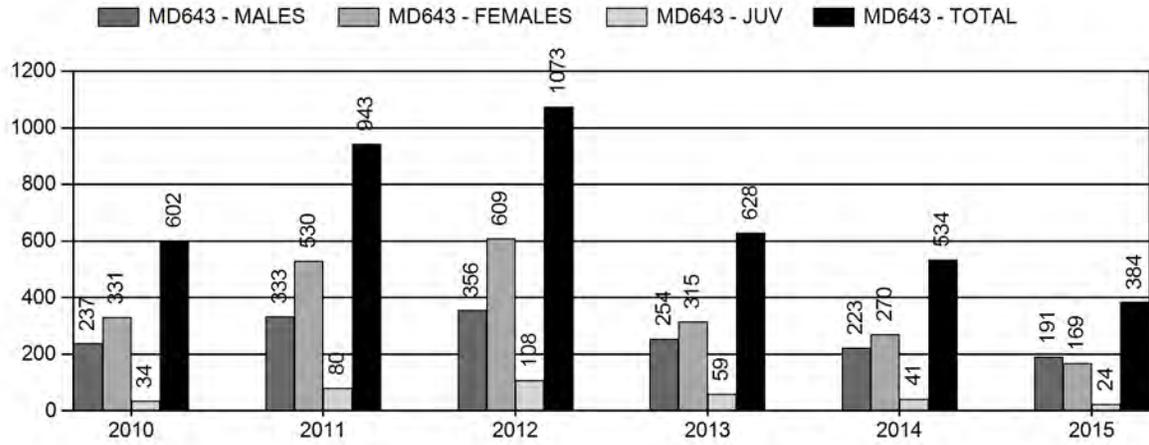
HUNT AREAS: 157, 170-171

PREPARED BY: GREG ANDERSON

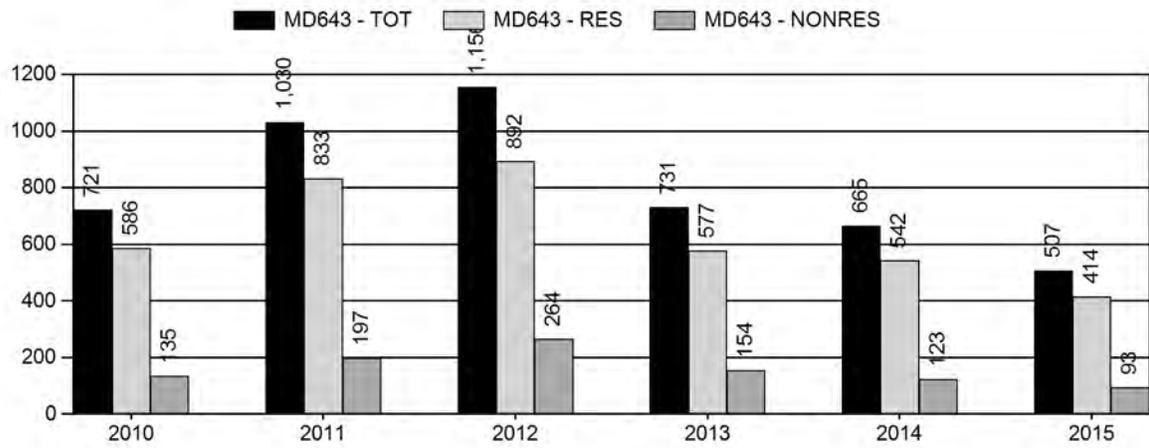
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	80%	71%	75%
Landowner Satisfaction Percent	46%	56%	60%
Harvest:	756	384	400
Hunters:	861	507	525
Hunter Success:	88%	76%	76%
Active Licenses:	998	611	675
Active License Success:	76%	63%	59%
Recreation Days:	3,832	2,208	2,400
Days Per Animal:	5.1	5.8	6
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			4%
Number of years population has been + or - objective in recent trend:			0



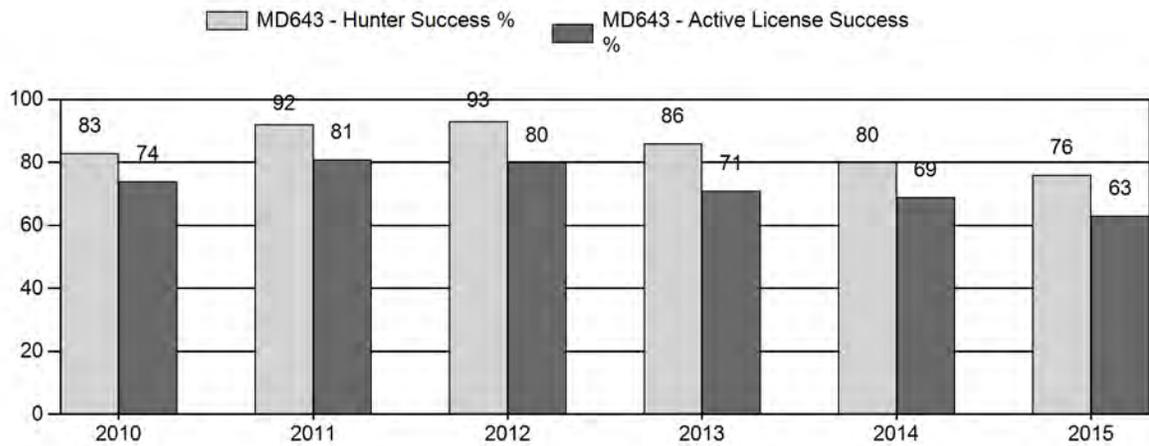
Harvest



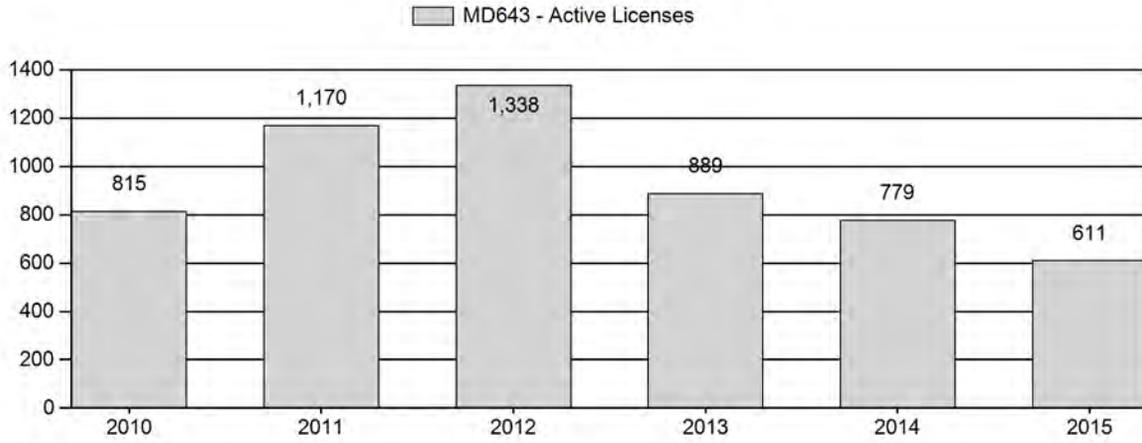
Number of Hunters



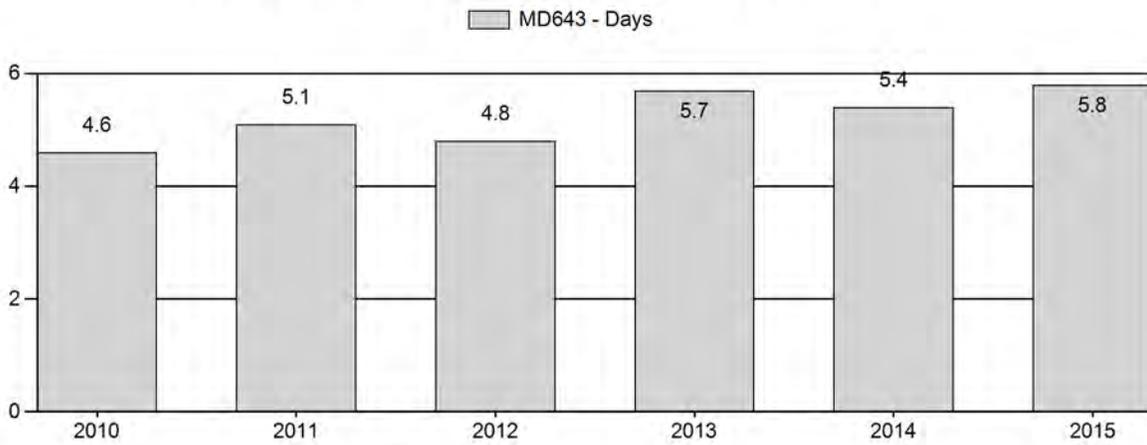
Harvest Success



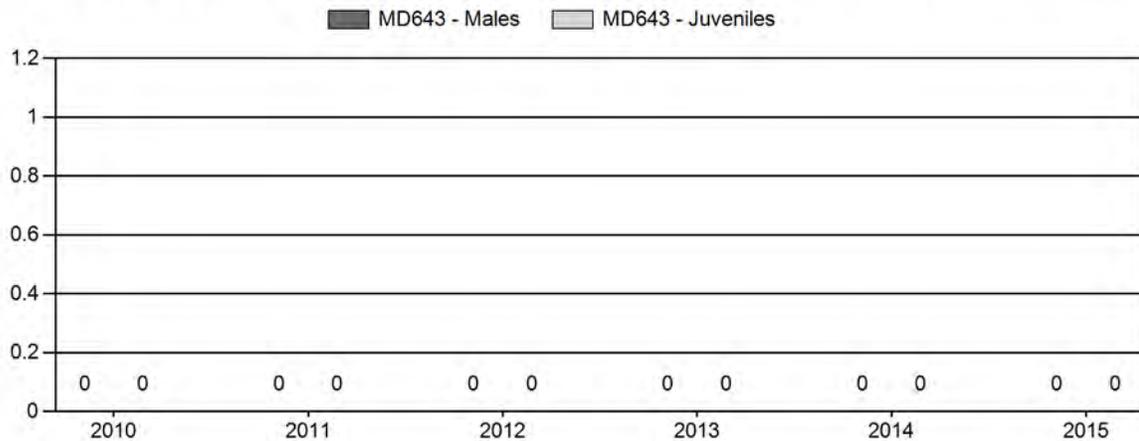
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



**2016 HUNTING SEASONS
PROJECT MULE DEER (MD 643)**

Hunt Area	Type	Season Dates		Quota	Licenses	Limitations
		Opens	Closes			
157, 170	1	Oct. 1	Oct. 31	250	Limited quota	Any deer
	3	Nov. 1	Nov. 30	100	Limited quota	Any white-tailed deer
	6	Oct. 1	Nov. 10	250	Limited quota	Doe or fawn
	8	Oct. 1	Oct. 31	75	Limited quota	Doe or fawn white-tailed deer
	8	Nov. 1	Nov. 30			Doe or fawn white-tailed deer valid on private land
171		Oct. 1	Oct. 31		General	Any deer
	3	Nov. 1	Nov. 30	75	Limited quota	Any white-tailed deer
	6	Oct. 1	Nov. 30	250	Limited quota	Doe or fawn
Archery 157, 170		Sep. 1	Sep. 30			
171		Sep. 1	Sep. 30			

Hunt Area	Type	Quota change from 2015
157, 170	3	+25
Total		+25

Management Evaluation

Current hunter/landowner satisfaction management objective: Hunter/Landowner Satisfaction 60%

Management Strategy: Recreational

2015 Hunter satisfaction estimate: 71%

2015 Landowner satisfaction estimate: 56%

Most recent 3-Year running average hunter satisfaction estimate: 72%

Most recent 3-Year running average landowner satisfaction estimate: 51%

Management Issues

In 2013 the Department conducted an objective review for the Project mule deer herd unit. Previously the herd had a population objective of 500 mule deer. The population objective was impractical because personnel were unable to collect adequate demographic data due to extensive interchange with the neighboring Wind River Reservation (WRR). Following an internal review, a public meeting and contact with numerous landowners the objective was changed in 2013 to manage for 60% hunter and 60% landowner satisfaction. Hunter satisfaction is taken directly from the harvest survey while landowner satisfaction in 2013 was determined by mailing a survey to 98 landowners in the herd unit. In 2014, landowners were polled via an e-mail survey in an attempt to increase response rate. The e-mail survey was ineffective, so in 2015 personnel began making personal contacts and phone calls to assess landowner opinions on deer numbers.

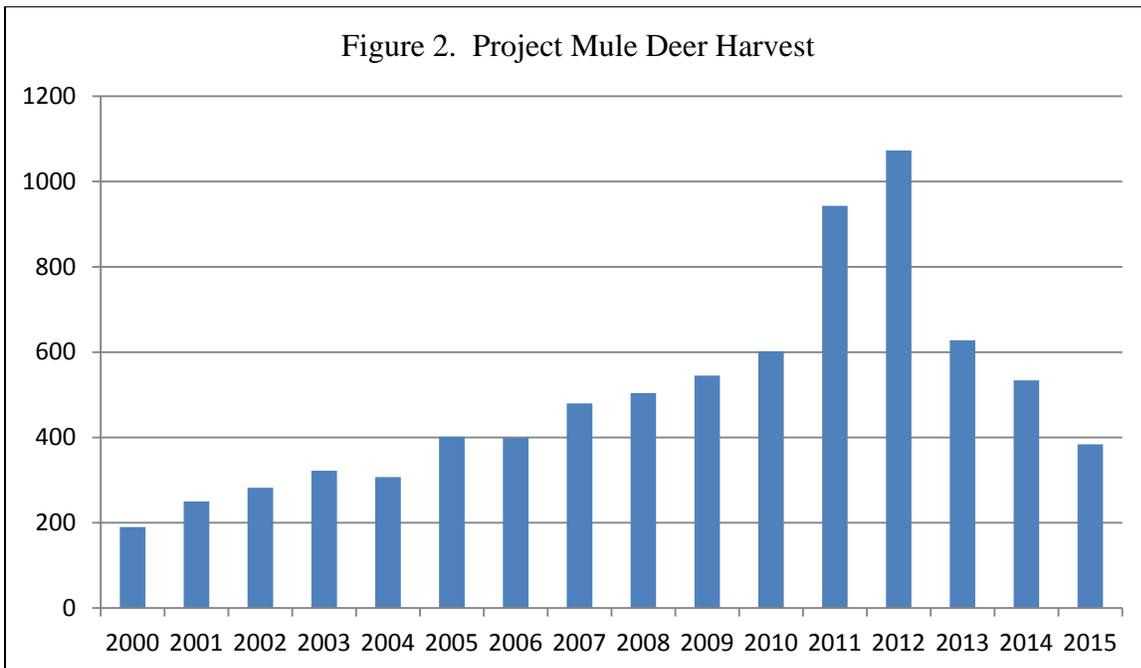
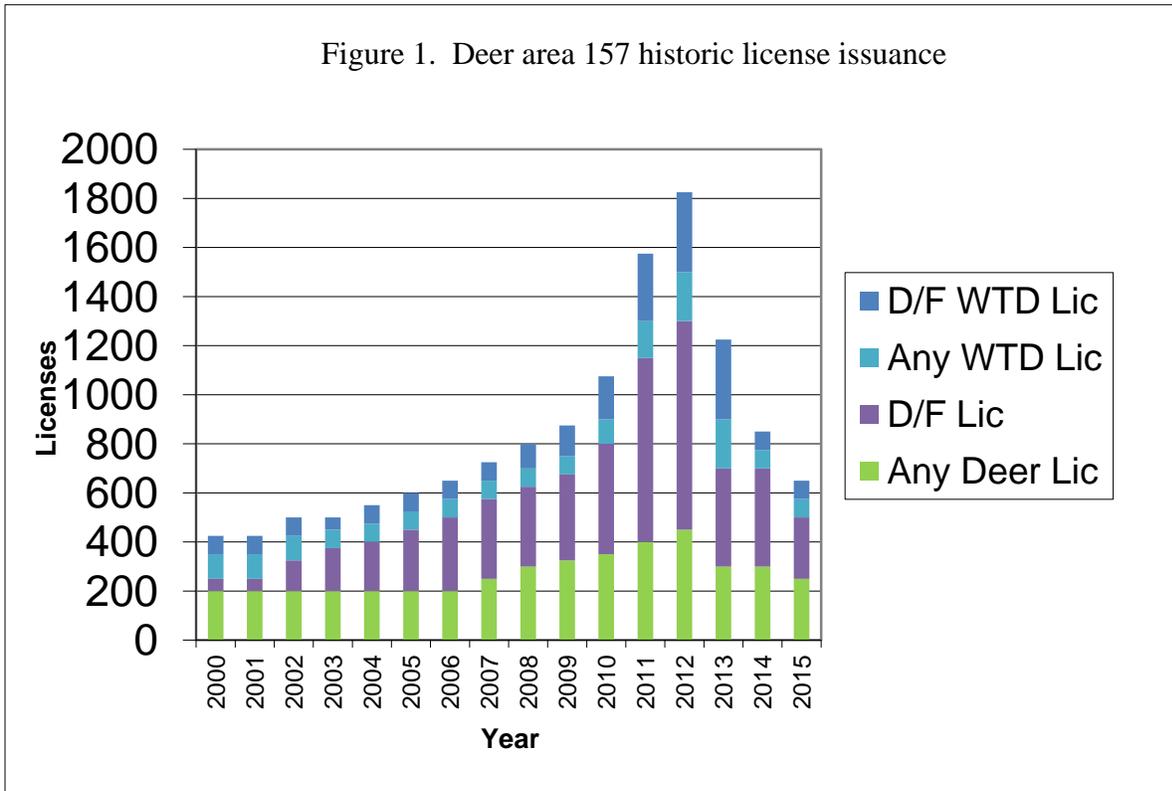
Habitat/Weather

This herd occupies a heavily agricultural area in central Wyoming as well as lands interspersed with the WRR. Land ownership patterns and extensive border with the WRR make it cost prohibitive to collect adequate demographic data in the herd unit. Deer densities are highest along the drainages throughout the herd unit, in particular the Wind River. As this is one of the main boundaries with the WRR, interchange is quite high. During periods of drought, this herd has typically been impacted less than surrounding populations due to the abundance of feed associated with agricultural operations. In 2015, weather conditions were conducive to good vegetative production throughout the herd unit including upland, native range. As such, mule deer were well dispersed throughout the area. Fall observations and field checks indicate mule deer in the herd unit entered winter in excellent body condition.

Field/Harvest Data/Population

Classification data have never been collected in this herd unit due to access issues throughout much of the herd unit. Personnel observations as well as numerous comments from landowners throughout the herd unit indicate this population grew significantly from the mid-2000's through 2012. In response to perceived growth and increased damage claims, harvest pressure increased steadily from 2000 through 2012. In 2012, an historic high number of licenses were issued in hunt area 157 where the majority of harvest in the herd unit occurs (Fig. 1). That year, over 1,000 mule deer were harvested in the herd unit. In 2013 harvest pressure was reduced, but harvest was still the third highest on record over the past 20 years at over 600 mule deer. The hunt season remained unchanged between 2013 and 2014. In response to a perception of continued decline in deer numbers, license numbers were decreased in 2015 and numbers of

were closer to the historical average for this area. The result was a decrease in mule deer harvest bringing the 2015 harvest closer to the historical average for the herd (Fig. 2).



Following the years of high harvest from 2010 through 2014, the mule deer population appears to have declined significantly. While no demographic data is available for the population, harvest statistics in 2015 indicate hunters had a harder time harvesting deer. Type 1 license success was 76% in 2015 and was well below the 5-year average of 88%. In addition, the days/harvest increased from 5.4 in 2014 to 5.8 in 2015 and was above the 5-year average of 5.1.

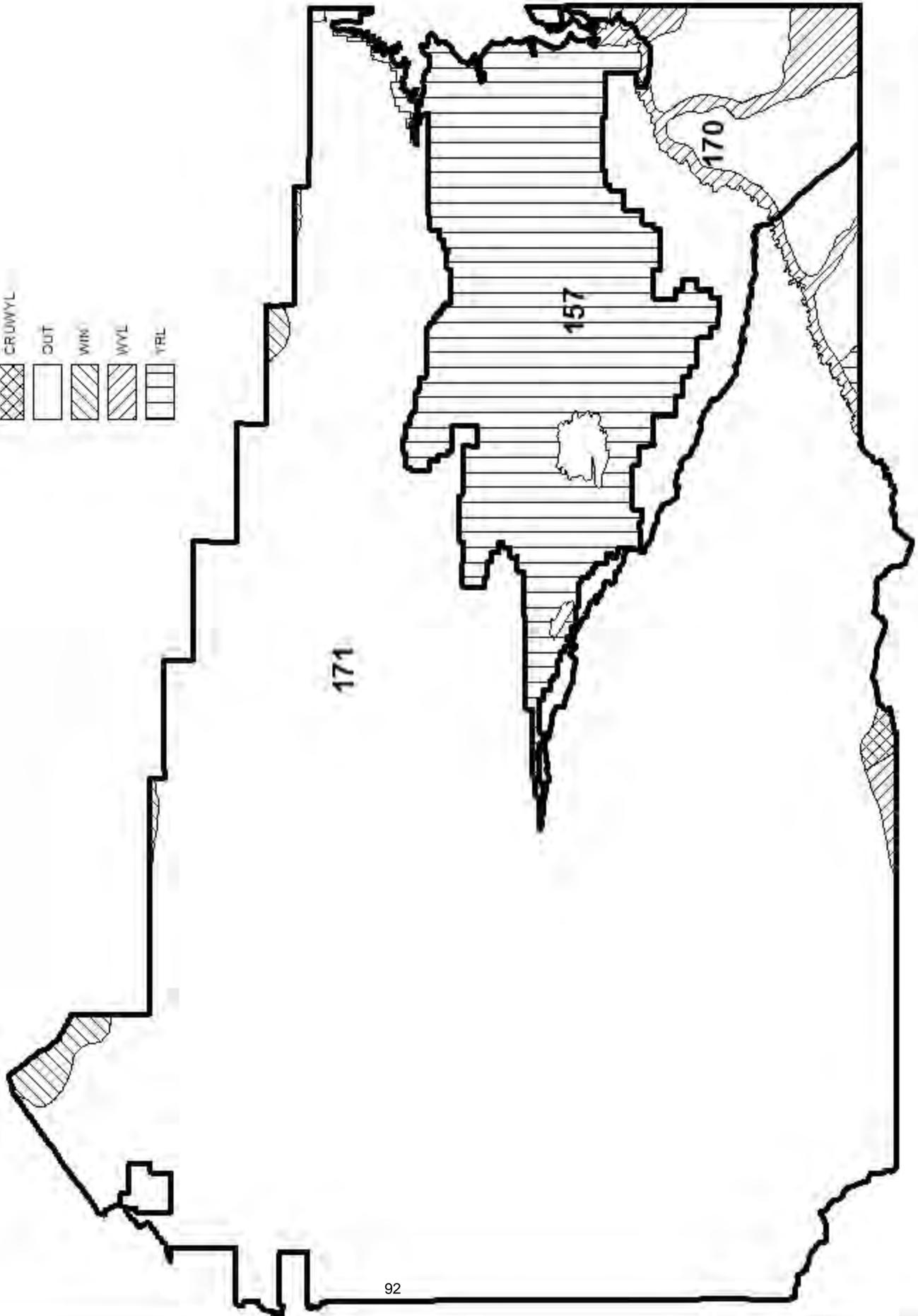
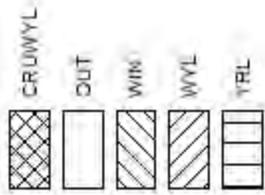
Hunter satisfaction was 71% in 2015. This was a slight decrease from 74% in 2014, but essentially the same as the 3-year average of 72%. Prior to 2013 hunter satisfaction was closer to 85%. Comments from hunters in the field indicated they were seeing fewer deer than in previous years and generally less satisfied with the deer population. This is not surprising as more recent seasons were designed to reduce the deer population significantly. This was the third year the landowner satisfaction survey was conducted so long term comparisons are not possible. That said, it appears landowners are somewhat ambivalent about the survey. Response rates to the satisfaction survey in 2013 and 2014 were anemic. In an attempt to generate more interest in the survey, personnel began contacting landowners in person and by phone in 2015. Landowner satisfaction was 56% in 2015. Although it was below the desired level of 60% it should be noted landowner satisfaction increased each of the past 3 years and comments regarding high deer numbers decreased. All information, including harvest statistics, hunter satisfaction, and landowner satisfaction indicate this mule deer population declined over the past several years.

While mule deer numbers declined in response to high harvest over the past several years, anecdotal information suggests both the mule deer and the white-tailed deer populations in the area were also significantly impacted by an EHD outbreak in 2013. White-tailed deer licenses were subsequently reduced for the 2014 season and remained at the lower level for the 2015 season (Fig. 1). Casual observations suggest white-tailed deer numbers began increasing in 2015. The original, 2016 season proposal did not include any changes to white-tailed deer license quotas. However, following a complaint by a landowner/hunter with property in Hunt Area 170 regarding increased white-tailed deer numbers personnel decided to propose an additional 25 Type 3 licenses for the 2016 season.

Management Summary

Perceptions of hunters, landowners, and Department personnel are that liberal seasons from 2010 through 2014 effectively reduced the deer population in this herd unit. Despite a significant reduction in the mule deer population, some landowners would like to see even fewer deer. Given 71% of hunters and 56% of landowners are satisfied with deer numbers, the population is considered close to objective. Since the population is considered close to objective and hunter satisfaction has trended downward over the past 6 years while landowner satisfaction has trended upward in the past 3 years, hunting seasons will remain unchanged in 2016 with the exception of an additional 25 Type 3 licenses.

**Project Mule Deer Seasonal Range
Hunt Areas 157, 170, 171
Revised 2012**



2015 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2015 - 5/31/2016

HERD: MD644 - SOUTH WIND RIVER

HUNT AREAS: 92, 94, 160

PREPARED BY: STAN HARTER

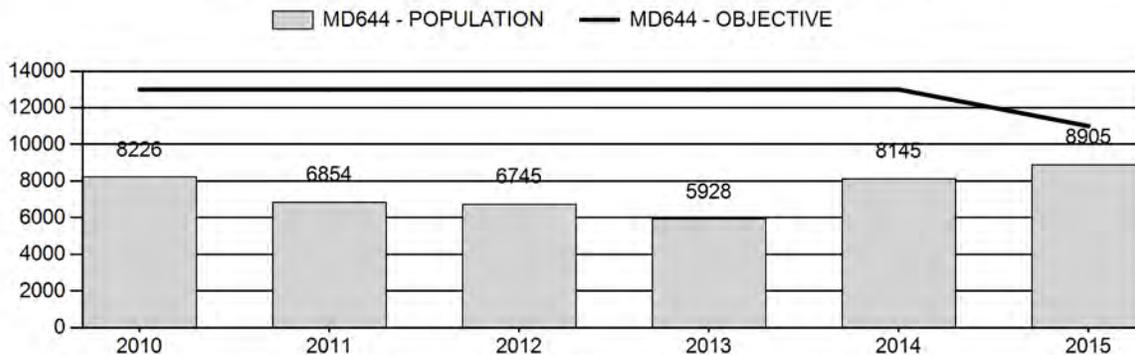
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	7,180	8,905	9,324
Harvest:	581	716	740
Hunters:	1,446	1,452	1,500
Hunter Success:	40%	49%	49 %
Active Licenses:	1,521	1,471	1,500
Active License Success:	38%	49%	49 %
Recreation Days:	6,230	6,224	6,400
Days Per Animal:	10.7	8.7	8.6
Males per 100 Females	25	34	
Juveniles per 100 Females	75	88	

Population Objective (± 20%) :	11000 (8800 - 13200)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-19.0%
Number of years population has been + or - objective in recent trend:	3
Model Date:	02/18/2016

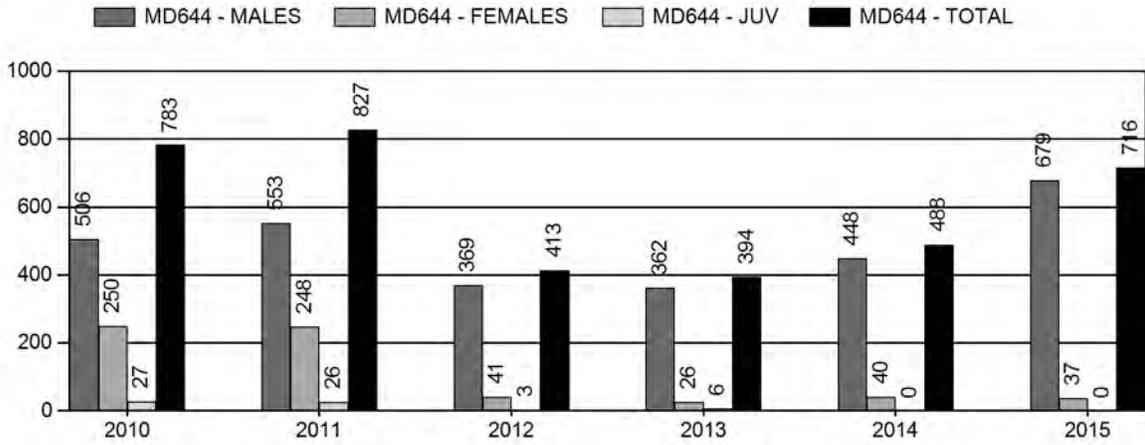
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.0%	1.0%
Males ≥ 1 year old:	37.4%	35.2%
Juveniles (< 1 year old):	0.0%	0.0%
Total:	7.4%	7.3%
Proposed change in post-season population:	+9.3%	+4.7%

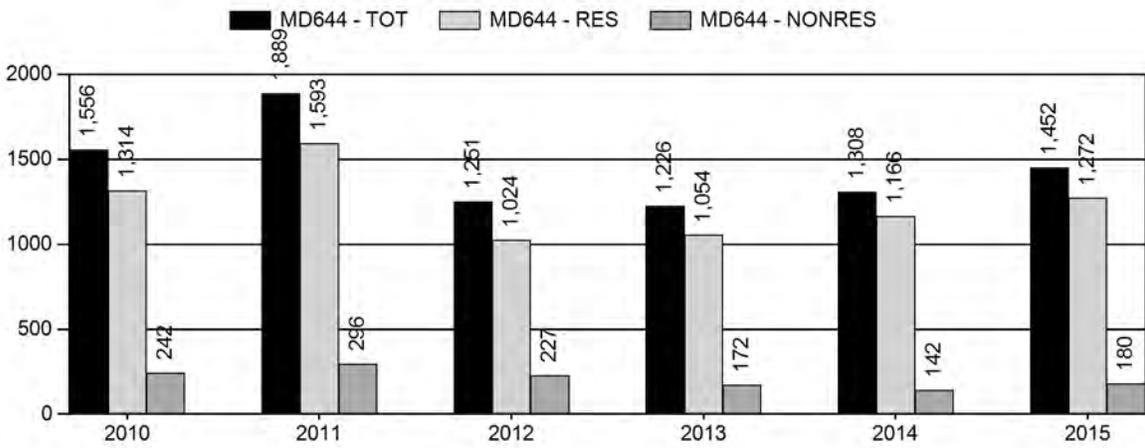
Population Size - Postseason



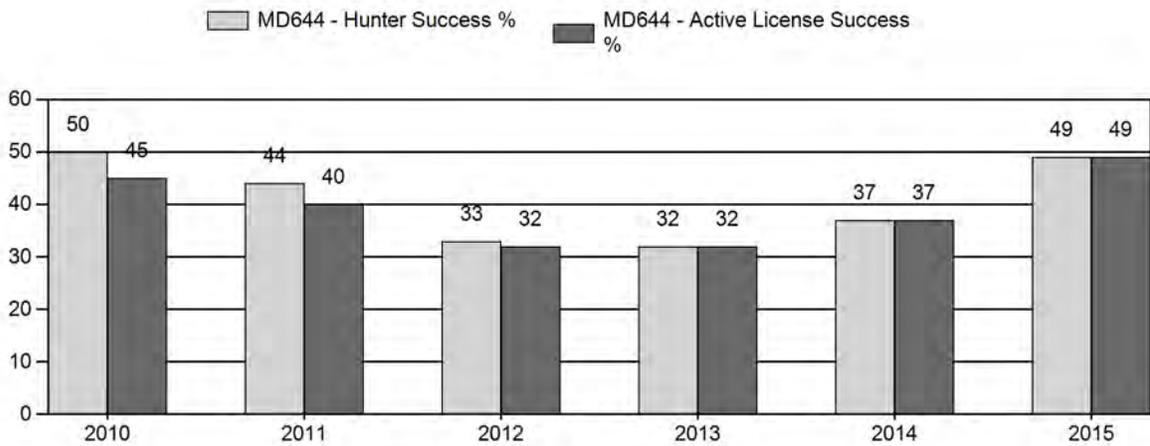
Harvest



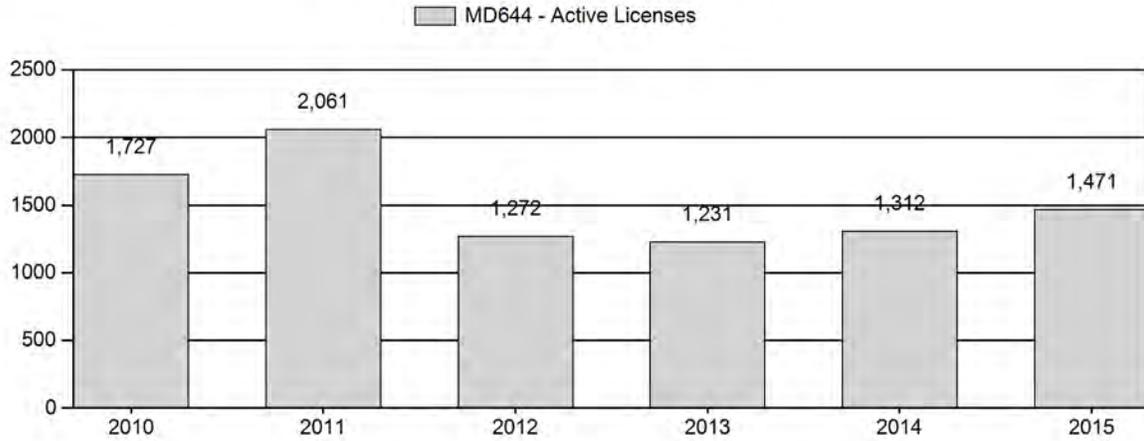
Number of Hunters



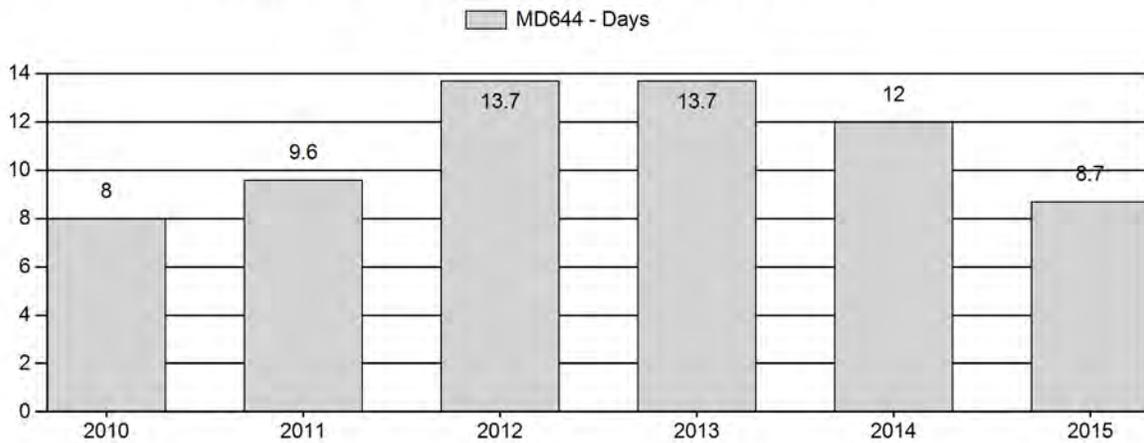
Harvest Success



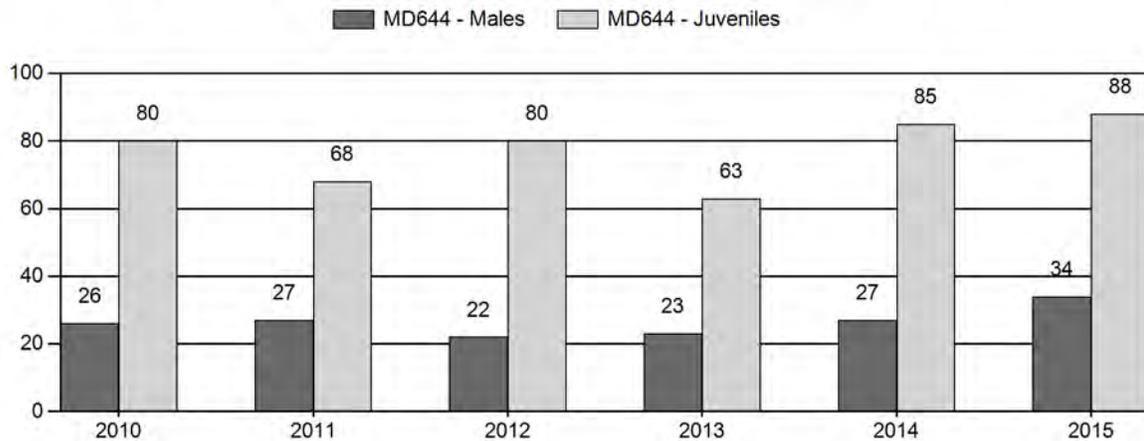
Active Licenses



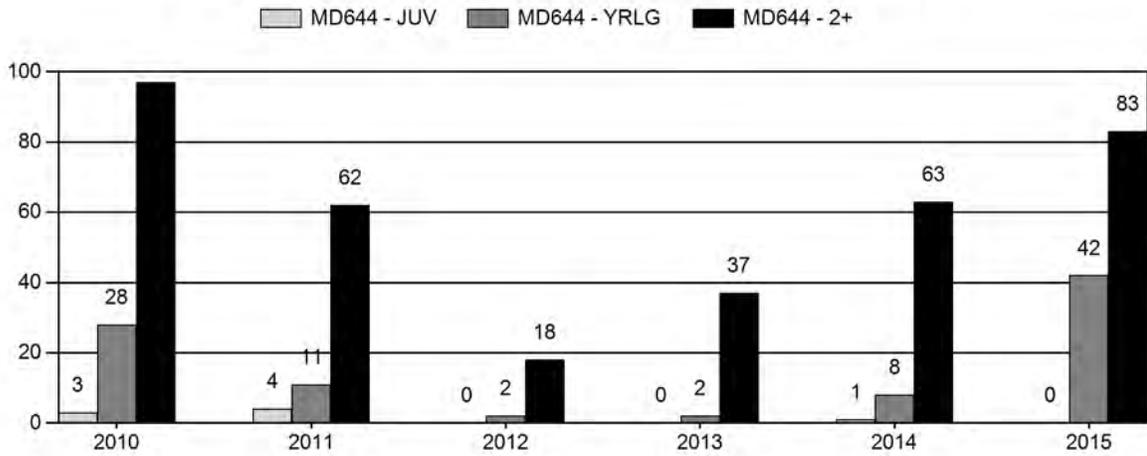
Days per Animal Harvested



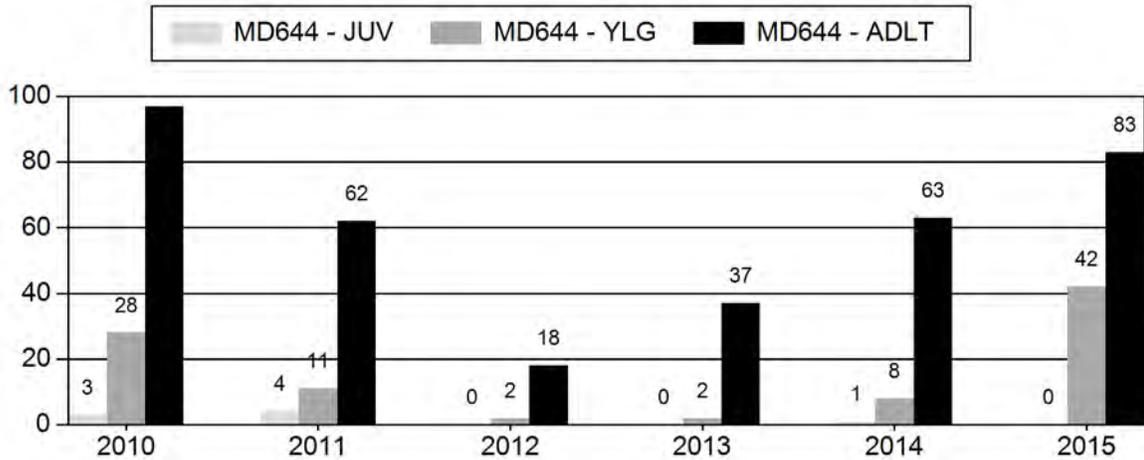
Postseason Animals per 100 Females



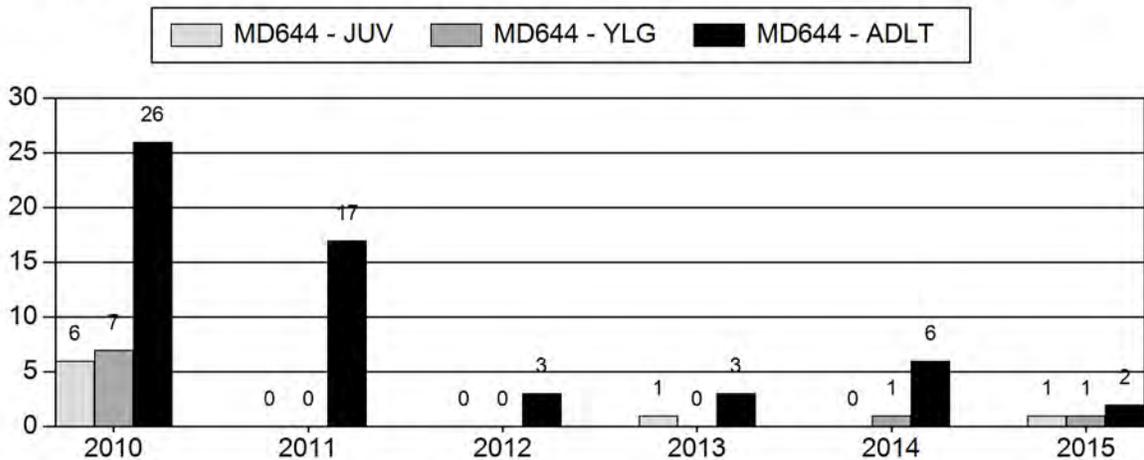
Age Structure of Field Checked Males



Age Structure Data (Field and Laboratory) - Male



Age Structure Data (Field and Laboratory) - Female



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD644 - SOUTH WIND RIVER

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot		Males to 100 Females			Young to			
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Cls	Obj	YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	8,226	198	0	0	0	191	389	12%	1,512	49%	1,214	39%	3,115	1,695	13	13	26	± 1	80	± 3	64
2011	6,854	154	0	0	0	199	353	14%	1,319	51%	892	35%	2,564	1,277	12	15	27	± 2	68	± 3	53
2012	6,745	102	106	40	3	0	251	11%	1,129	49%	908	40%	2,288	1,543	9	13	22	± 2	80	± 4	66
2013	5,928	146	161	53	6	0	366	12%	1,581	54%	1,003	34%	2,950	1,036	9	14	23	± 1	63	± 2	52
2014	8,145	144	132	42	5	0	323	13%	1,184	47%	1,009	40%	2,516	1,761	12	15	27	± 2	85	± 4	67
2015	8,905	304	206	57	4	0	571	15%	1,664	45%	1,457	39%	3,692	1,905	18	16	34	± 2	88	± 3	65

2016 HUNTING SEASONS
South Wind River Mule Deer Herd Unit (MD 644)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
92		Oct. 1	Oct. 23		General Youth License	Any deer
92		Oct. 15	Oct. 23		General	Antlered mule deer or any white-tailed deer
92, 94, 160	3	Oct. 1	Nov. 30	50	Limited Quota	Any white-tailed deer
92, 94, 160	8	Oct. 1	Nov. 30	100	Limited Quota	Doe or fawn white-tailed deer
94		Oct. 1	Oct. 23		General Youth License	Any deer
94		Oct. 15	Oct. 23		General	Antlered mule deer or any white-tailed deer
160		Oct. 1	Oct. 23		General Youth License	Any deer
160		Oct. 15	Oct. 23		General	Antlered mule deer or any white-tailed deer
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

Region E Non-Resident Quota: 600

Hunt Area	License Type	Quota Change from 2015
160	6	-25
Herd Unit Total	6	-25

MANAGEMENT EVALUATION

Current Post-Season Population Management Objective: 11,000

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

2015 Post-season Population Estimate: ~8,900

2016 Post-season Population Estimate: ~9,300

Herd Unit Issues

The management objective was reviewed in 2015, and the long-term post-season objective of 13,000 mule deer was reduced to 11,000. The secondary objective of Recreational Management Strategy (20-29 bucks/100 does) will continue. Population growth occurred from 2002 to 2009, but declined from 2010 to 2013, due to poor fawn recruitment as a result of intense drought. However, fawn/doe ratios have significantly improved the last two years, demonstrating the population seems capable of recovery with improved habitat conditions which follow increased precipitation. The 2015 post-season population reached about 8,900 mule deer, 19% below objective.

Weather

Precipitation

Precipitation information is generated from the PRISM (Parameter-elevation Relationships on Independent Slopes Model) dataset developed by Oregon State University. For the South Wind River Herd Unit, precipitation values based on 9 weather stations located throughout the herd unit. Precipitation from October 2014 through September 2015 was higher than the 30-year average (Table 1). Precipitation levels during the low-elevation growing season (April-June 2015) and at higher elevation SSF seasonal ranges (May- July 2015) were also notably higher than the 30-year averages. The majority of the precipitation came during the growing season (April-July) and was followed by a mild, dry fall. Precipitation in Lander was 140% above average for the first four months of 2016, with record breaking rain falling in the first week of May, which should lead to excellent summer forage conditions.

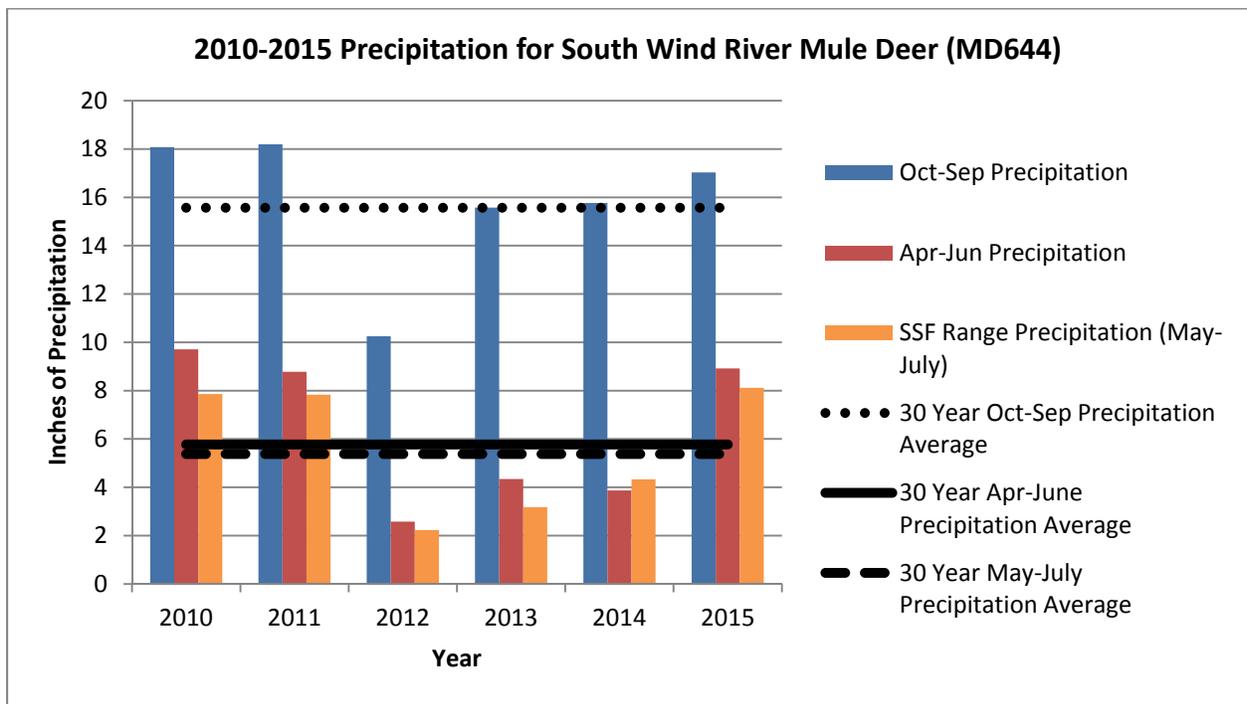


Table 1. Precipitation values for South Wind River Mule Deer (MD644) from 2010 – 2015.

Winter Conditions

Winter 2015-2016 has been relatively mild with temperatures averaging 25.74°, which is considered normal for the November-February time period in the Lander Area. A mild fall ended in late November with the highest snowfall event so far this winter coming over Thanksgiving weekend. A total of 37” of snowfall was recorded in Lander from November 2015-February 2016, and was 16.2” (or 30%) below the 30-year average. The limited snowfall, while indicating relatively mild winter conditions for wildlife, is of some concern for vegetation production in the coming growing season. Snow water equivalents for the South Pass, Deer Park, and Townsend Creek SnoTel sites recorded February 1st, 2016 were 69%, 79%, and 75% of average for those respective sites.

Habitat

As noted above, precipitation was well above average during the spring/early summer of 2015. Abundant growing season precipitation should have provided ample forage across the herd unit for mule deer does in early parturition. This, in turn, likely contributed to the high fawn/doe ratio observed in the South Wind River Herd Unit (88 fawns/100 does).

Field Data

Good flying conditions allowed us to survey winter ranges thoroughly using a Bell 206B Jet Ranger helicopter in mid-November 2015, but limited snow cover increased the difficulty of detection of some mule deer. Even so, we observed 3,692 mule deer, the second highest sample ever. Rut appeared to be at maximum peak, leading to a 2015 post-season total buck/doe ratio of 34M/100F. This was highest buck/doe ratio observed in 35 years and 48% above the average since 1994. This was not expected following removal of three (3) point antler restrictions (APRs) in the 2015 hunting season and resultant increased buck harvest. The increased buck/doe ratio was likely due to high buck detection during rut along with elevated fawn survival and yearling buck recruitment (18YM/100F) succeeding a 35% increase in the fawn/doe ratio in 2014. The fawn/doe ratio rose to 88J/100F in 2015, resulting from improved forage conditions due to increased precipitation the last two years.

Antler width class data have been collected during post-season classification surveys the past 4 years, with the number of bucks in each width class shown in Figure 1. In 2015, over 89% of the mule deer bucks classified in the South Wind River Herd Unit were either yearlings or had Class 1 antler widths (adult bucks ≤ 19 " wide), indicating a shortage of older age-class bucks despite reduced harvest levels experienced with APRs in the 3 previous hunting seasons. In essence, APRs were forcing harvest on older age class bucks, while replacement levels were quite low due to low fawn survival/yearling recruitment.

The inaugural South Wind River mule deer sightability survey was completed in February 2015. A total of 6,640 mule deer were observed, with analysis details provided in the population section to follow.

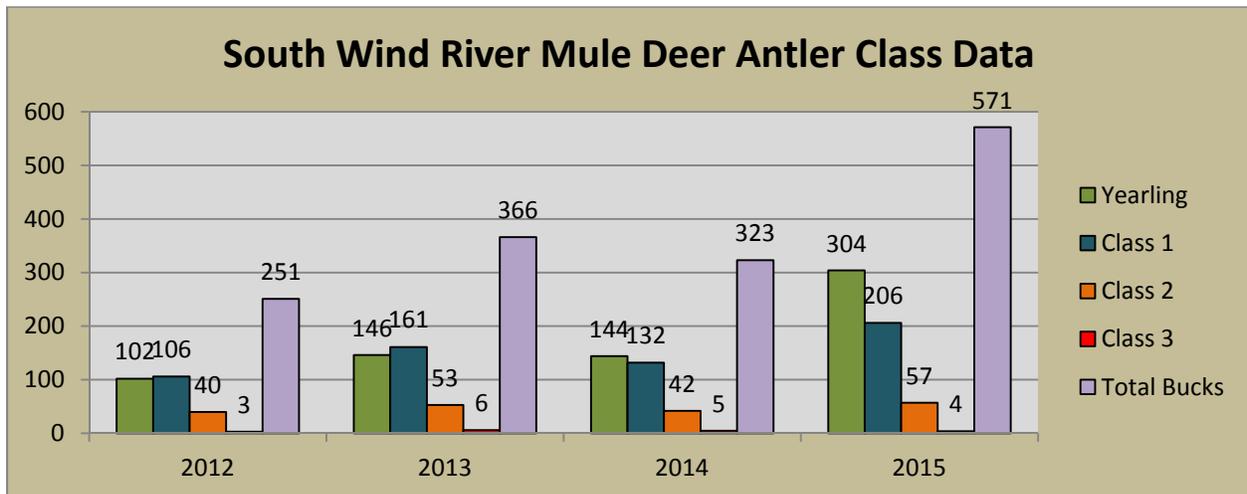


Figure 1. Antler class data (number of bucks in sample) from classification surveys in the South Wind River Mule Deer Herd Unit, 2012 – 2015.

Harvest Data

Weather during fall 2015 was quite moderate in the South Wind River Herd Unit. Mostly dry conditions allowed mule deer and hunters to be dispersed across the herd unit, a possible factor contributing to fewer crowding complaints than expected after lifting APRs. Hunters reported improved numbers of mule deer overall, but with low numbers adult bucks. Removal of APRs did lead to higher buck harvest, greater success, and reduction of hunter effort per harvest. The number of general license hunters jumped 16% compared with the average number of hunters during the APR years (2012 – 2014), and total buck harvest increased 52% above that of 2014. Of all mule deer bucks checked in the field and at check stations, 34% were yearlings and 45% were Class 1 bucks, leading to a reduction in focus on older age bucks for which APRs had targeted for 3 years. Hunter success was up to 49%, compared with an average of 34% during the latest APR seasons. The “days per animal harvested” statistics for general licenses, as an indicator of hunter effort, dropped to 8.7 days/animal in 2015. Doe/fawn mule deer hunting in response to damage issues in Hunt Areas 160 and youth and archery hunters allowed to hunt for “Any” deer, resulted in minimal harvest of 37 does and 0 fawns.

Antler width class data have been collected since 2012 during field checks and at check stations. This coincides with the 3 years of 3-point APRs in place for the South Wind River Herd Unit. Antler widths have not improved over the last 4 years, and the proportion of Class 1 bucks harvested has increased compared with Class 2 and Class 3 bucks (Figure 2). This mimics the trend in antler width classes observed in post-season classification surveys outlined in the previous section.

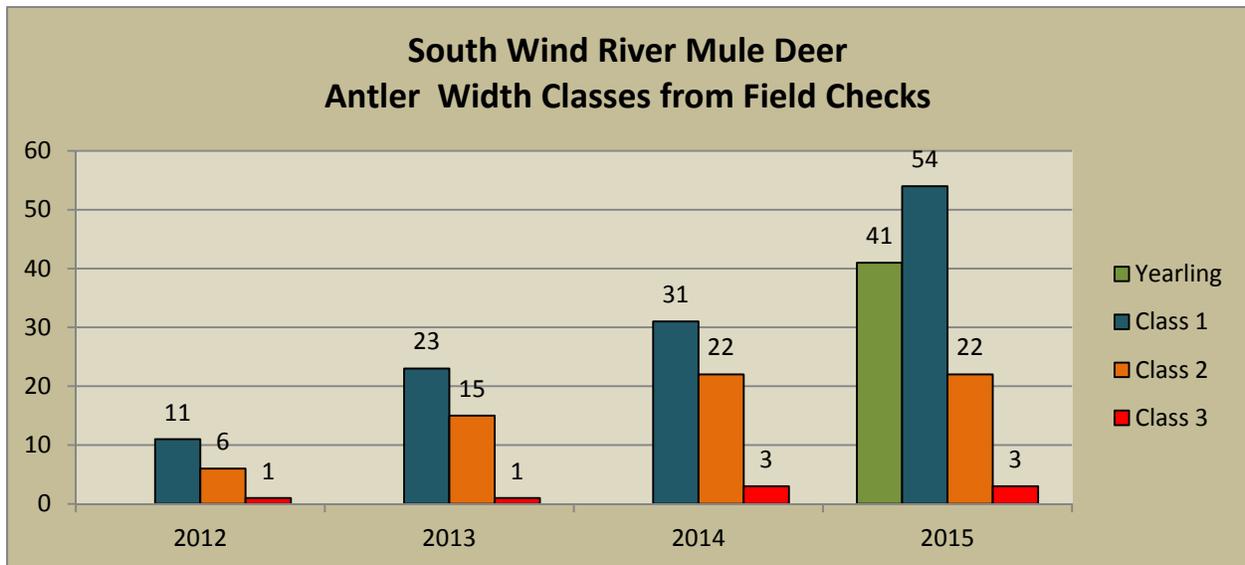


Figure 2. Antler width classes as measured during field checks and at check stations, 2012 – 2015.

Population

A spreadsheet model developed for this population in 2012 has been updated, utilizing 2015 post-season classification and harvest data. The TSJ, CA model was selected as the best fit model, with the lowest Relative AICc value and producing population estimates aligned with trends observed in buck harvest, fawn recruitment, and buck/doe ratios. It also matches professional perceptions of field personnel and public opinion about mule deer population trends.

In addition to traditional classification and harvest data, the model now anchors to a population estimate derived from the sightability survey completed for this herd unit in February 2015. This survey utilized actual mule deer counts, along with snow and vegetation cover variables to provide a correction factor for each cluster of mule deer, thereby estimating the number of deer missed in the survey. The sightability model provided a total estimate of mule deer and the standard error for the estimate. In the inaugural survey, we observed 6,640 mule deer, with a model estimate of 8,517 (± 208). Utilizing traditional classification and harvest data, along with this post-season estimate, the spreadsheet model produces a post-season 2015 estimate of 8,905 mule deer. This spreadsheet model (TSJ, CA) is anchored to the sightability estimate and though lacking actual survival metrics is considered GOOD.

Management Summary

Past management included implementation of antler point restrictions (4-point in 2004 and 2005 and 3-point in 2012-14), in response to declines in buck/doe ratios and population trends, and perceived increases in hunter numbers. Expectedly, both APR types resulted in lower hunter numbers and reduction of overall buck harvest. The 4-point APR implemented in 2004 and 2005 coincided with improved buck/doe ratios as a result of improved fawn survival/yearling buck recruitment with favorable weather patterns and improved, albeit short-term, habitat conditions. The recent 3-point APR seasons did not lead to dramatic improvements in buck/doe ratios, largely due to drought concurrent with the first 2 years of APRs. However, buck/doe ratios did improve substantially in 2015, following improvements in fawn survival/yearling recruitment and increased buck detection during peak of rut, with the total buck/doe ratio of 34M/100F surpassing upper end of the Recreational Management range.

This herd unit is part of the Lander/Green Mountain Mule Deer Initiative, complete with a public “Working Group”. Short-term recommendations for the South Wind River Mule Deer Herd Unit were presented to the Department in December 2014. Long-term recommendations followed, with final recommendations presented to the Department in August 2015. These recommendations were comprehensive in nature, incorporating the following prioritized management issues: 1) Research and Monitoring, 2) Adaptive Management, 3) Hunting Season Structure, 4) Habitat Management, 5) Education and Public Outreach, 6) All Terrain Vehicles (ATVs), 7) Predator Management, and 8) Wildlife Law Enforcement and WGFD Field Presence.

The recommended limited quota season structure will not be implemented in 2016. Some of the Working Group’s long-term hunting season recommendations are consistent with our management direction and will be implemented for the 2016 seasons.

Youth hunters with General Licenses will continue to have added opportunity with their season opening on October 1 valid for any deer to promote youth hunter retention and recruitment.

We are not continuing the General License “any white-tailed deer” opening date of October 1 due to potential of extra hunter crowding issues associated with adult hunters hunting in areas where white-tailed deer are scarce or non-existent. This also may have contributed to illegal mule deer take according to the “date of harvest” information received via harvest surveys. Instead, specific hunts for white-tailed deer are again being offered with longer seasons running from October 1 through November, with 50 Type 3 (Any white-tailed deer) and 100 Type 8 (Doe

or fawn white-tailed deer) licenses valid in Hunt Areas 92, 94, and 160 collectively. White-tailed deer numbers have increased following the 2013 EHD die-off, but apparently not to the same level as yet. With most white-tailed deer hunting opportunities occurring on privately owned lands, these seasons should apply harvest pressure on white-tailed deer in appropriate locations to increase harvest, as well as reduce the potential for overwhelming landowners with access requests.

In response to substantial improvement in buck/doe ratios above the upper end of the “Recreational Management” range, we are adding a day to the end of the General License seasons to allow 2 full weekends of hunting, also in response to past public input. All General License seasons will end on Sunday, October 23, instead of the traditional closing date of October 22.

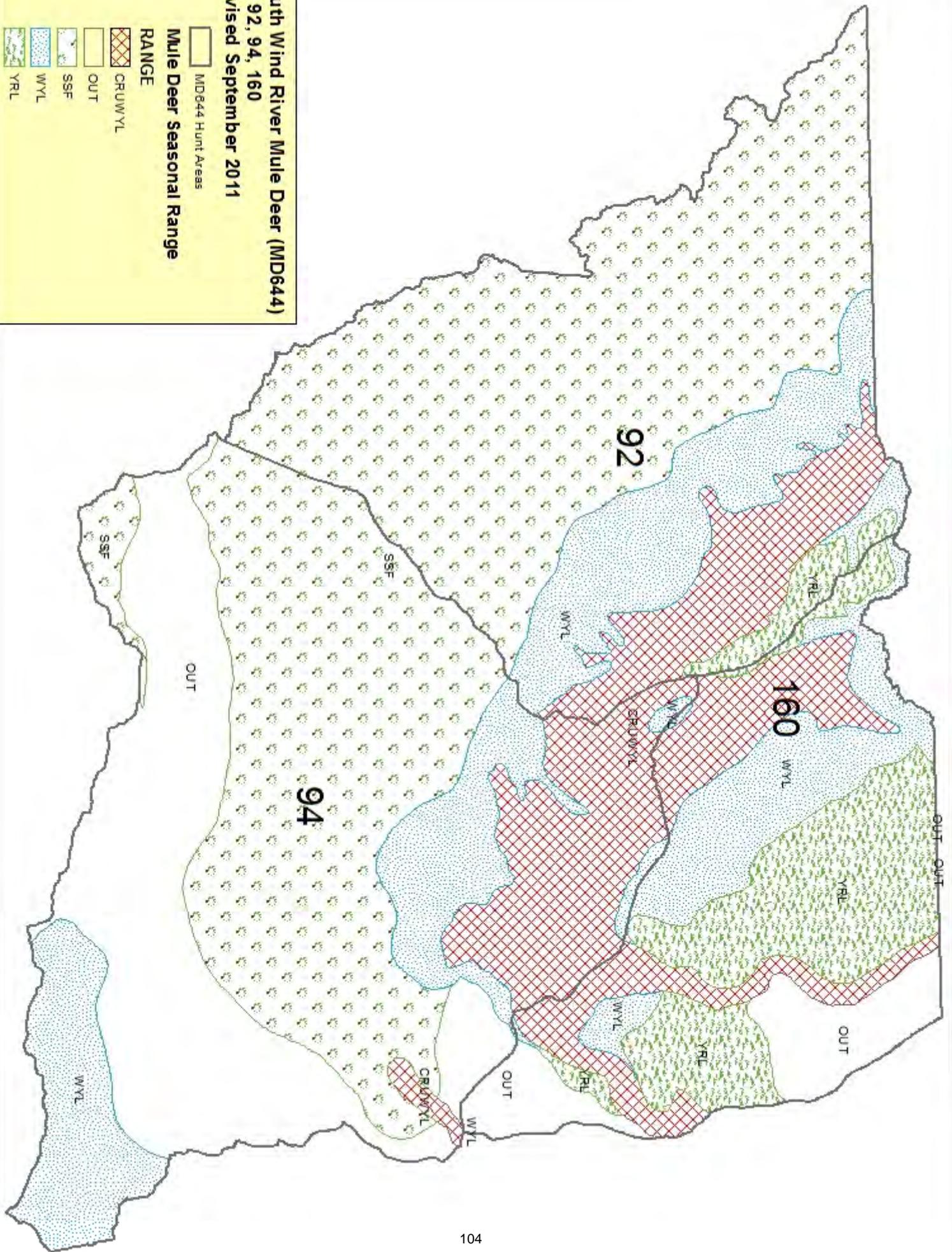
The 2016 seasons include removal of Hunt Area 160 Type 6 doe/fawn licenses previously issued to minimize damage on private lands in Lyons Valley. Landowners there have reported fewer problems with mule deer damage and indicate less need for those licenses. With Youth General License hunters being allowed to harvest “any deer”, we will work with landowners to provide opportunities to youth hunters in 2016 should the need arise to address any unforeseen damage issues.

Additionally, the Department and our partners will begin implementation of many of the Working Group’s recommendations for research, habitat, and other categories, beginning with capture and collaring of 20 mule deer in the South Wind River herd unit in March 2016 to monitor migration and movement and continuation of habitat improvement projects including South Pass aspen regeneration and Red Canyon cheatgrass control.

The 2016 season structure should result in a harvest of approximately 740 mule deer, including 700 bucks, along with 40 does. This should allow population growth to about 9,300 mule deer, moving the herd toward objective.

South Wind River Mule Deer (MD644)
HA 92, 94, 160
Revised September 2011

-  MD644 Hunt Areas
- Mule Deer Seasonal Range**
- RANGE**
-  CRUWYL
-  OUT
-  SSF
-  WYL
-  YRL



2015 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2015 - 5/31/2016

HERD: MD646 - SWEETWATER

HUNT AREAS: 96-97

PREPARED BY: STAN HARTER

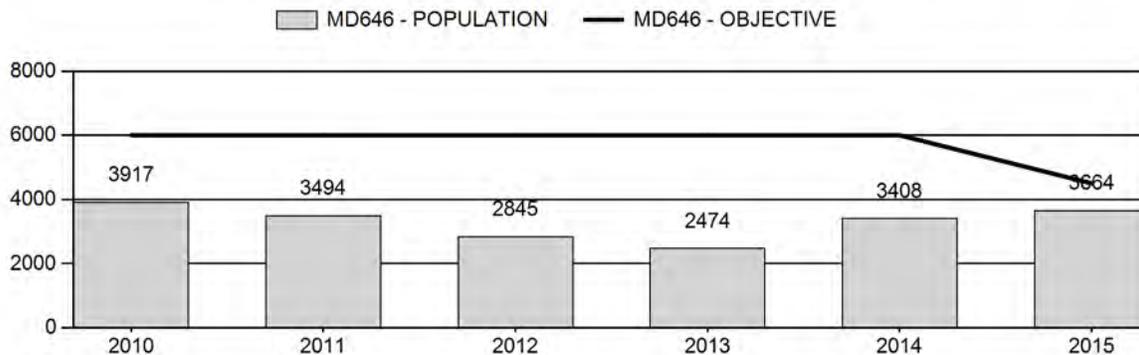
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	3,228	3,664	3,925
Harvest:	480	543	425
Hunters:	1,055	978	900
Hunter Success:	45%	56%	47 %
Active Licenses:	1,106	978	900
Active License Success:	43%	56%	47 %
Recreation Days:	4,261	3,267	3,000
Days Per Animal:	8.9	6.0	7.1
Males per 100 Females	22	21	
Juveniles per 100 Females	77	90	

Population Objective (± 20%) :	4500 (3600 - 5400)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-18.6%
Number of years population has been + or - objective in recent trend:	3
Model Date:	02/19/2016

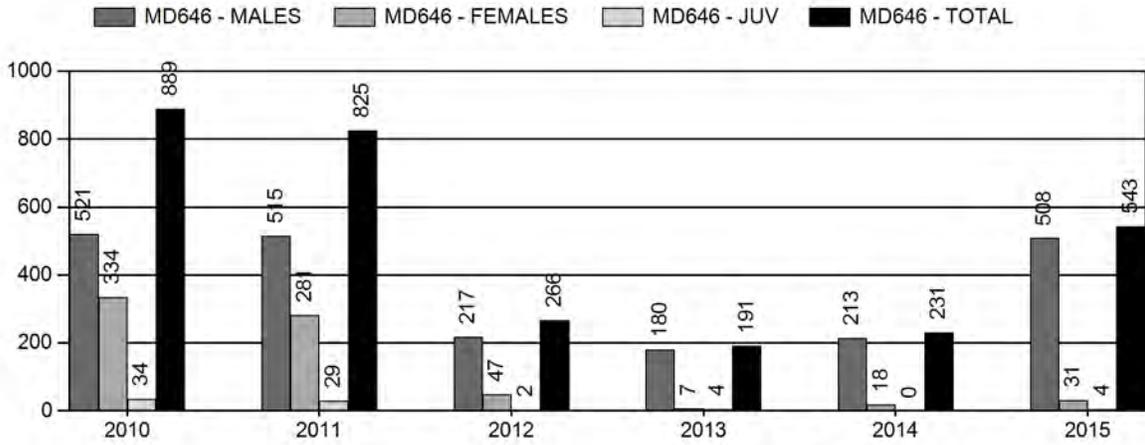
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.9%	1.4%
Males ≥ 1 year old:	62.0%	51.0%
Juveniles (< 1 year old):	0%	0%
Total:	12.7%	9.7%
Proposed change in post-season population:	+13.3%	+7.1%

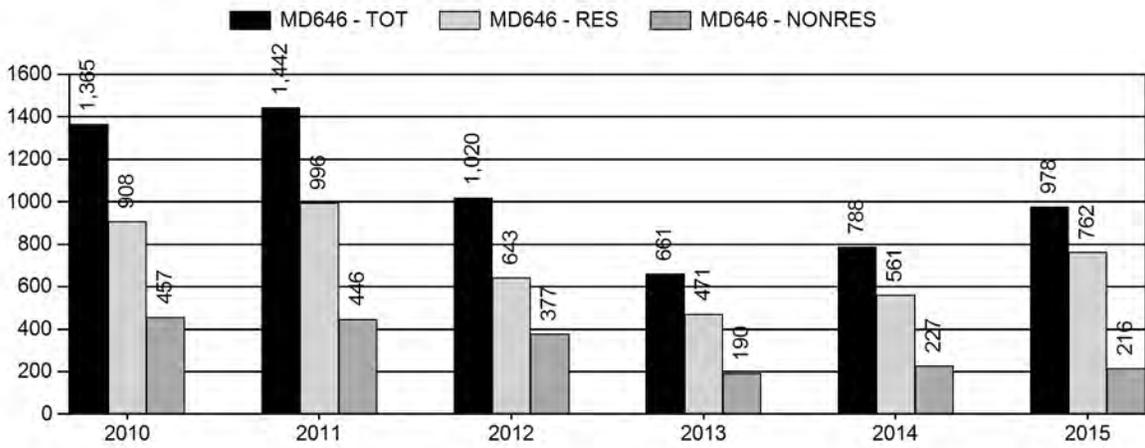
Population Size - Postseason



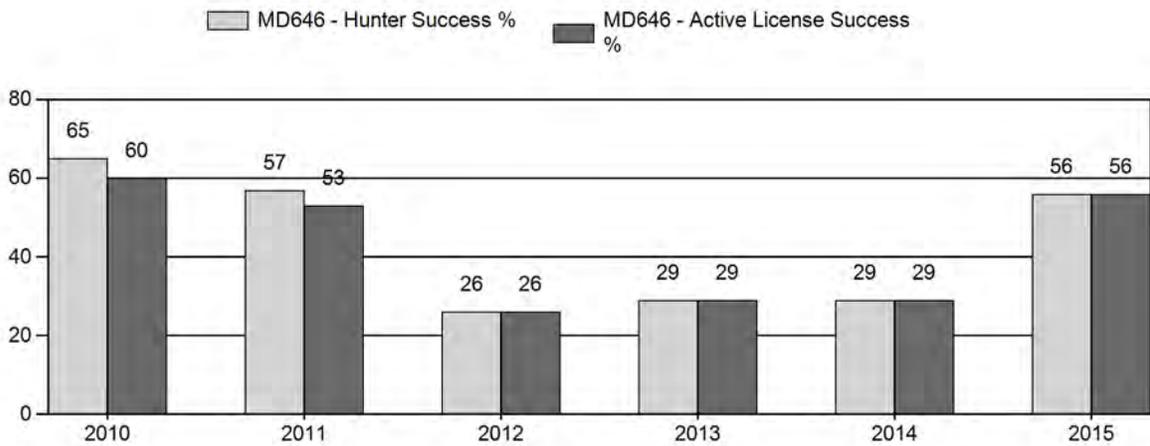
Harvest



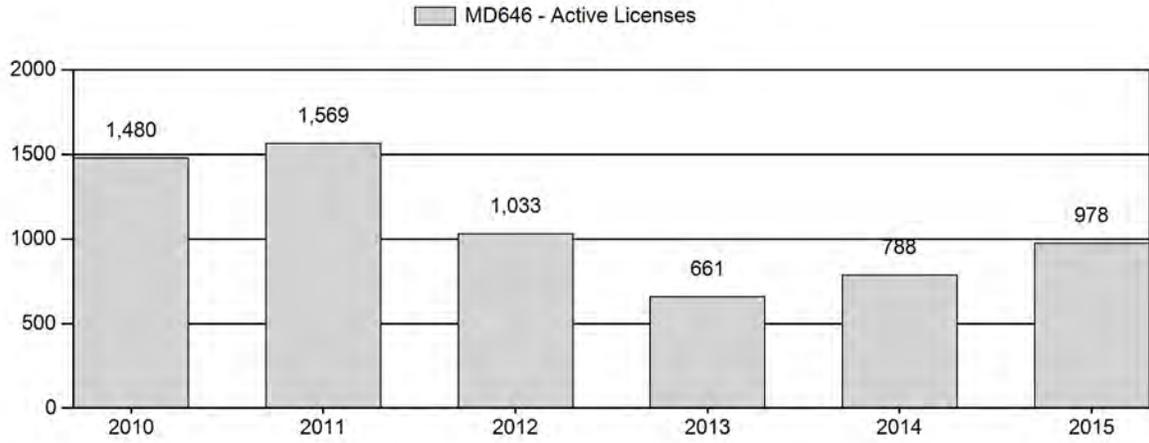
Number of Hunters



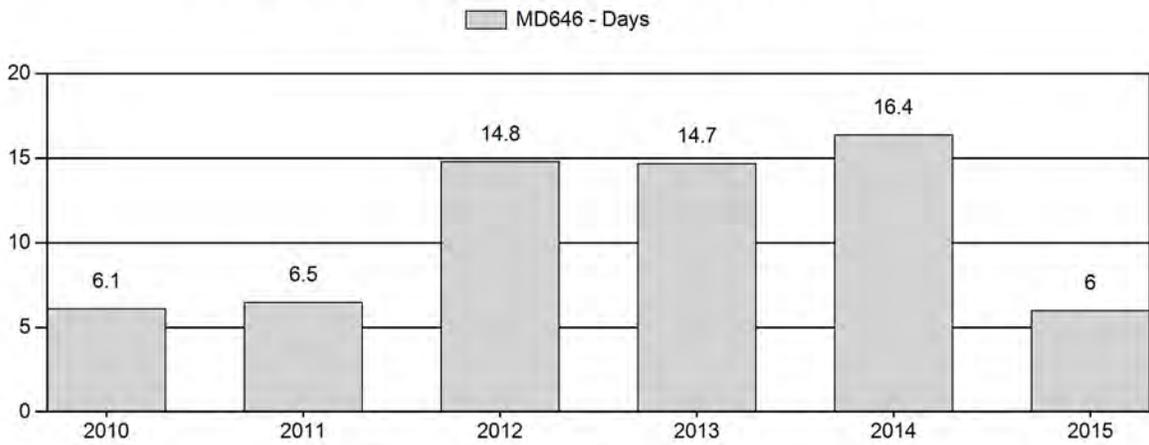
Harvest Success



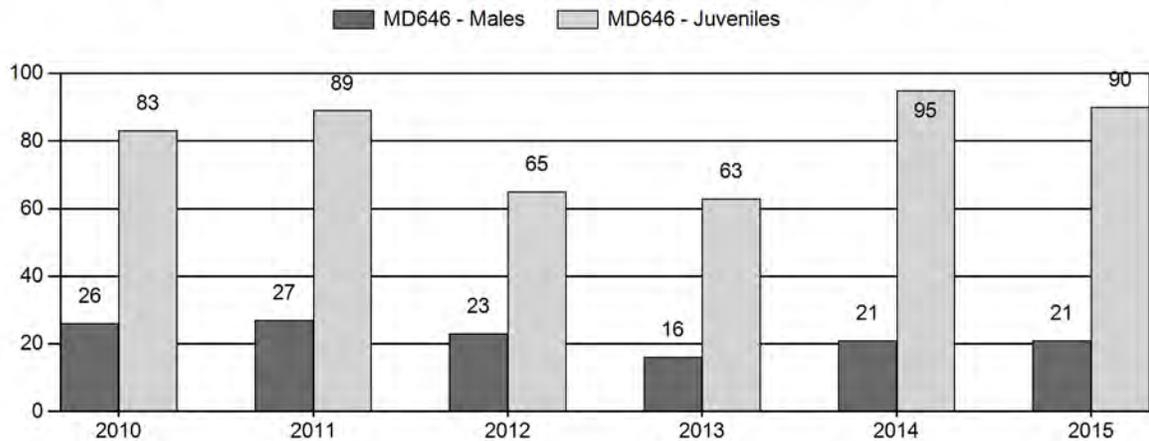
Active Licenses



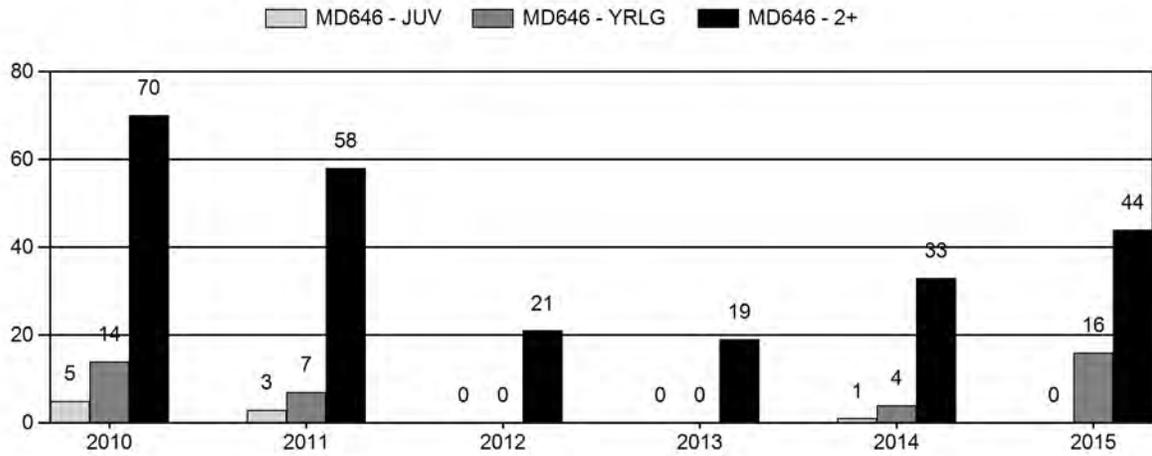
Days per Animal Harvested



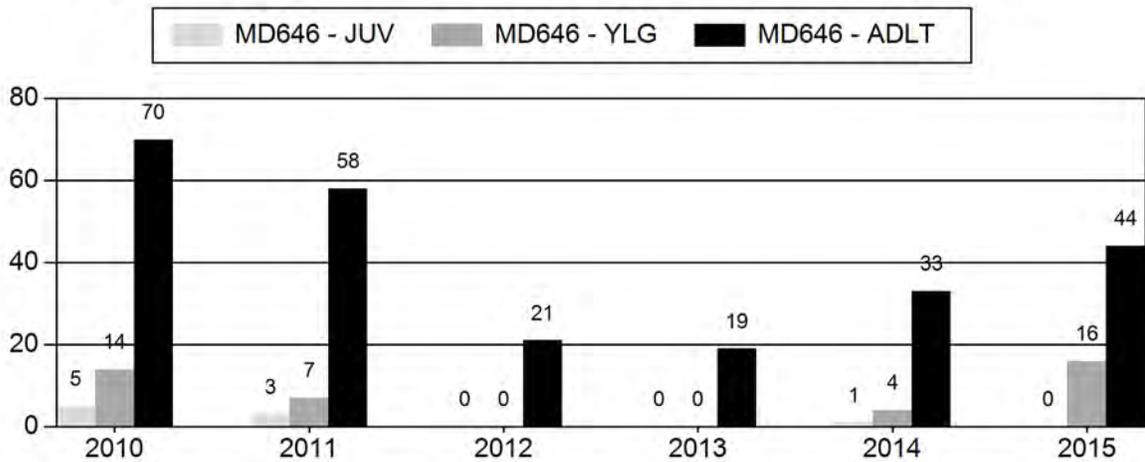
Postseason Animals per 100 Females



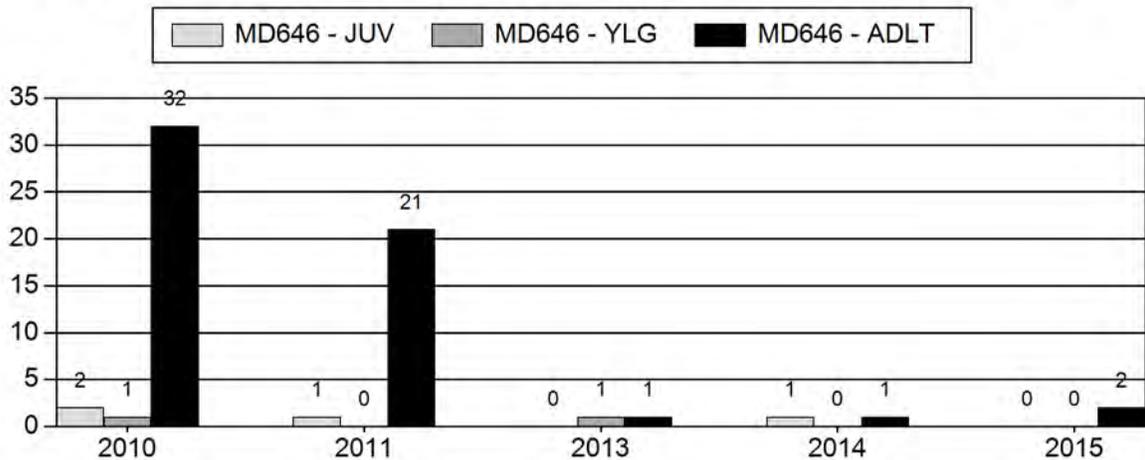
Age Structure of Field Checked Males



Age Structure Data (Field and Laboratory) - Male



Age Structure Data (Field and Laboratory) - Female



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD646 - SWEETWATER

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females			Young to			
		Ylg	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
2010	3,917	72	0	0	0	82	154	12%	598	48%	494	40%	1,246	1,549	12	14	26	± 2	83	± 5	66
2011	3,494	49	0	0	0	101	150	13%	547	46%	486	41%	1,183	1,616	9	18	27	± 3	89	± 6	70
2012	2,845	48	36	18	4	0	106	12%	462	53%	302	35%	870	996	10	13	23	± 3	65	± 5	53
2013	2,474	67	42	18	1	0	128	9%	813	56%	514	35%	1,455	813	8	8	16	± 1	63	± 3	55
2014	3,408	52	32	11	1	0	96	10%	451	46%	429	44%	976	1,281	12	10	21	± 3	95	± 7	78
2015	3,664	92	42	14	1	0	149	10%	719	48%	644	43%	1,512	1,456	13	8	21	± 2	90	± 5	74

2016 HUNTING SEASONS
Sweetwater Mule Deer Herd Unit (MD 646)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
96		Oct. 15	Oct. 21		General	Antlered mule deer or any white-tailed deer
96		Oct. 15	Oct.23		General Youth License	Any Deer
97		Oct. 15	Oct. 21		General	Antlered mule deer or any white-tailed deer
97		Oct. 15	Oct.23		General Youth License	Any Deer
97	3	Oct. 15	Nov. 30	25	Limited Quota	Any white-tailed deer
97	8	Oct. 15	Nov. 30	25	Limited Quota	Doe or fawn white-tailed deer
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

Region E Non-Resident Quota: 600

MANAGEMENT EVALUATION

Current Post-Season Population Management Objective: 4,500

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

2015 Post-season Population Estimate: ~3,700

2016 Post-season Population Estimate: ~3,900

Herd Unit Issues

The management objective was reviewed in 2015, and the long-term post-season objective of 6,000 mule deer was reduced to 4,500. The secondary objective of Recreational Management Strategy (20-29 bucks/100 does) will continue. Population growth occurred from 2002 to 2009, but declined from 2010 to 2013, due to poor fawn survival/recruitment as a result of intense drought. However, fawn/doe ratios have significantly improved the last two years, demonstrating the population seems capable of recovery with improved habitat conditions which follow increased precipitation. The 2015 post-season population reached nearly 3,700 mule deer, 19% below objective.

Weather

Precipitation

Precipitation information is generated from the PRISM (Parameter-elevation Relationships on Independent Slopes Model) dataset developed by Oregon State University. For the Sweetwater Herd Unit, precipitation information is based on 1 weather station located near Jeffrey City, WY. Precipitation from October 2014 through September 2015 was higher than the 30-year average (Table 1). Precipitation levels during the low-elevation growing season (April-June 2015) and at higher elevation SSF ranges (May- July 2015) were also notably higher than the 30-year averages. The majority of the precipitation came during the growing season (April-July) and was followed by a mild, dry fall. Precipitation in Jeffrey City was 80% above average for the first four months of 2016, with another 2.42 inches of rain falling in the first week of May, and should lead to excellent summer forage conditions.

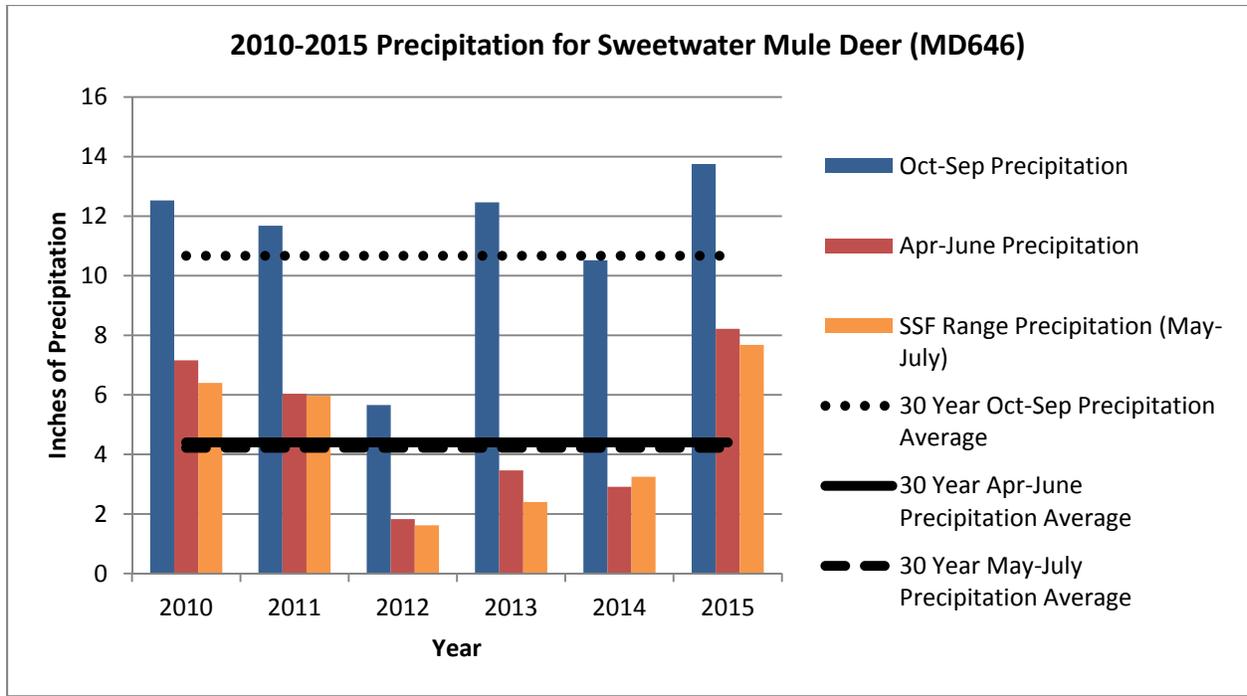


Table 1. Precipitation values for Sweetwater Mule Deer (MD644) from 2010 – 2015.

Winter Conditions

Winter 2015-2016 has been relatively mild with temperatures averaging 22.67°, which is considered normal for the November-February time period in the Jeffrey City Area. A total of 22.1” of snowfall has been recorded in Jeffrey City from November 2015-February 2016. This is 6.1” below the 30-year average. The limited snowfall, while indicating relatively mild winter conditions for wildlife, is of some concern for vegetation production in the coming growing season.

Habitat

Precipitation was well above average during the spring/early summer of 2015. Abundant growing season precipitation (April-June) provided ample forage across the herd unit for mule deer does in early parturition. This, in turn, likely contributed to the higher fawn/doe ratio observed in the Sweetwater Herd Unit (90 fawns/100 does).

Field Data

Classification flights were conducted in late-November 2015, with winter ranges surveyed using a Bell 206B Jet Ranger helicopter. New snow fell over Thanksgiving, providing improved detection of mule deer, leading to the 3rd highest classification sample ever collected of 1,512 mule deer. The 2015 post-season fawn/doe ratio dropped slightly to 90J/100F, still the second highest in over 20 years, probably due to a high number of yearling does which have yet to begin producing fawns. Yearling bucks improved from 12YM/100F in 2014 to 13YM/100F in 2015, in spite of removal of antler restrictions (APRs) for the 2015 hunting season, thus removing protection for yearling bucks. Increased buck harvest, combined with completion of classifications slightly post-rut, led to fewer observations of bucks than expected. Antler width class data have been collected (Figure 1) during classification surveys the past 4 years. In 2015,

nearly 90% of the mule deer bucks classified in the Sweetwater Herd Unit were either yearlings or have Class 1 antler widths (adult bucks $\leq 18''$ wide), indicating a shortage of older age-class bucks despite reduced harvest levels experienced with APRs in 3 previous hunting seasons. In essence, APRs were forcing harvest on older age class bucks, while replacement levels were quite low due to low fawn survival/yearling recruitment.

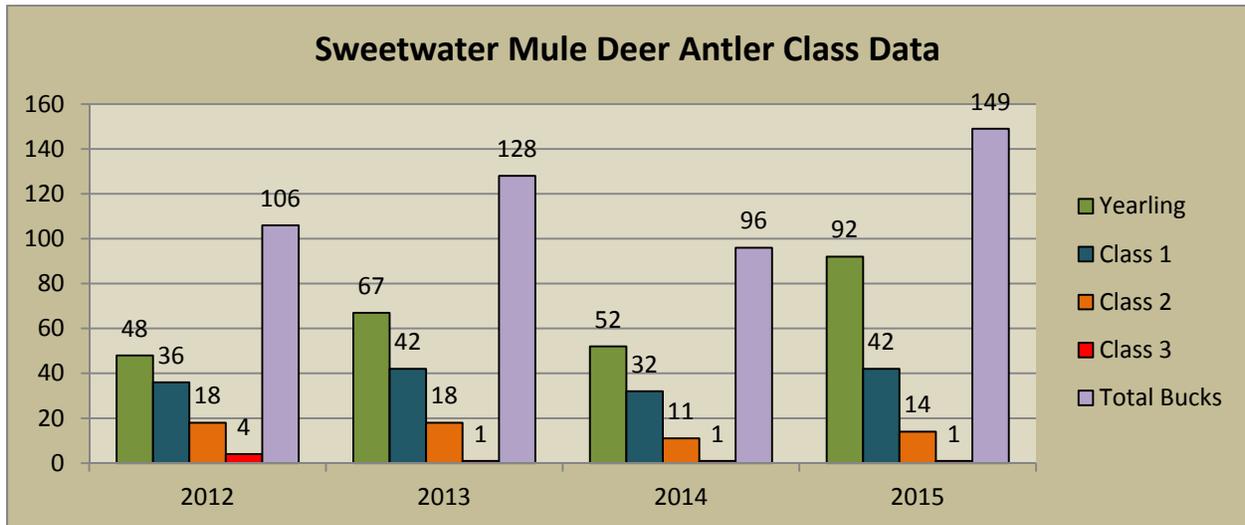


Figure 1. Antler class data from classification surveys in the Sweetwater Mule Deer Herd Unit, 2012 – 2015.

Harvest Data

Weather during fall 2015 was quite moderate in the Sweetwater Herd Unit. Mostly dry conditions allowed mule deer and hunters to be dispersed across the herd unit a possible factor contributing to fewer crowding complaints than expected after lifting APRs. Hunters reported improved numbers of mule deer overall, but with low numbers of adult bucks. Removal of APRs led to much higher buck harvest, greater success, and reduction of hunter effort per harvest. The number of general license hunters increased 24% compared with the average number of hunters during the APR years (2012 – 2014), and total buck harvest increased 138% compared with buck harvest in 2014. The total harvest of 508 mule deer bucks equates to taking 62% of the pre-season bucks from this population, which is unlikely to be sustainable. With a reduction in the adult buck/doe ratio to 8AM/100F and a slight increase of yearling buck/doe ratio to 13YM/100F, the total ratio remained constant, but we are concerned about continued harvest at such a high level. Hunter success was up to 56%, compared with an average of 28% during the latest APR seasons. The “days per animal harvested” statistics for general licenses, as an indicator of hunter effort, dropped by more than 10 days to 6.0 days/animal in 2015. Antlerless mule deer harvest as allowed by youth and archery hunters, resulted in minimal take of 31 does and 4 fawns.

Antler width class data have been collected since 2012 during field checks and at check stations. This coincides with the 3 years of 3-point APRs in place for the Sweetwater Herd Unit. Antler widths have not improved over the last 4 years, and the proportion of Class 1 bucks harvested has increased compared with Class 2 and Class 3 bucks (Figure 2). This follows the general trend in antler width classes observed in post-season classification surveys outlined in the previous section.

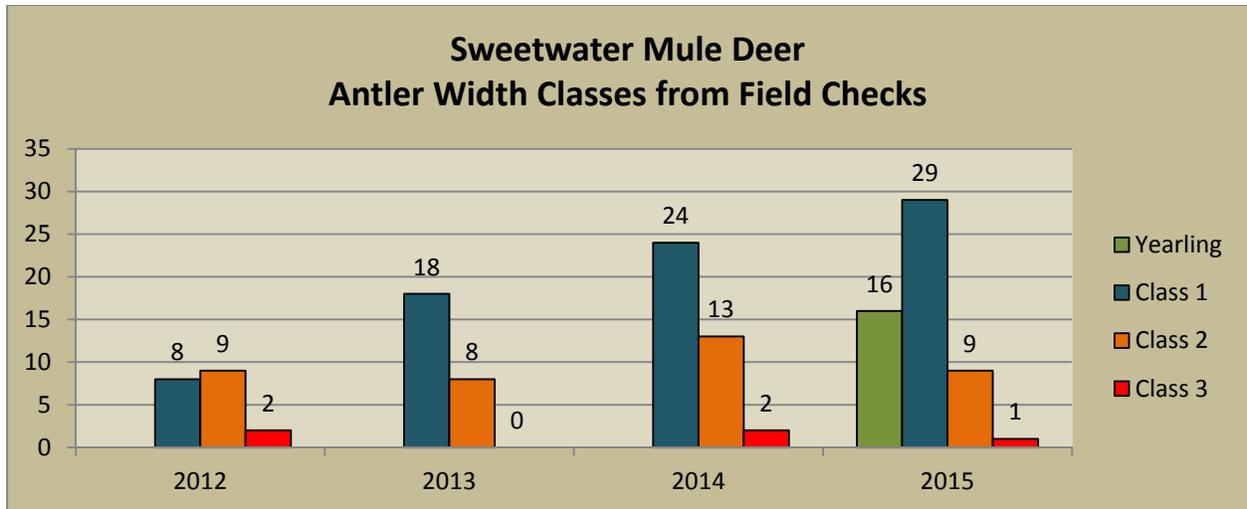


Figure 2. Antler class data as measured during field checks and at check stations, 2012 –2015.

Population

A spreadsheet model developed for this population in 2012 has been updated, utilizing 2015 post-season classification and harvest data. The TSJ, CA model was selected as the best fit model and produces population estimates aligned with trends observed in buck harvest, fawn recruitment, and buck/doe ratios. It also matches professional perceptions of field personnel and public opinion about mule deer population trends. While this model does not produce the lowest Relative AICc value, it provides believable trends and population estimates, whereas both the CJ/CA and SCJ/CA models do not. Utilizing traditional classification and harvest data, along with this post-season estimate, the spreadsheet model (TSJ, CA) produces a post-season 2015 estimate of 3,662 mule deer, and because actual survival estimates are lacking, is considered Fair.

Management Summary

Past management included implementation of antler point restrictions (4-point in 2004 and 2005 and 3-point in 2012-14), in response to declines in buck/doe ratios and population trends, and perceived increases in hunter numbers. Expectedly, both APR types resulted in lower hunter numbers and reduction of overall buck harvest. The 4-point APR implemented in 2004 and 2005 coincided with improved buck/doe ratios as a result of improved fawn survival/yearling buck recruitment with favorable weather patterns and improved, albeit short-term, habitat conditions. The recent 3-point APR seasons did not lead to dramatic improvements in buck/doe ratios, largely due to drought concurrent with the first 2 years of APRs. However, buck/doe ratios did improve substantially in 2015, following improvements in fawn survival/yearling recruitment. But the total buck/doe ratio of 21M/100F remains at the low end of the Recreational Management range.

This herd unit is part of the Lander/Green Mountain Mule Deer Initiative, complete with a public “Working Group”. Short-term recommendations for the Sweetwater Mule Deer Herd Unit were presented to the Department in December 2014. Long-term recommendations followed, with final recommendations presented to the Department in August 2015. These recommendations were comprehensive in nature, incorporating the following prioritized management issues: 1) Research and Monitoring, 2) Adaptive Management, 3) Hunting Season Structure, 4) Habitat

Management, 5) Education and Public Outreach, 6) All Terrain Vehicles (ATVs), 7) Predator Management, and 8) Wildlife Law Enforcement and WGFD Field Presence.

The recommended limited quota season structure will not be implemented in 2016. Some of the Working Group's long-term hunting season recommendations are consistent with our management direction and will be implemented for the 2016 seasons.

Youth hunters with General Licenses will have 2 days of additional opportunity following the "regular" season with their licenses valid through October 23 for any deer, to promote youth hunter retention and recruitment.

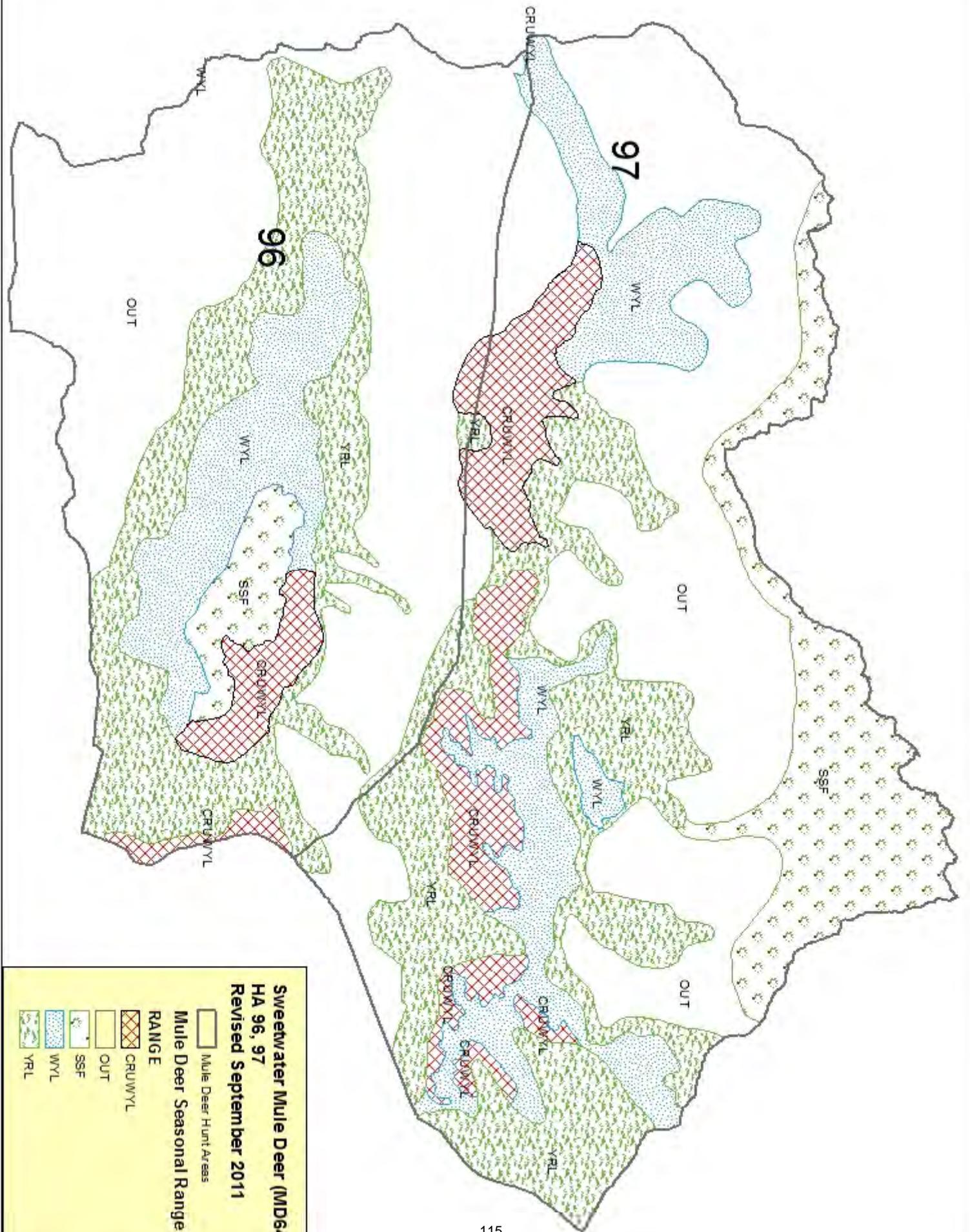
In response to concern about low buck/doe ratios, we are shortening the General License season by 1 day. All General License seasons will end on Friday, October 21, instead of the traditional closing date of October 22. This will allow for youth hunting opportunity as described above.

Specific hunts for white-tailed deer are again being offered with longer seasons running from October 15 through November, with 25 Type 3 (Any white-tailed deer) and 25 Type 8 (Doe or fawn white-tailed deer) licenses valid in Hunt Area 97. White-tailed deer numbers have increased following the 2013 EHD die-off, but apparently not to the same level as yet. With most white-tailed deer hunting opportunities occurring on privately owned lands, these seasons should apply harvest pressure on white-tailed deer in appropriate locations to increase harvest.

Past hunting seasons in the Sweetwater mule deer herd have experienced elevated numbers of non-resident hunters, particularly in Hunt Area 96. The 2015 harvest survey indicated non-residents made up 22% of the total number of hunters in the Sweetwater herd unit. As such, there is no need to adjust the non-resident Region E general license quota in 2016 to further reduce the percentage of non-residents hunting in the Sweetwater herd unit.

Additionally, the Department and our partners will begin implementation of many of the Working Group's recommendations for research, habitat, and other categories, beginning with an aspen regeneration/riparian restoration project on private and BLM lands on the north side of Green Mountain. In addition, the Department is participating in development phase communications regarding a research project being proposed to study impacts of free-ranging horses on wildlife and livestock in the Green Mountain area.

The 2016 season structure should result in a harvest of approximately 400 buck mule deer and about 25 does and fawns. With anticipated fawn survival, this should allow for slight population growth to just over 3,900 mule deer after the 2016 hunting season, moving toward objective.



2015 - JCR Evaluation Form

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

PERIOD: 6/1/2015 - 5/31/2016
 PREPARED BY: GREG HIATT

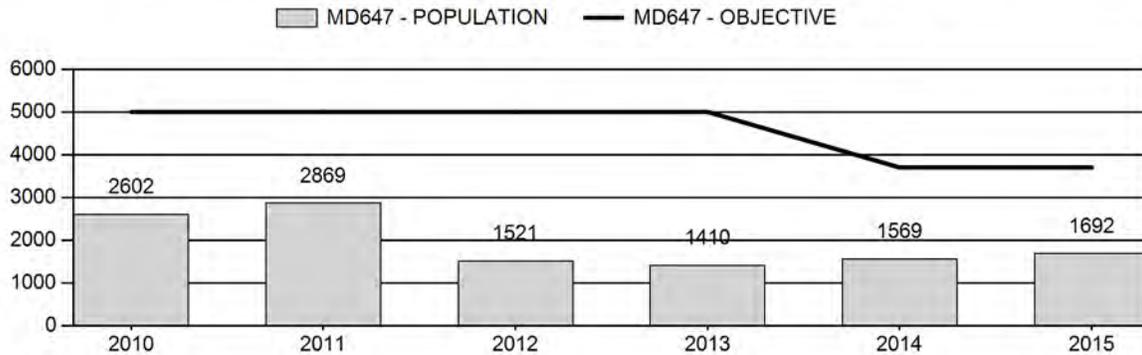
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	1,994	1,692	1,768
Harvest:	70	38	55
Hunters:	89	48	70
Hunter Success:	79%	79%	79 %
Active Licenses:	89	48	70
Active License Success:	79%	79%	79 %
Recreation Days:	446	196	320
Days Per Animal:	6.4	5.2	5.8
Males per 100 Females	38	44	
Juveniles per 100 Females	49	67	

Population Objective (± 20%) : 3700 (2960 - 4440)
 Management Strategy: Special
 Percent population is above (+) or below (-) objective: -54.3%
 Number of years population has been + or - objective in recent trend: 8
 Model Date: 2/27/2016

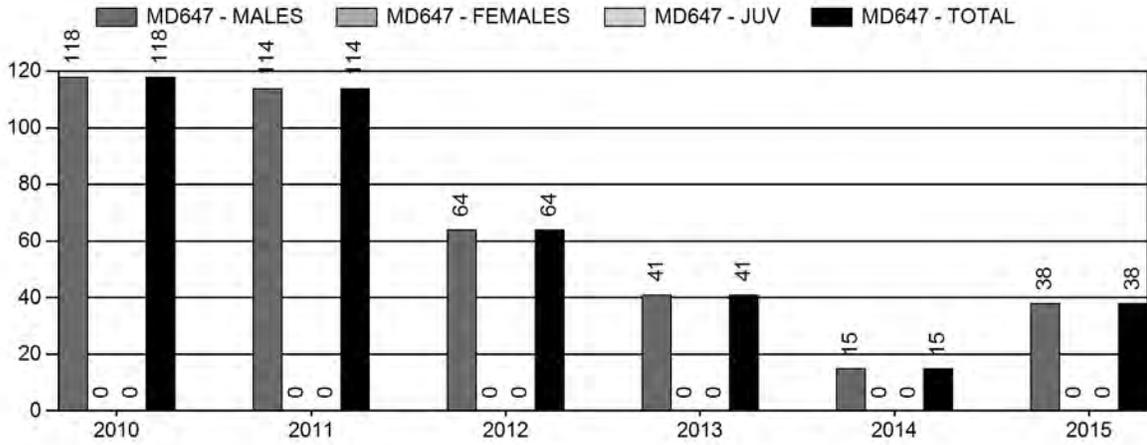
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	8.8%	11.1%
Juveniles (< 1 year old):	0%	0%
Total:	2.1%	3.0%
Proposed change in post-season population:	+1.1%	+4.5%

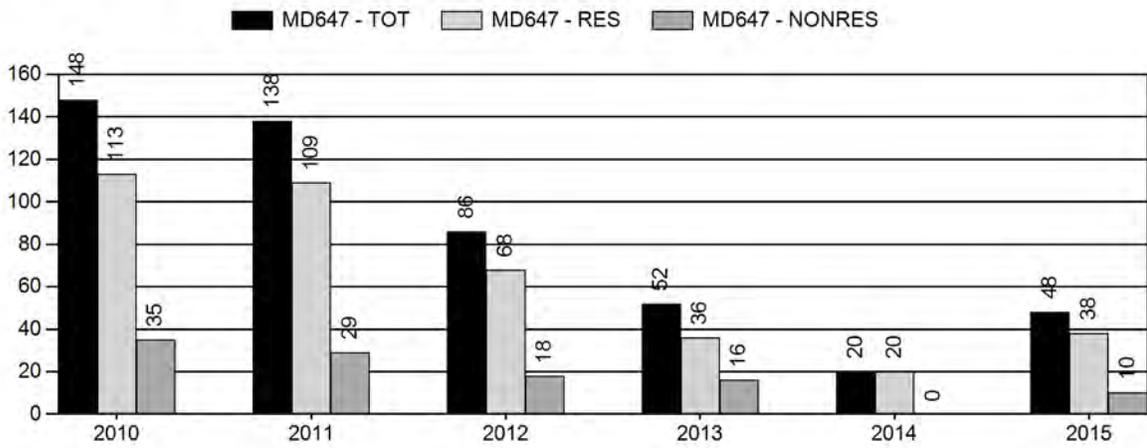
Population Size - Postseason



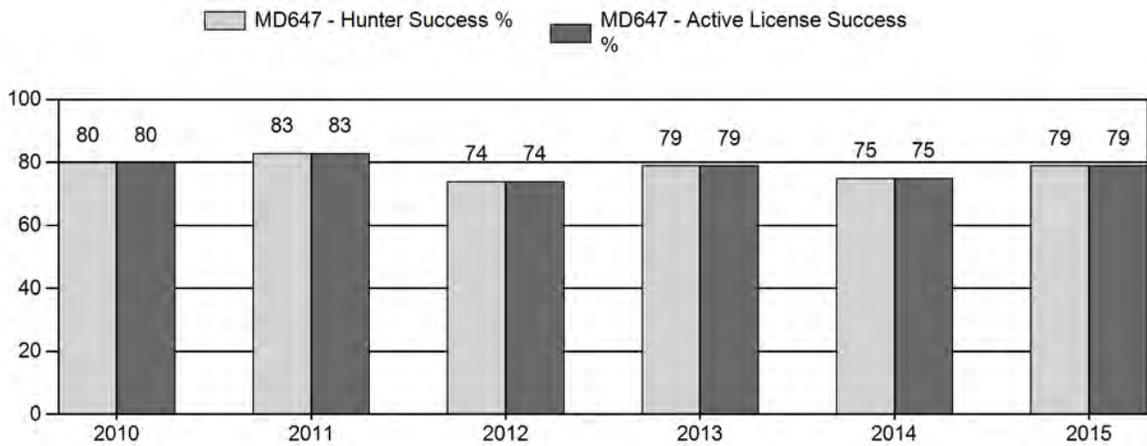
Harvest



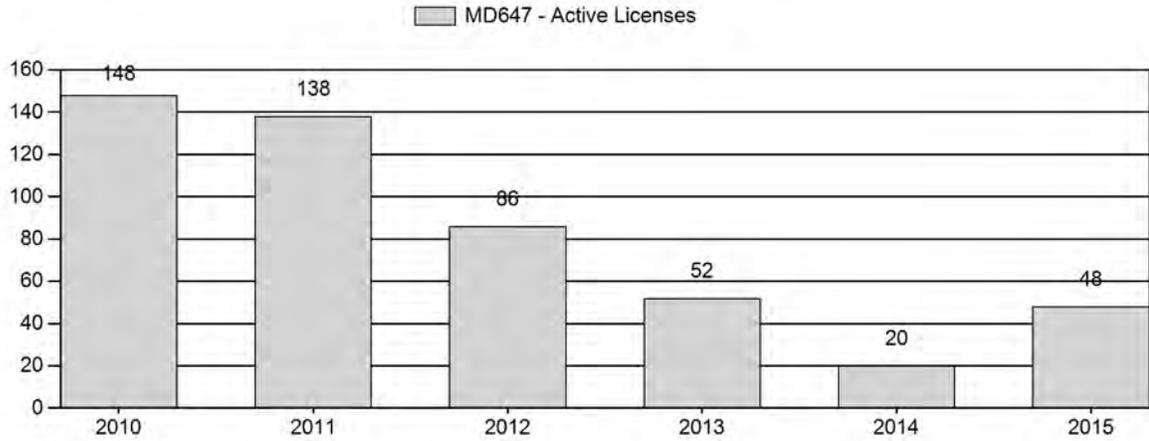
Number of Hunters



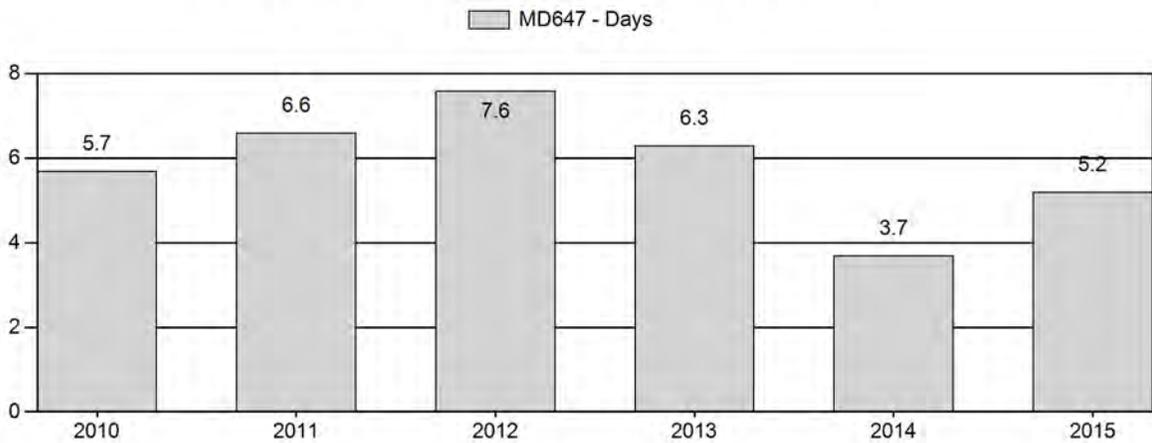
Harvest Success



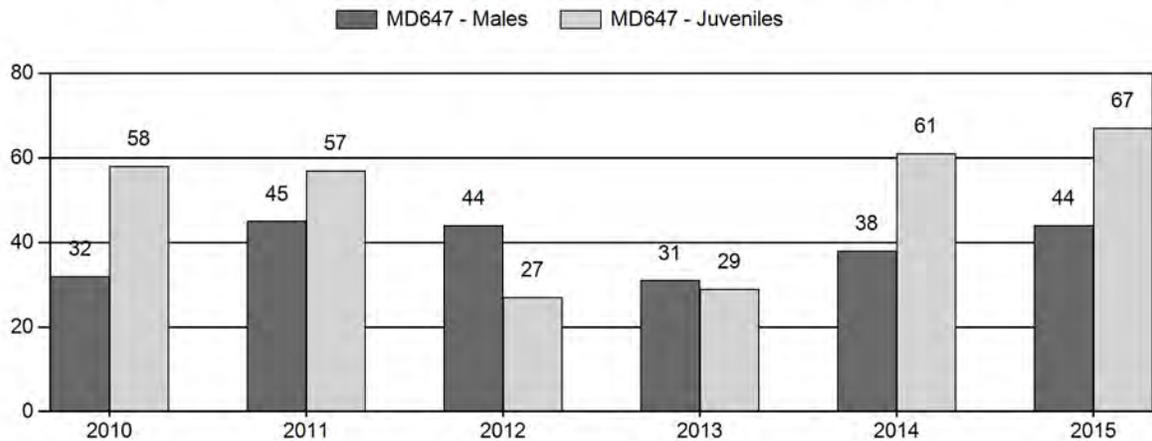
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD647 - FERRIS

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	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
2010	2,602	51	0	0	0	71	122	17%	381	53%	222	31%	725	771	13	19	32	± 4	58	± 5	44
2011	2,869	50	0	0	0	111	161	22%	356	49%	204	28%	721	790	14	31	45	± 5	57	± 6	39
2012	1,521	0	0	0	0	0	125	26%	281	58%	75	16%	481	528	0	0	44	± 5	27	± 4	18
2013	1,410	14	0	0	0	58	72	20%	230	62%	66	18%	368	347	6	25	31	± 5	29	± 4	22
2014	1,569	42	0	0	0	105	147	19%	386	50%	234	31%	767	695	11	27	38	± 3	61	± 5	44
2015	1,692	65	105	72	25	0	267	21%	610	47%	411	32%	1,288	827	11	33	44	± 2	67	± 3	47

**2016 HUNTING SEASONS
FERRIS MULE DEER HERD (MD647)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
87	1	Oct. 15	Oct. 31	75	Limited quota	Antlered mule deer or any white-tailed deer
Archery 87		Sep. 1	Sep. 30			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
87	1	+25
Herd Unit Total	1	+25

Management Evaluation

Current Postseason Population Management Objective: 3,700

Management Strategy: Special

2015 Postseason Population Estimate: ~1,700

2016 Proposed Postseason Population Estimate: ~1,800

Herd Unit Issues

The management objective for the Ferris Mule Deer Herd Unit is a post-season population size objective of 3,700 deer. The current management strategy is special management, with buck:doe ratios allowed to exceed 29:100. The objective and management strategy were last publicly reviewed in 2014.

The 2015 post-season population estimate was about 1,700 deer with the population climbing slowly upward from a low of about 1,400 deer in 2013. The herd was last near objective size in 2007, with the previous peak being prior to the 1992-93 winter. Restricted hunting access to major blocks of private and checkerboarded lands has concentrated hunting pressure on the remaining portions of the area, making it difficult to manage buck numbers and quality in the accessible portions of the herd.

Weather

Severe drought in 2012 and 2013 was followed with improved precipitation in the latter half of 2014 which continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and the highest fawn crop since 2009, at 67 fawns:100 does.

Condition of mule deer going into the 2015-16 winter was good, and perhaps the best in generations. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

Lack of fire has resulted in decadent shrub stands encroached by conifer in large portions of this herd unit. Prolonged, severe drought has reduced the quantity and quality of forage for mule deer. Two browse transects have been established in this herd unit, but one was burned by fire in 2012 and the other was not read in 2015.

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

The Seminole Fire burned over 3,800 acres in the Seminole Mountains including areas within Morgan Creek WHMA. As in previous years following the fires, the Rawlins BLM again coordinated and funded aerial application of Plateau® in 2015 to mitigate cheatgrass spread on BLM and WGFD managed areas within the fire perimeter. The wildfire enveloped several previously planned prescribed burns, although not with the desired prescriptions.

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

Field Data

Despite conservative seasons, deer numbers slowly declined over the past two decades due to several severe winters and persistent drought conditions. Poor habitat conditions on most seasonal ranges have prevented the rapid population response seen after similar weather events in previous decades. Fawn:doe ratios have remained exceptionally low in most recent years, preventing recovery of the population, but improved to 61:100 in 2014 and 67:100 in 2015. Sample size increased by 68 percent in 2015, the largest sample since 2003, without changing the winter ranges covered or the number of helicopter survey hours.

The buck:doe ratio increased again to 44:100 in 2015, comparable to ratios recorded in 2011 and 2012. All of the increase was in the adult age class, from 27:100 in 2014 to 33:100 in 2015, with yearling ratios remaining stable at 11:100. Hunter access is greatly restricted to large portions of this herd, yielding segments of the population that are essentially unhunted. Rapid fluctuations in buck:doe ratios early in the previous decade are suspected to have been caused by changes in how observers surveyed between hunted and unhunted segments of the herd. Classification surveys the past nine years have attempted to uniformly cover all winter ranges, yielding more representative ratios. While ratios may no longer be as skewed, a significant proportion of the

bucks in the sample still come from areas with limited or no public access. Only 9 percent of the bucks in the sample were Class 3, compared to 7 percent in 2014. Roughly 64 percent were yearlings or Class 1.

Harvest Data

Hunter success improved slightly, from 75 percent to 79 percent and was near the five-year average, despite the increase in license quota. Hunter effort increased, but was still the second lowest average recorded in the past ten years. Both statistics suggest the number of bucks available for harvest has increased. With the high demand for licenses in this herd, hunters appear to be more selective about the quality of bucks they are willing to harvest. Only 38 deer were harvested, the second smallest harvest from this herd in over forty years, including several years with 4-point or better antler point restrictions.

Population

The Time-Specific Juvenile & Constant Adult Survival (TSJ/CA) spreadsheet model provided the best fit with observed buck:doe ratios for this herd. The model behaved predictably when 2015 classification and harvest data were added. Best fit was attained by altering the model to allow adult survival rates to fluctuate independently in 2007 and 2011, two years with severe winters. In addition, the initial population was limited to at least twice the classification sample for that year. The resulting model is considered “fair” and matched well with observed buck:doe ratios and predicted annual adult survival at 87 percent, a reasonable level. It also tracks more closely with classification sample sizes. AICc value for the model was slightly improved over the simpler SCJ,SCA model and vastly improved over the CJ,CA model. This model, which mimics changes in adult survival during severe winters, predicts population sizes roughly 15 percent lower than the simpler TSJ/CA model without the fluctuating adult survival rates during the 2007 and 2011 winters.

Fawn production in 2016 was projected at a 5-year average. The model predicts a slight increase in herd size, but also predicts an increase in the buck:doe ratios. As with many mule deer herds, herd growth appears to be limited by fawn production and survival. If improved precipitation seen in 2014 and 2015 continues, the large acreages of treated habitat may improve fawn production and survival and provide for more significant herd growth in the future.

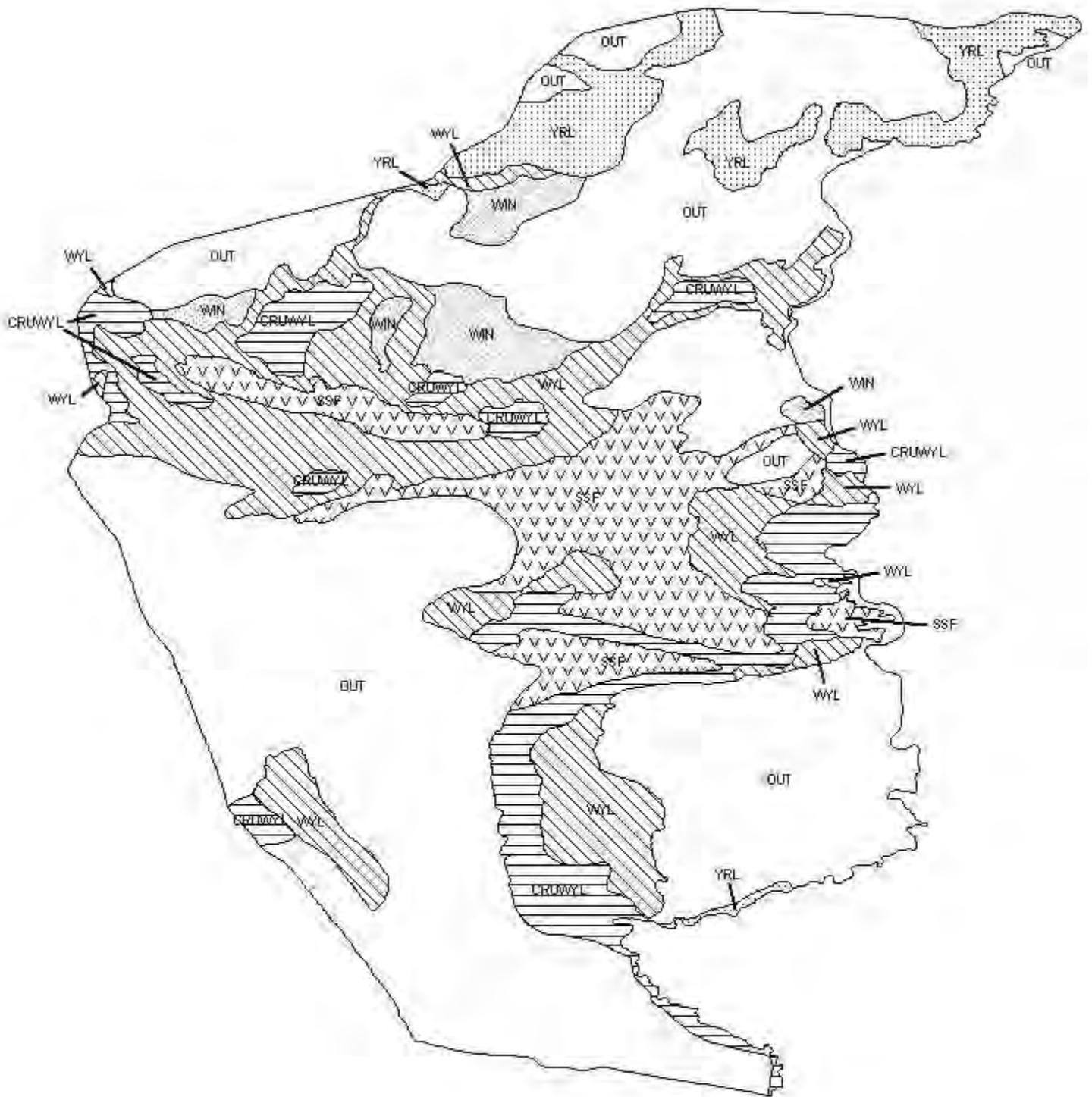
Management Summary

With the low numbers of permits allowed in this herd, hunters have come to expect better opportunities to see and harvest larger bucks than available in neighboring general license, more productive herds. High demand for these licenses is attributed as much to an expectation of high buck quality as it is for a less crowded hunting experience. To take advantage of the improved buck:doe ratio and apparent increase in deer numbers, the license quota is increased by 25 licenses in 2016.

Expected harvest would be roughly 55 buck deer. As in the previous 20 years, these licenses are valid only for antlered mule deer during the regular season. As in 2015, hunters will also be

allowed to harvest any white-tailed deer. The quota is 50 percent greater than available in 2015. With the herd so far below objective, no doe harvest is warranted and no doe/fawn licenses are available. Youth hunters and archers in the special archery season will still be able to harvest antlerless deer.

Opening date is traditional, coincides with hunts in neighboring areas in Regions D and E, and is consistent with the application booklets. Closing date is the same as in the previous 16 years. Archery season dates are standard and the same as used in previous years.



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



2015 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2015 - 5/31/2016

HERD: MD648 - BEAVER RIM

HUNT AREAS: 90

PREPARED BY: GREG
ANDERSON

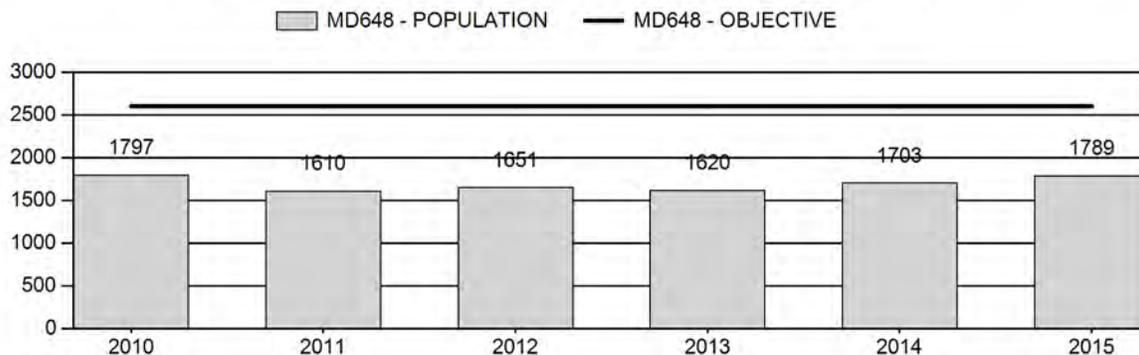
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	1,676	1,789	1,750
Harvest:	76	37	35
Hunters:	97	44	45
Hunter Success:	78%	84%	78 %
Active Licenses:	97	44	45
Active License Success:	78%	84%	78 %
Recreation Days:	604	327	325
Days Per Animal:	7.9	8.8	9.3
Males per 100 Females	33	49	
Juveniles per 100 Females	47	56	

Population Objective (± 20%) :	2600 (2080 - 3120)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-31.2%
Number of years population has been + or - objective in recent trend:	10
Model Date:	2/19/2016

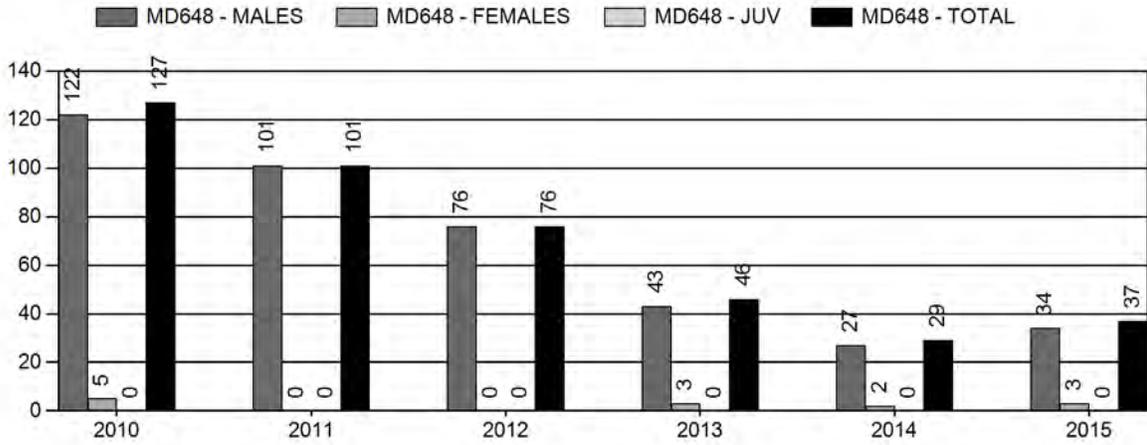
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	9%	9%
Juveniles (< 1 year old):	0%	0%
Total:	2%	2%
Proposed change in post-season population:	+0%	-2%

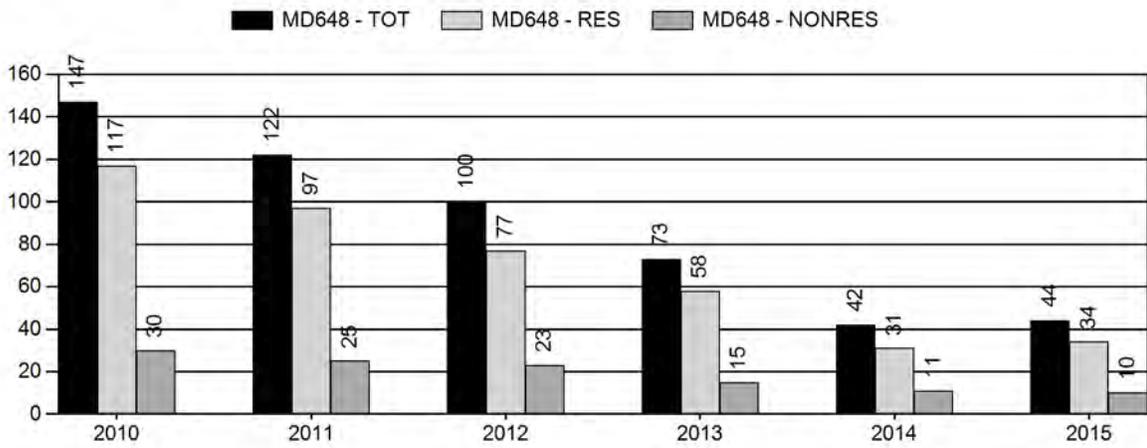
Population Size - Postseason



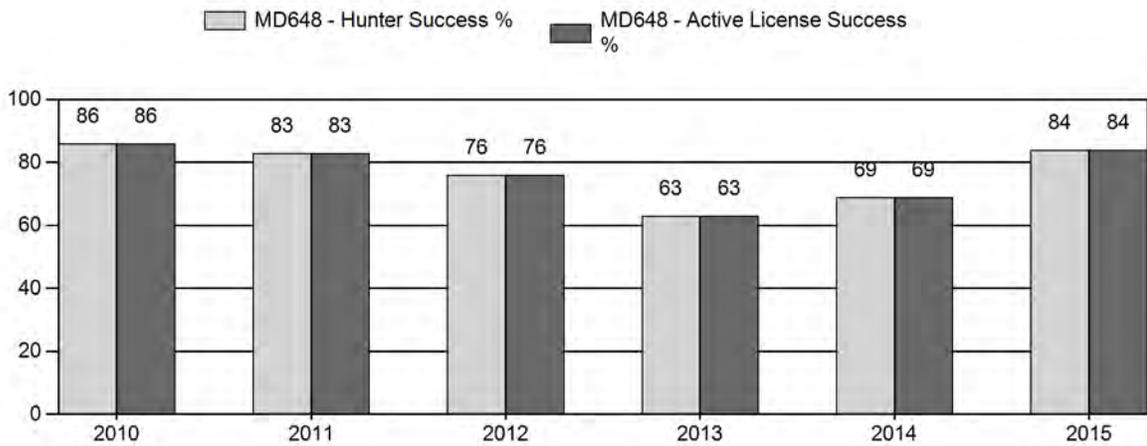
Harvest



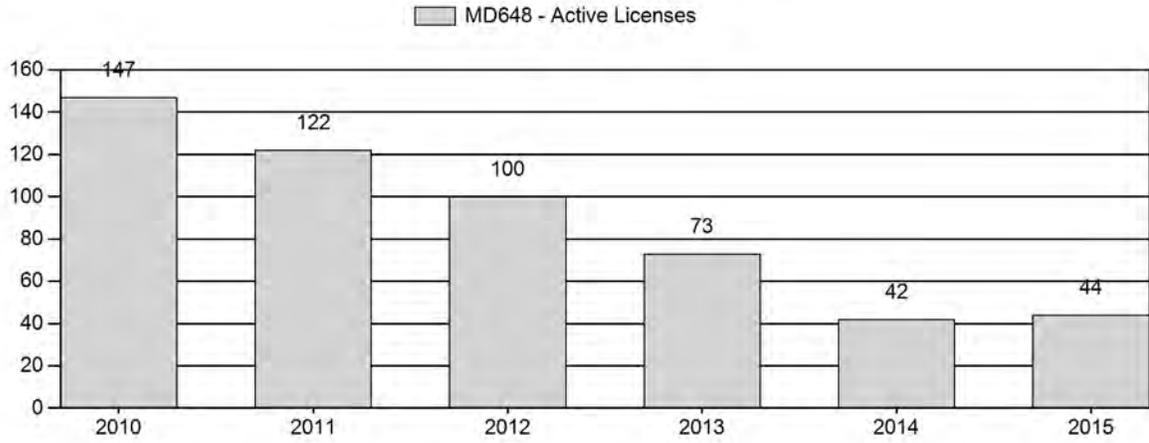
Number of Hunters



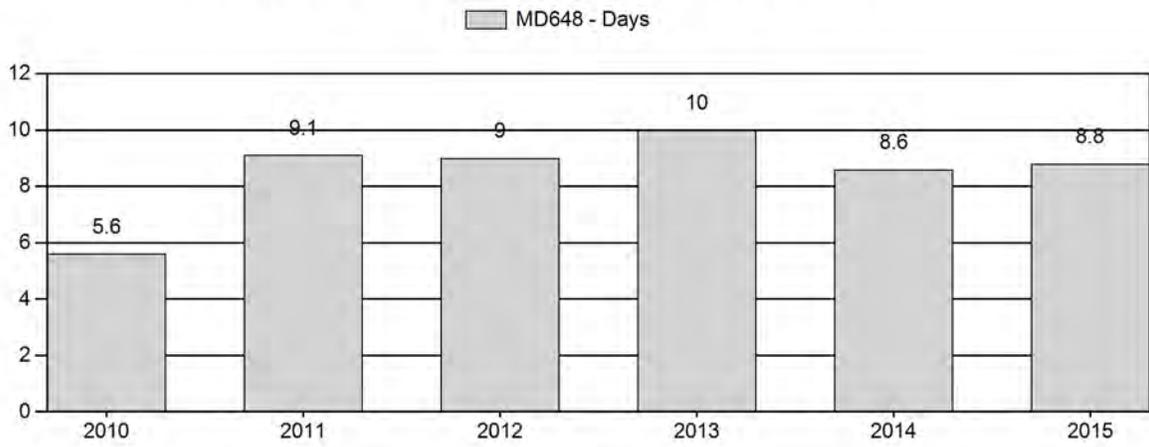
Harvest Success



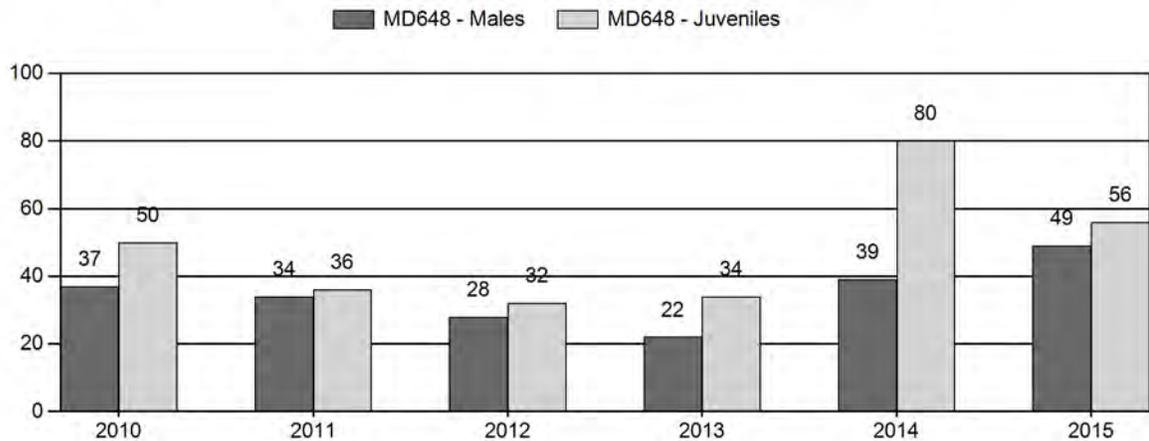
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD648 - BEAVER RIM

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	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	1,797	13	0	0	0	35	48	20%	129	54%	64	27%	241	582	10	27	37	± 8	50	± 9	36
2011	1,610	10	0	0	0	31	41	20%	119	59%	43	21%	203	389	8	26	34	± 7	36	± 8	27
2012	1,651	4	0	0	0	29	33	17%	120	62%	39	20%	192	362	3	24	28	± 7	32	± 7	25
2013	1,620	3	0	0	0	17	20	14%	90	64%	31	22%	141	362	3	19	22	± 7	34	± 9	28
2014	1,703	17	0	0	0	27	44	18%	114	46%	91	37%	249	936	15	24	39	± 8	80	± 13	58
2015	1,789	12	0	0	0	26	38	24%	77	49%	43	27%	158	710	16	34	49	± 12	56	± 13	37

**2016 HUNTING SEASONS
BEAVER RIM MULE DEER (MD 648)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
Opens	Closes					
90	1	Oct. 1	Oct. 31	50	Limited quota	Any deer
Archery		Aug. 15	Sep. 30			

Hunt Area	Type	Quota change from 2015
Total		

Management Evaluation

Current Postseason Population Management Objective: 2,600

Management Strategy: Special

2015 Postseason Population Estimate: ~1,800

2016 Proposed Postseason Population Estimate: ~1,800

Management Issues

The Beaver Rim mule deer herd has a post-season population objective of 2,600 and has a special management designation. The population objective has been in place since 1994. Most recently, the objective was reviewed at a series of public meetings and by the Commission in 2015 and remained unchanged.

The landscape in this herd unit has remained relatively undisturbed compared to neighboring herd units. That said vegetation throughout much of the area has been in poor condition for a number of years due to drought. In particular, the mid-2000's, 2012, and 2013 were extremely dry. No vegetation data is collected in the herd unit, but casual observation indicated new growth was almost non-existent in both 2012 and 2013. In contrast, vegetation growth in 2014 and 2015 appeared to be well above average. It is believed recent drought conditions resulted in a substantial population decline from 2010 through 2013. Casual observations suggest the population increased over the past 2 years.

Habitat/Weather

This population was once significantly larger than it currently is. The population declined dramatically in the early 1990's following a catastrophic winter die-off. Deer numbers then languished for over a decade. The population showed signs of a slow, steady increase from 2000 through 2010. A harsh winter in 2010 followed by extreme drought in 2012 and 2013 resulted in a population decline through 2013. While no vegetation data is collected in the herd unit, casual

observations suggest vegetation production in 2014 and 2015 was outstanding. Most of the areas in central Wyoming saw excellent herbaceous as well as browse production in 2015. Above average feed availability combined with a mild fall contributed to deer entering winter in excellent body condition.

Field/Harvest Data/Population

Due to low deer densities in the herd unit, classification sample sizes have generally been far below desired levels for the population. That said, deer seen during classification surveys declined consistently from 2010 through 2013 concurrent with a perceived population decline. In 2015 personnel classified 158 mule deer. The sample size was less than 1/4 of the desired number for accurately calculating confidence intervals around age/sex ratios. Low classification samples have been the norm for well over a decade in this herd. As such, all age/sex ratio data should be viewed with caution. The small classification sample in 2015 yielded a fawn/doe ratio of 56/100. This is well above the 5-year average of 46/100. While the ratio is suspect due to the low sample size, it is likely this population had good recruitment in 2015 associated with favorable weather and feed conditions. Other game populations in the vicinity also saw improved recruitment in 2015. Concurrent with a higher than average fawn/doe ratio, the 2015 buck/doe ratio of 49/100 was also higher than the 5-year average of 32/100. Good fawn recruitment as well as an increasing buck/doe ratio in 2014 and 2015 both indicate growth in this population.

Similar to classification data, both harvest success and the days/animal statistic indicate hunt quality and likely the population declined from 2010 to 2013 (Figs. 1 and 2). During this time period, hunter success declined and the days/animal increased. Most notably, Type 1 license success was 63% and 69% in 2013 and 2014 respectively and are the lowest in the past 10 years (Fig. 1). Harvest success did increase each of the last 2 years and was 84% in 2015. This was above the 10 year average of 77% and indicative of population growth over the past 2 years. At the same time, the days/animal decreased to 8.8 in 2015. This was greater than the 10-year average of 7.5, but lower than the values from 2010 through 2013.

Figure 1. Type 1 license success in deer area 90.

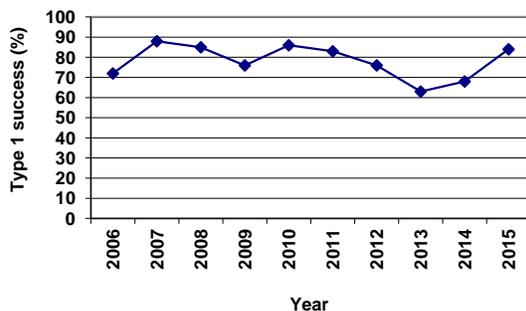
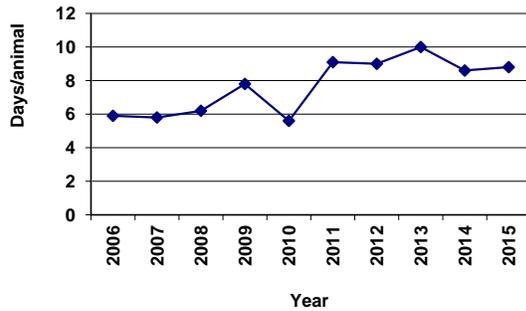


Figure 2. Type 1 license days/animal statistic

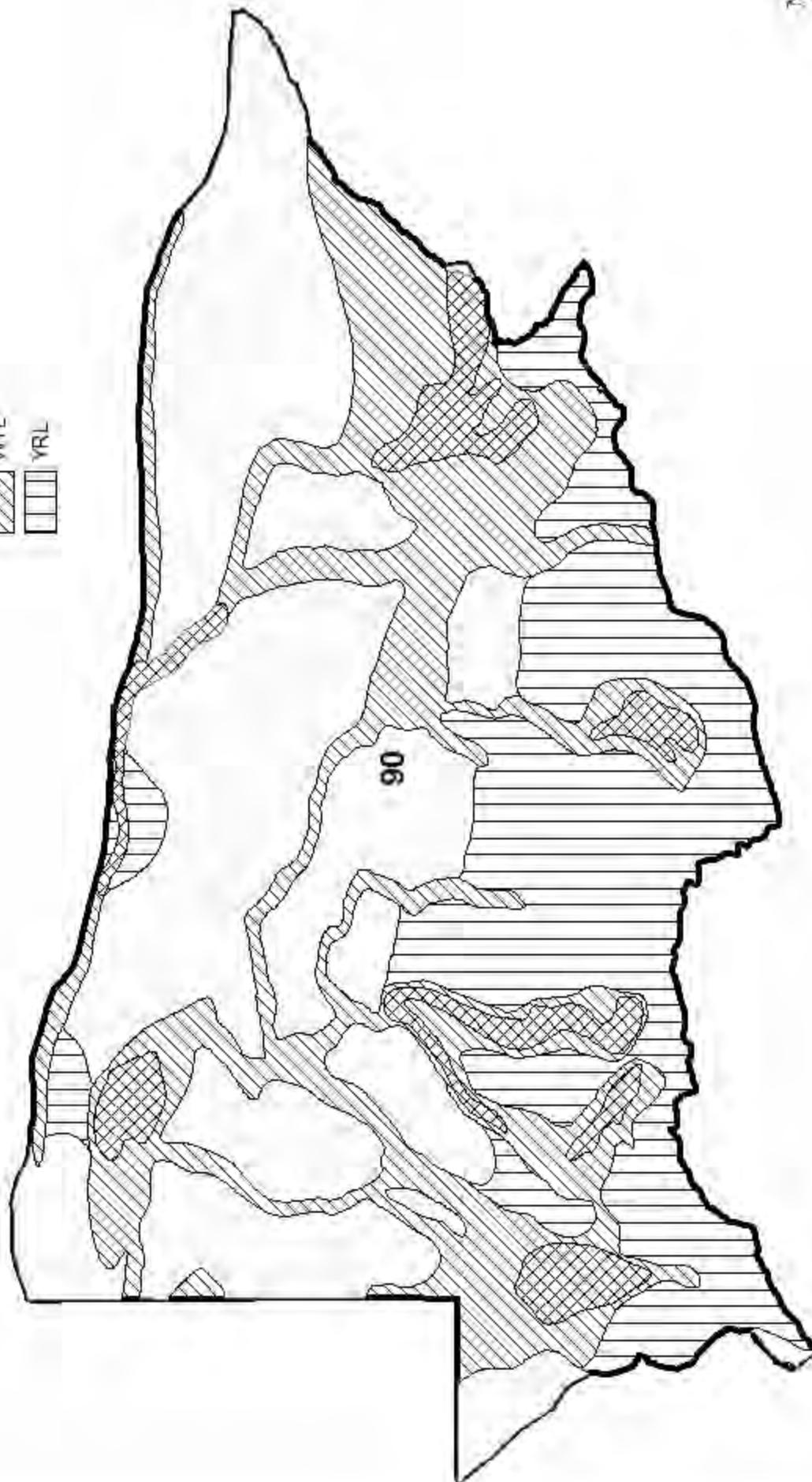
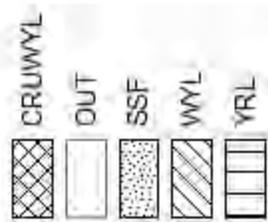


A spreadsheet model was developed for this population in 2012. The addition of 2013 and 2014 data did not dramatically change the estimates produced by the model. The CA/CJ version models a population increase annually for the past 20 years and fails to track the most recent, notable decline from 2010 through 2013. The SCJ/SCA model appeared to provide the best fit in both 2013 and 2014, however, with the addition of data in 2015, the model inexplicably produced an estimate 53% higher than what was previously modeled for 2015. Over the past 3 years, both the SCJ/SCA and TSJ/CA models produced similar trends and population estimates, both indicating the 2010 to 2013 population decline and subsequent small increase in 2014. While the TSJ/CA model only changed slightly with the addition of 2015 data, the SCJ/SCA model changed dramatically and began producing biologically indefensible results. As such, the TSJ/CA model was selected in 2015. This model produced similar results to previous years' models and maintains the same trends noted in the past. The model does indicate a population increase in both 2014 and 2015 which is also indicated by harvest statistics and casual observation. While the model has a higher AIC value than the SCJ/SCA model, it does have a much better fit to the data. The model produces an estimate of around 1800 deer in 2015. Given average reproduction and survival, the population is not expected to change in 2016. This model is considered poor quality due to the fact age/sex ratio data are based on very small samples and the data are completely missing several years.

Management Summary

All factors indicate this population declined significantly from 2010 through 2013. Although the model indicates growth in 2014 and 2015, the population is still well below objective and some other factors indicate hunting remains poor compared to most of the previous decade. Given average winter conditions, it is expected this population will remain unchanged in 2016 at 1,800 deer. No changes are proposed for the 2016 hunt season. With the same number of licenses and some population growth, hunt quality should be a bit better in 2016.

**Beaver Rim Mule Deer Seasonal Range
Hunt Area 90
Revised 2012**



2015 - JCR Evaluation Form

SPECIES: Mule Deer

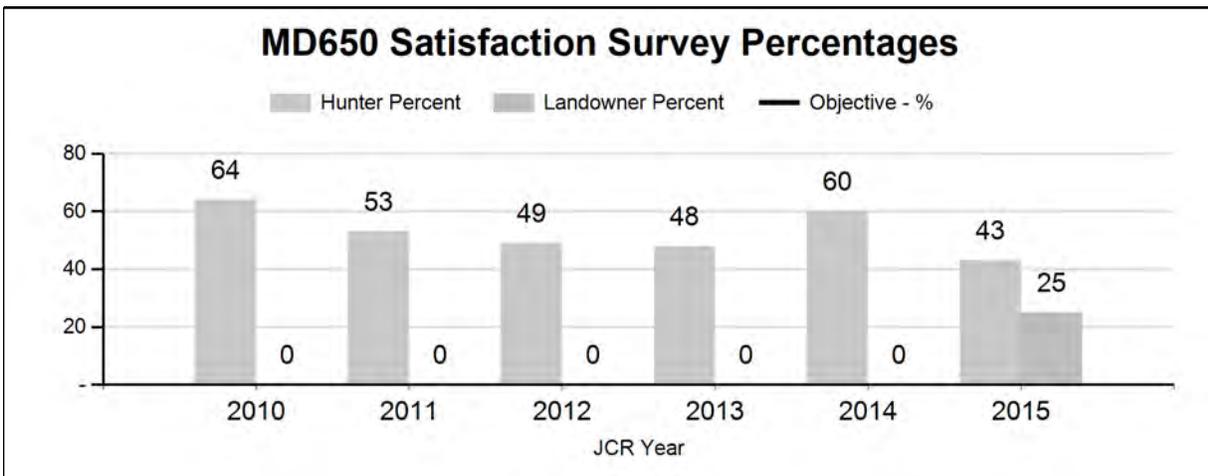
PERIOD: 6/1/2015 - 5/31/2016

HERD: MD650 - CHAIN LAKES

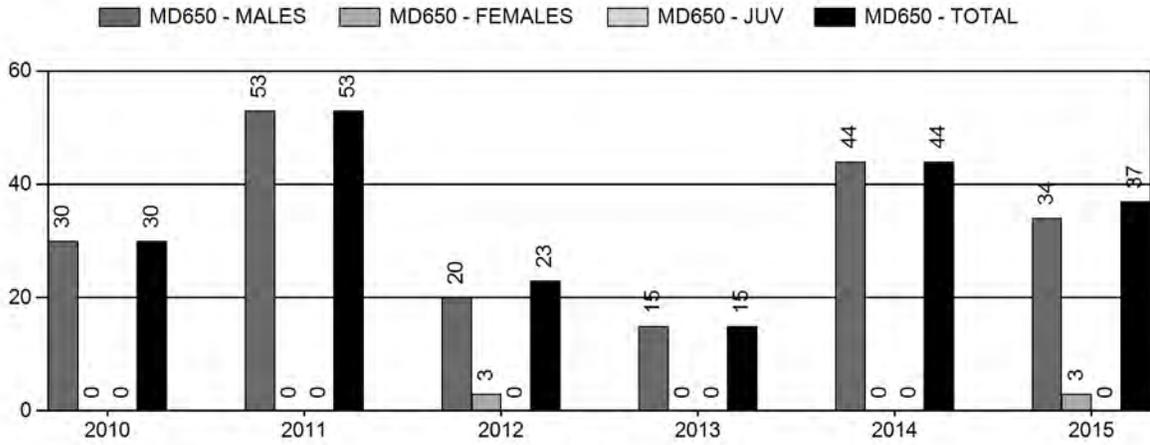
HUNT AREAS: 98

PREPARED BY: GREG HIATT

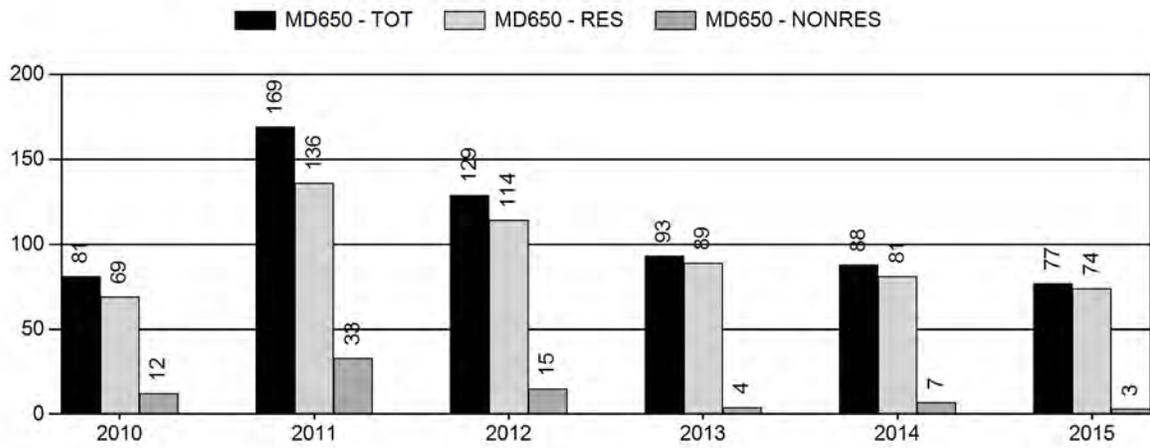
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	54%	54%	50%
Landowner Satisfaction Percent	0%	0%	25%
Harvest:	33	37	35
Hunters:	112	77	0
Hunter Success:	29%	48%	0 %
Active Licenses:	112	77	100
Active License Success:	29%	48%	35 %
Recreation Days:	448	262	500
Days Per Animal:	13.6	7.1	14.3
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			-26%
Number of years population has been + or - objective in recent trend:			4



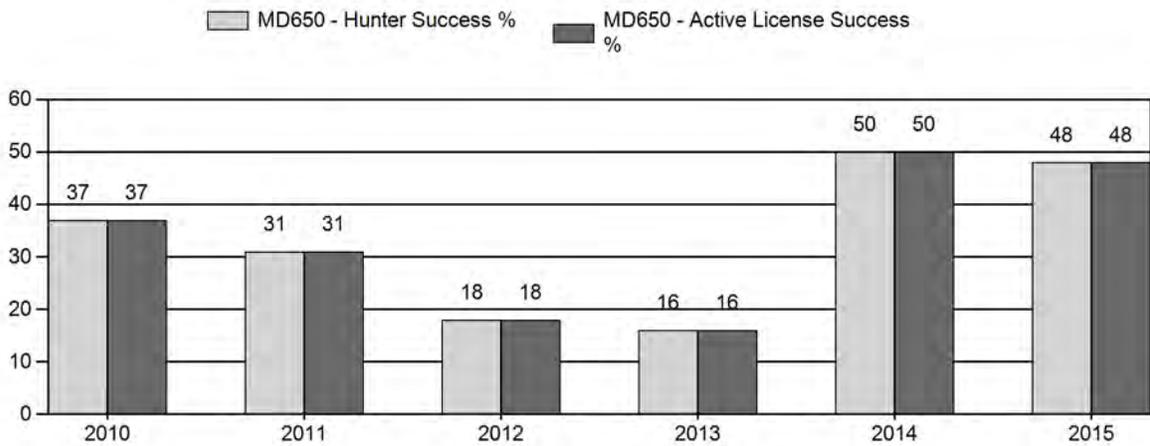
Harvest



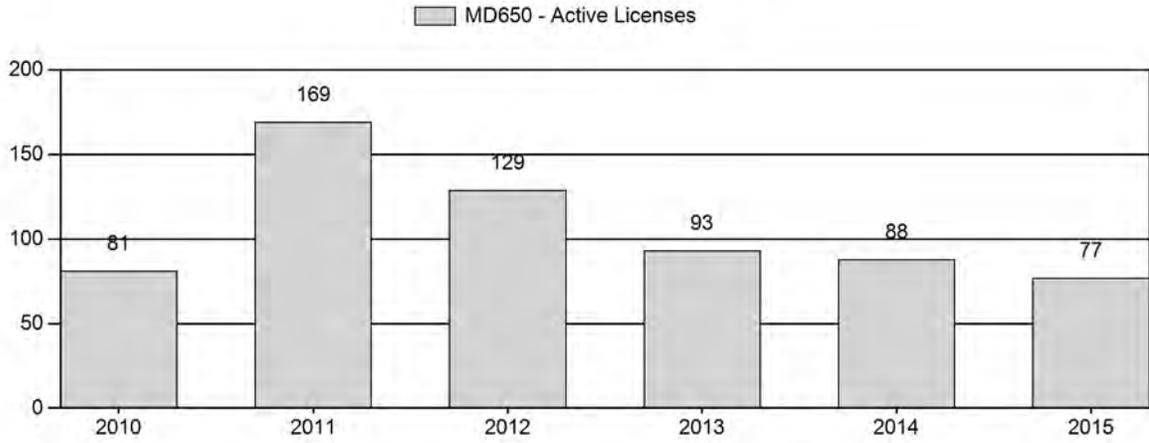
Number of Hunters



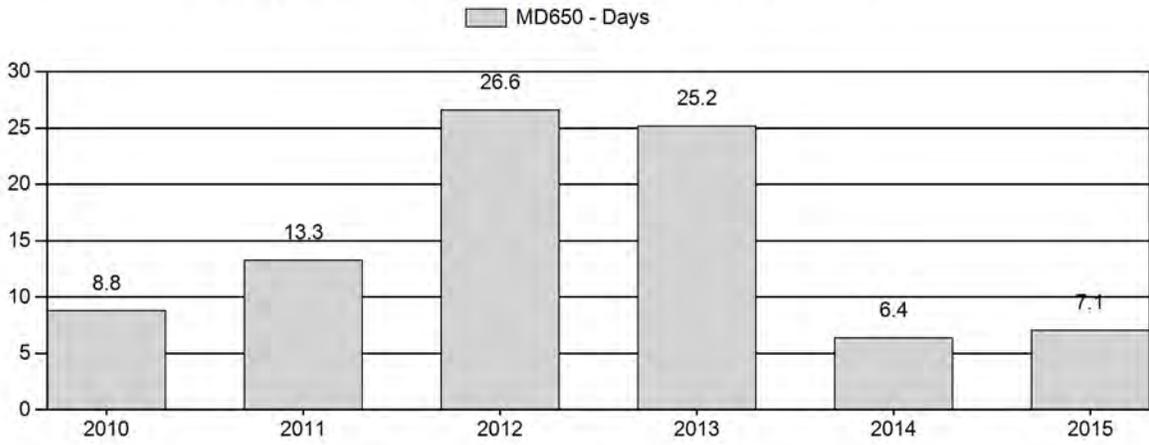
Harvest Success



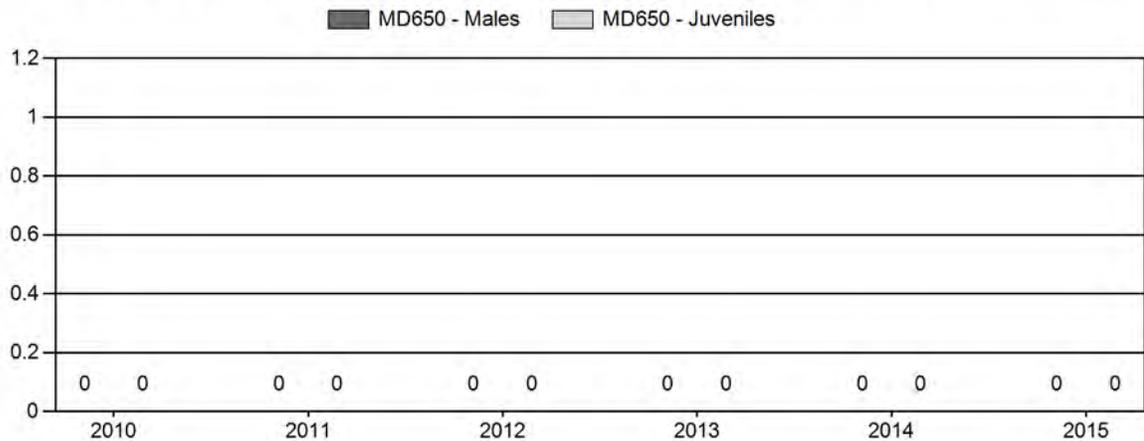
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD650 - CHAIN LAKES

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	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
2010	490	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2011	410	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2012	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2013	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2014	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2015	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0

**2016 HUNTING SEASONS
CHAIN LAKES MULE DEER HERD (MD650)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
98		Oct. 15	Oct. 21		General	Antlered mule deer or any white-tailed deer, archery or muzzleloading firearms only
Archery 98		Sep. 1	Sep. 30			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
98	Gen	Shorten by 1 day.
Herd Unit Total		Shorten by 1 day.

Management Evaluation

Current Hunter/Landowner Satisfaction Management Objective: 60% hunter/landowner satisfaction; 35% hunter success

Management Strategy: Recreational

2015 Hunter Satisfaction Estimate: 43.5%

2015 Landowner Satisfaction Estimate: 25%

Most Recent 3-year Running Average Hunter Satisfaction Estimate: 50.5%

Most Recent 3-year Running Average Landowner Satisfaction Estimate: N/A

Herd Unit Issues

Historically, the management objective for the Chain Lakes Mule Deer Herd Unit was a post-season population size objective of 500 deer, but dispersal of these deer in small bands across hundreds of square miles of sagebrush makes both aerial and ground classifications prohibitively expensive. Without reliable estimates of herd ratios, herd size could not be modeled and objectives based on population size could not be quantitatively evaluated. A hunter/landowner satisfaction objective was adopted following public review in 2015.

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

Weather

Following severe drought conditions in 2012 and 2013, precipitation improved in the latter half of 2014 and continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and presumably improving fawn survival. Condition of mule deer going into the 2015-16 winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

Only one shrub transect has been established in this herd unit, on the Chain Lakes WHMA, but was not read in 2015. Shrub production presumably improved with the increased moisture and many sagebrush plants that had appeared dead from drought in 2013 produced small but viable sprouts of green growth. While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation.

Field Data

All classification samples for this herd have been statistically inadequate and no posthunt classification data were collected again this year. Increased moisture improved fawn production in neighboring herds and fawn production in this desert herd is presumed to have improved as well. Despite increased fawn production, the herd is still expected to be below objective size due to losses during 2011-13.

Harvest Data

General license seasons with weapons restrictions allowed this herd to recover from severe losses in the past and that strategy is continued in 2016. These combined muzzleloader and archery seasons, used for the past 33 years, have been popular with both resident and nonresident hunters, but hunter numbers declined for the fourth year to 77 in 2015, presumably because of low deer numbers, poor success seen in 2012 and 2013, and improved deer hunting in some neighboring general license areas. Total number of hunters was less than half those reported in 2011.

Hunter success was essentially unchanged in 2015 at 48 percent, compared to 50 percent in 2014, despite the removal of the 3-point antler restriction. Three antlerless deer were reported in the 2015 harvest, presumably by archers in the special archery season or youth hunters in the regular season who were allowed to harvest any deer. The average number of days hunted for each harvested deer rose slightly to 7 days, less than a third the effort required in 2012 and 2013. These data suggest deer numbers have increased in this herd, as reported in neighboring herds with more population data available.

Population

This herd consists of small bands of deer residing yearlong in pockets of suitable habitat in the eastern Red Desert. No reliable population estimate is available for this herd, nor is one likely under current manpower and budget constraints. A simplistic population model was developed

that supported the reported harvests, but its accuracy could not be evaluated because of the absence of classification data and limited harvest field check samples. Instead, population trends are monitored through harvest data and classification ratios of neighboring herds.

With the adoption of a hunter/landowner satisfaction objective for this herd, major landowners were personally queried on their satisfaction with deer numbers in 2015. Only one of four who responded was satisfied, the others still wishing to see more mule deer.

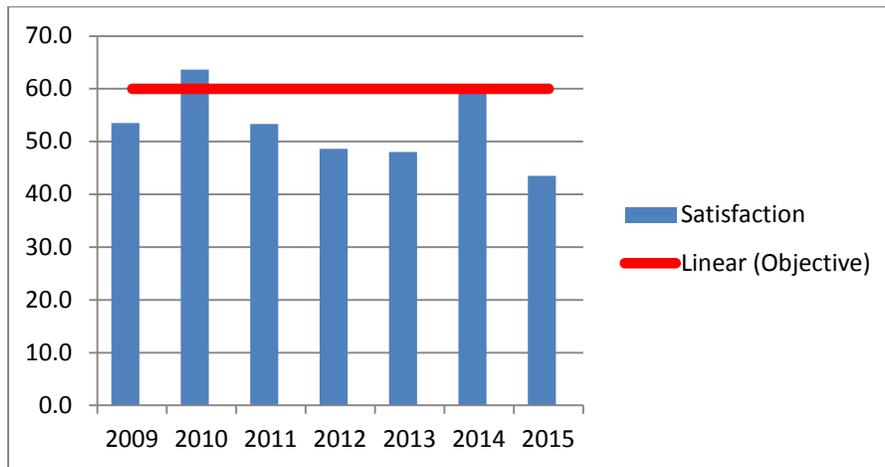


Figure 1. Hunter satisfaction for the Chain Lakes Mule deer Herd.

Hunter satisfaction declined beginning in 2011 and with the exception of one rebound in 2014 (Figure 1.), hunters have been mostly dissatisfied with the number of deer they see in this herd for the past five years. With both landowners and hunters mostly not satisfied with current deer numbers in this herd, harvests should remain conservative.

A secondary objective of 35 percent hunter success was also adopted for this herd in 2015. As shown in Figure 2, the 2015 season attained that objective.

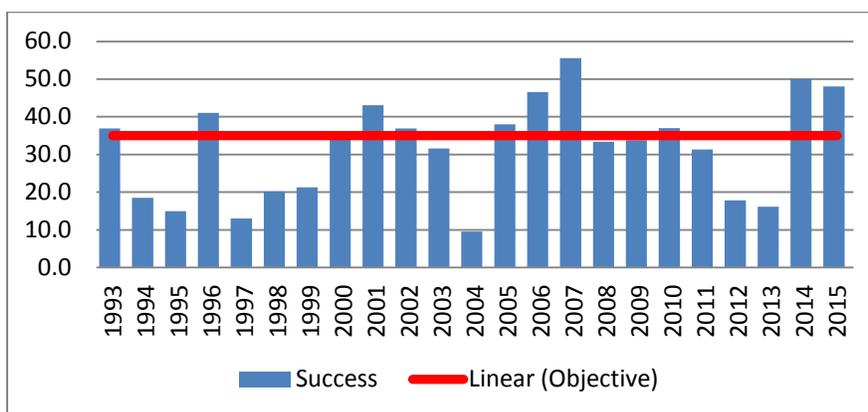
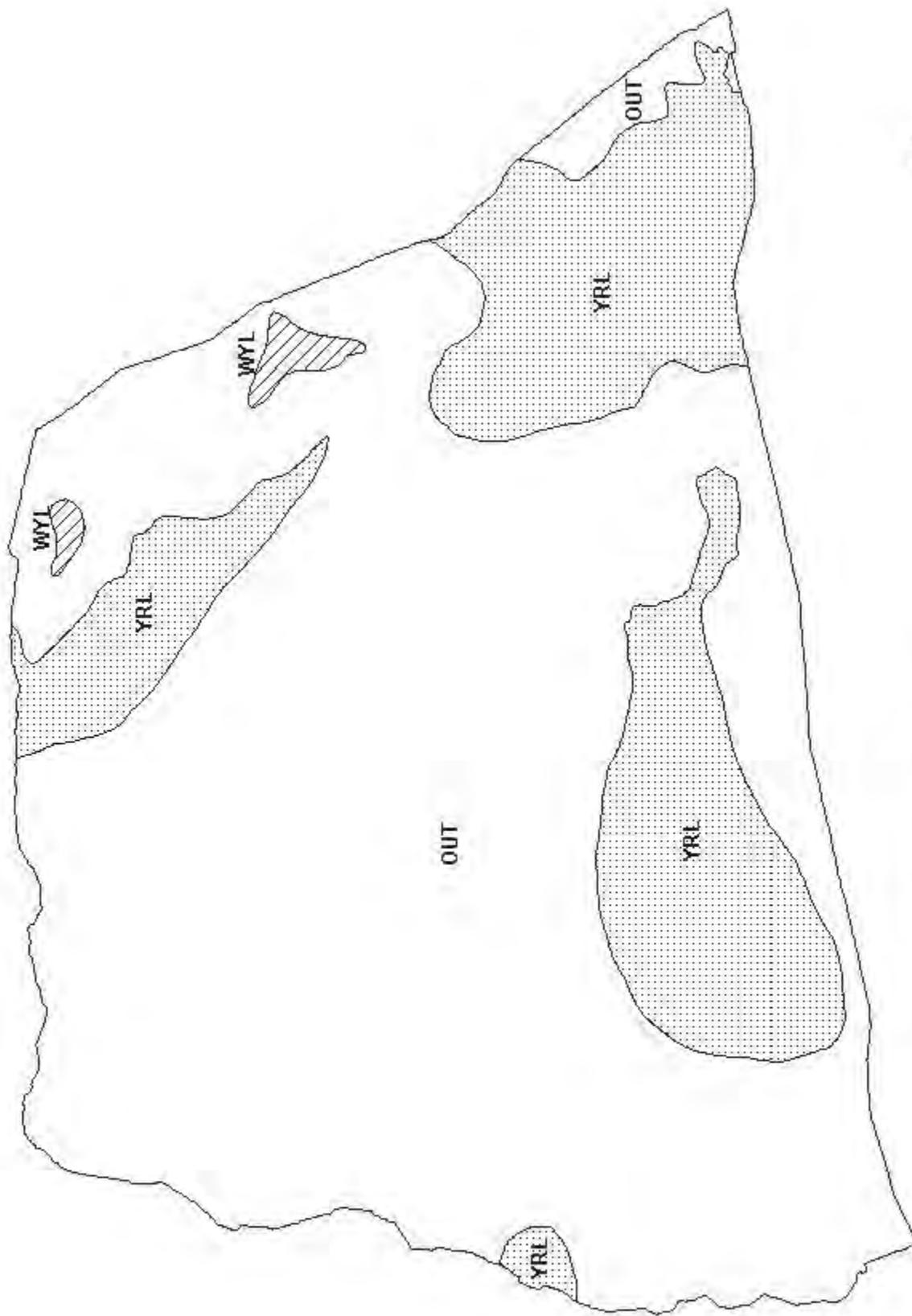


Figure 2. Hunter success for the Chain Lakes Mule deer Herd.

Management Evaluation

Deer in this desert herd unit have few options for finding green forage during dry conditions, with no high elevation habitats available. Body condition of deer entering the 2015-16 winter is expected to have improved because of record precipitation. Survival through the 2015-16 winter is expected to be near average.

Expected harvest from the 2016 season would be about 35 antlered deer by roughly 100 hunters. The opening date is the same used in the past 20 years and opens simultaneously with neighboring areas in Region E. The closing date is shortened by one day to align with general license hunts in neighboring areas in Region E, avoid a second weekend of harvest, and prevent overlap with the local elk season. As in 20 of the previous 21 years, most hunters during the regular season would be restricted to harvesting only antlered deer. With neighboring general license areas to the north and south dropping 3-point antler point restrictions, there is no longer need for a similar restriction in Area 98. Opportunities for archery hunting will again be available during the October season in addition to the special archery season in September. Archers will be allowed to harvest any deer during September to follow the statewide standard special archery season.



Mule Deer (MD650) - Chain Lakes
HA 98
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