2017 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2017 - 5/31/2018

HERD: MD642 - DUBOIS

HUNT AREAS: 128, 148

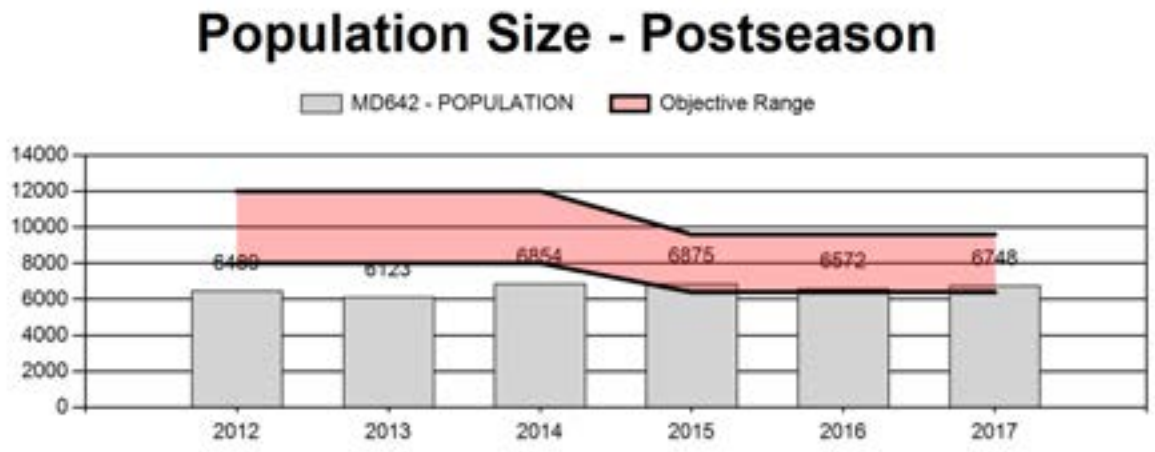
PREPARED BY: GREG ANDERSON

	2012 - 2016 Average	2017	2018 Proposed
Population:	6,583	6,748	7,335
Harvest:	489	439	445
Hunters:	1,205	1,183	1,200
Hunter Success:	41%	37%	37 %
Active Licenses:	1,228	1,189	1,200
Active License Success:	40%	37%	37 %
Recreation Days:	6,570	6,099	6,100
Days Per Animal:	13.4	13.9	13.7
Males per 100 Females	28	27	
Juveniles per 100 Females	62	51	

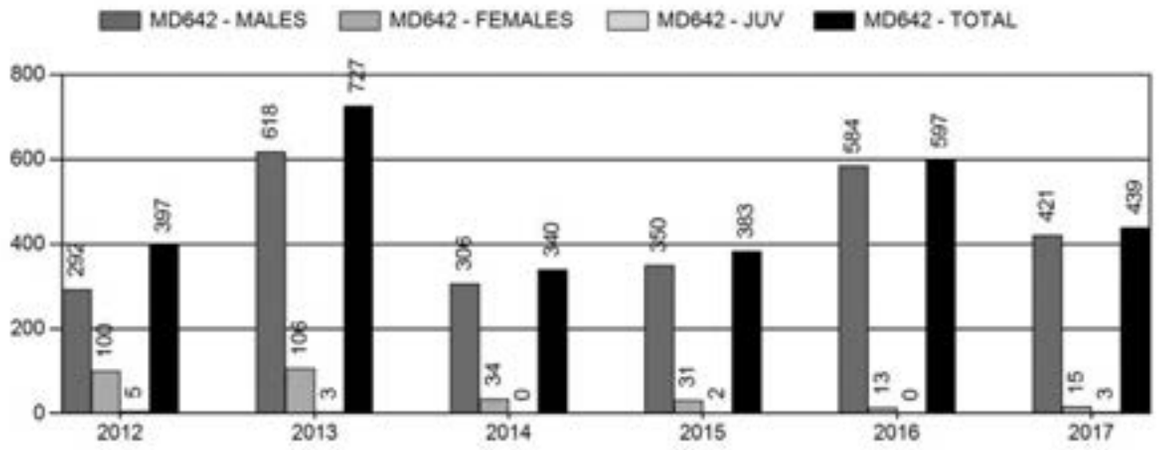
Population Objective (± 20%) :	8000 (6400 - 9600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-15.6%
Number of years population has been + or - objective in recent trend:	10
Model Date:	2/25/2018

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

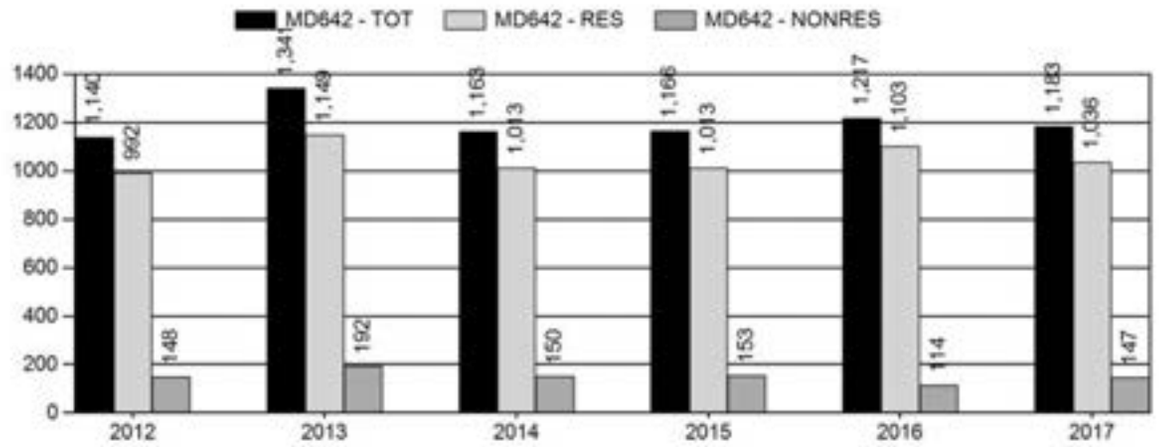
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	31%	30%
Total:	6%	6%
Proposed change in post-season population:	+3%	+8%



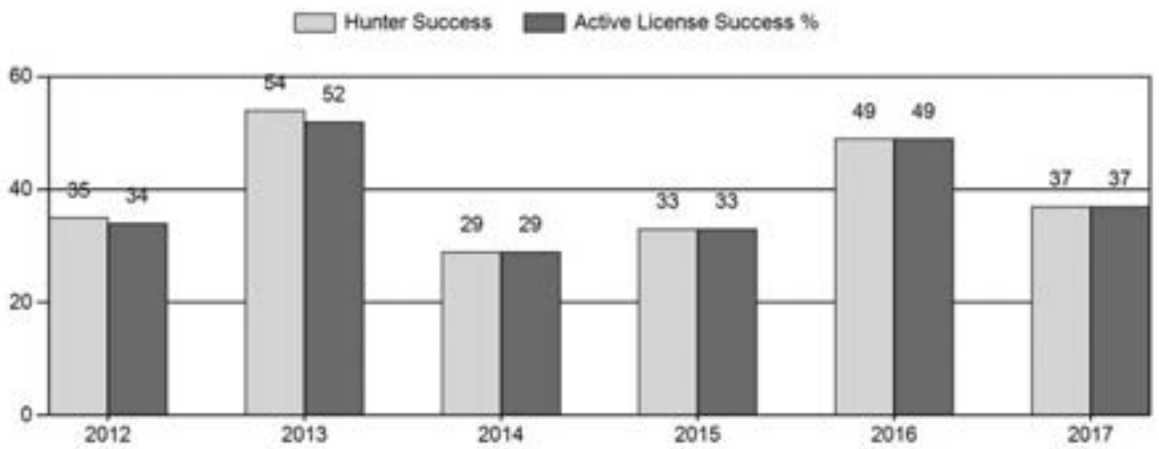
Harvest



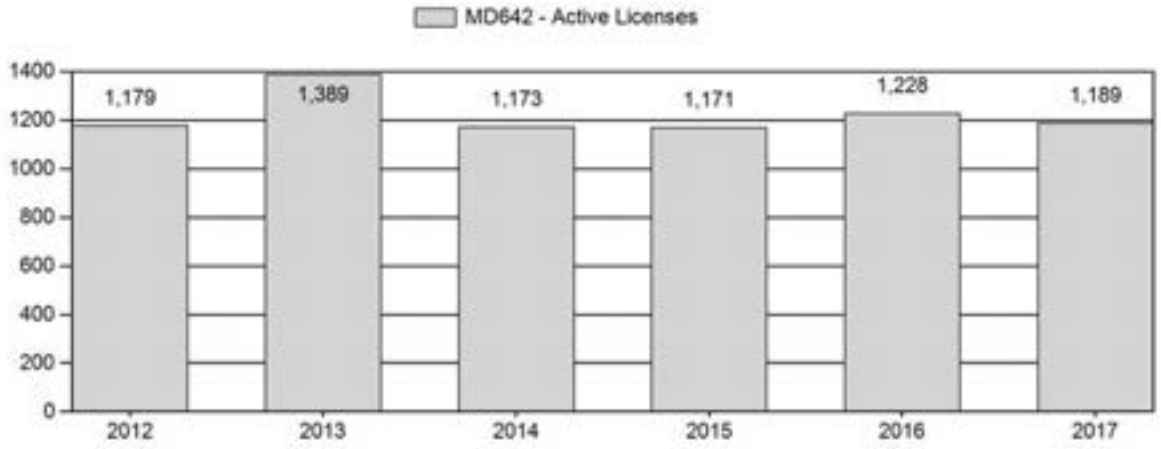
Number of Active Licenses



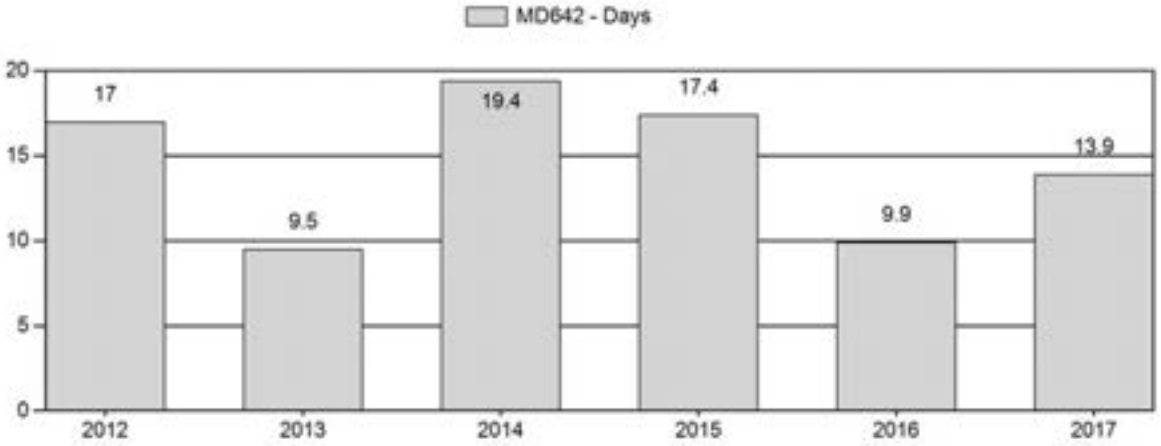
Harvest Success



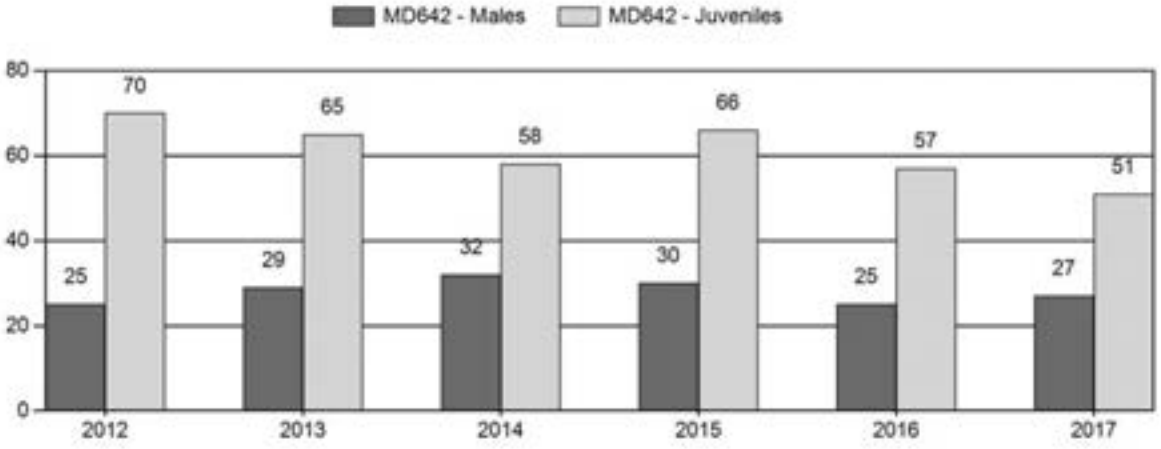
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2012 - 2017 Postseason Classification Summary

for Mule Deer Herd MD642 - DUBOIS

		MALES							FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	6,572	61	78	63	6	0	208	14%	846	55%	478	31%	1,532	920	7	17	25	± 2	57	± 4	45
2017	6,748	64	80	82	7	0	233	15%	873	56%	445	29%	1,551	796	7	19	27	± 2	51	± 3	40

2018 HUNTING SEASONS
DUBOIS MULE DEER (MD 642)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
128		Oct. 1	Oct. 15		General	Antlered mule deer or any white-tailed deer
128	1	Nov. 1	Nov. 20	50	Limited quota	Any deer
128	3	Nov. 1	Nov. 20	50	Limited quota	Any white-tailed deer
128	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: 400

Hunt Area	Type	Quota change from 2017
Total		

<u>Management Evaluation</u>
Current Postseason Population Management Objective: 8,000
Management Strategy: Recreational
2017 Postseason Population Estimate: ~6,700
2018 Proposed Postseason Population Estimate: ~7,300

Management Issues
The Dubois mule deer herd population objective is 8,000 deer and was adopted in 2015. The previous objective of 10,000 had been in place since 1994. During that time period 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 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. Although it has long been known significant numbers of deer in this herd are migratory, migration routes and the extent of summer range have not been defined. To help define deer movements better a migration/movement study began in 2016. The study began with 16 does being collared in March, 2016. These deer were

tracked over 2 years to delineate migration routes and summer and transition range used by deer in the herd unit. Between December, 2017 and January, 2018 the original 16 collars were remotely dropped and retrieved. In March, 2017 an additional 25 does were collared. Initial data from this study reveals deer wintering in hunt area 128 are primarily migrating into the Sublette herd units in the summer. Most notably, a large portion of deer wintering in the Dubois herd unit spend summer in the Gros Ventre, Fish Creek, and Spread Creek drainages.

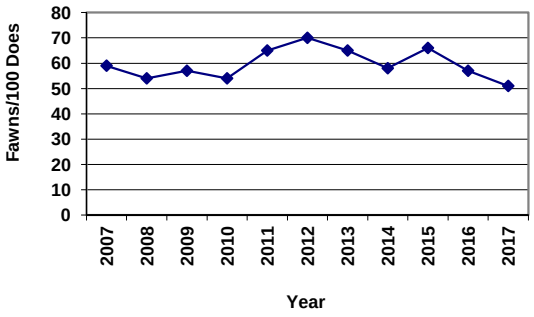
Habitat/Weather

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 was lower than the previous two years but still slightly above the 20-year average for the area. No shrub data is collected in the herd unit, but the growing conditions likely resulted in average browse production. Given the average feed resource in 2017, deer in the herd unit likely entered winter in good shape. Fall weather was mild followed by average winter conditions in December and January. Snow cover and depth were normal on the low elevation winter range occupied by deer. As of March, 2018 all of the 25 collared deer in the herd unit were alive indicating winter mortality was low.

Field/Harvest Data/Population

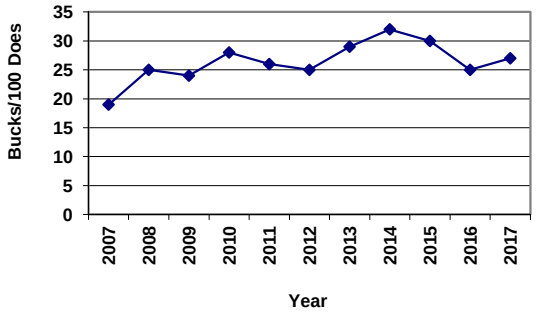
In 2017, personnel classified 1,551 mule deer. The sample exceeded the desired sample size for calculating accurate confidence intervals around age/sex ratios. Annual classification samples generally meet or exceed desired sample sizes in this herd unit. The 2017 classification sample yielded a fawn/doe ratio of 51/100. This was close to the 2016 ratio of 57/100 and well within the normal 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.



The buck/doe ratio has also been fairly stable in the herd unit (Figure 2). Over the past 10 years the ratio has generally fluctuated between 25/100 and 30/100. In 2017 the buck/doe ratio was 27/100 which was virtually the same as the 2016 ratio of 25/100.

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

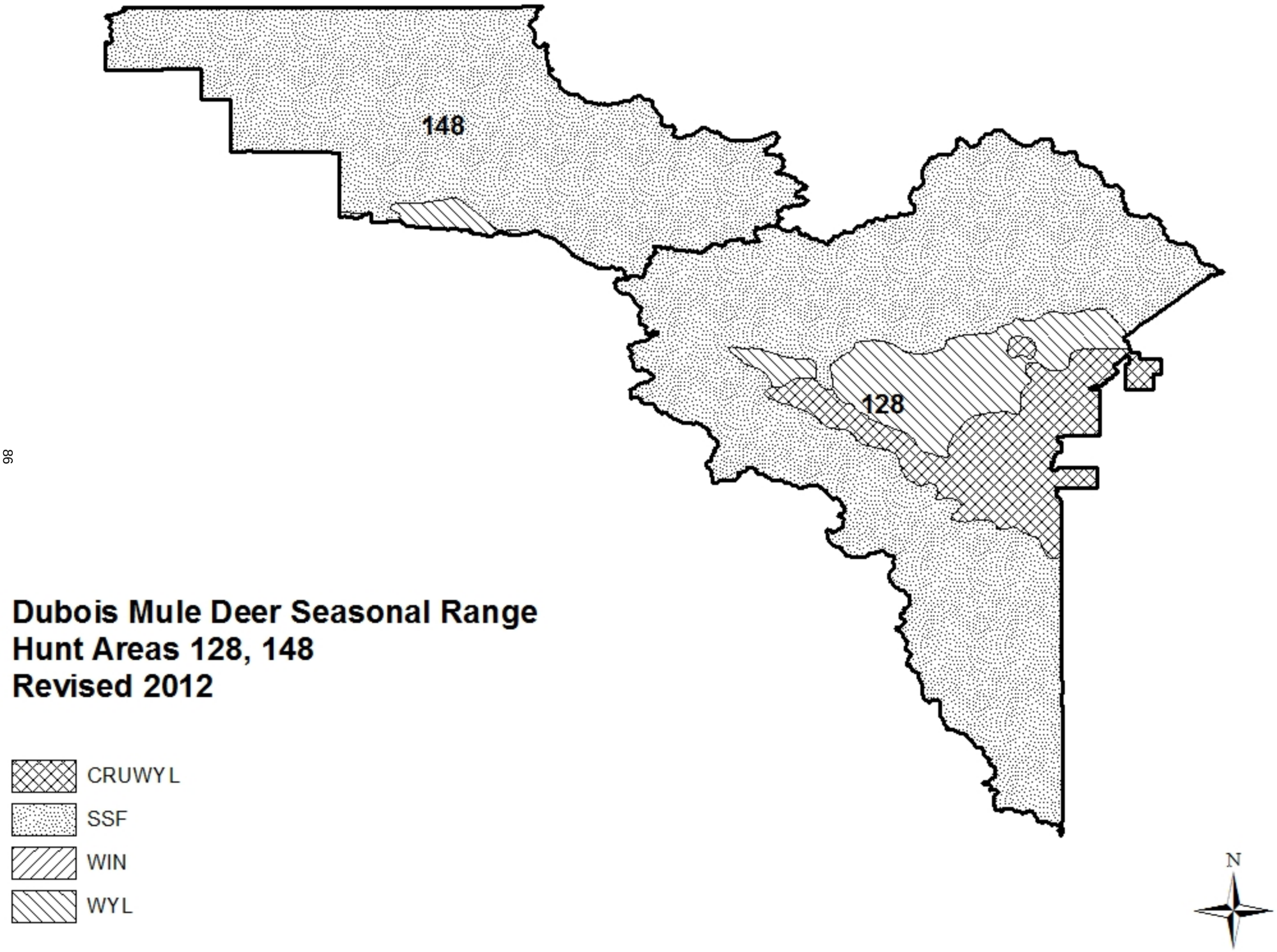


Hunter success during the general, October season tends to be low and is related to the fact many deer are not in the herd unit during that period. Deer typically migrate into the herd unit in late October and are present for the limited quota season in November. Although general license harvest declined substantially from 2016 to 2017 the decline is likely attributable to weather conditions, not demographic changes. In 2016, general license hunters harvested 484 bucks in October and had a success rate of 50%. In contrast, only 341 bucks were harvested on general licenses in 2017. In 2016 extremely harsh fall conditions forced deer to migrate onto winter range earlier than normal and thus exposed them to harvest during the first part of October. Despite the decline in buck harvest in 2017, the harvest was well within the normal range of variation for this herd unit.

A new spreadsheet model was developed for the population in 2012. The model did not exhibit any erratic behavior with the addition of data through 2016. Each year of the model's use, the TSJ/CA version of the model was selected to track the population. In 2017 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 2017 population estimate is 6,700 and 84% of objective. The model is considered fair given adequate age/sex ratio data but lacking survival estimates.

Management Summary

The 2017 hunting season is designed to maintain recreational opportunity at the same level as the 2016 season. This population has been quite stable over the past several years and the current level of harvest is appropriate to maintain. Given no season changes are proposed in this herd unit for 2018, harvest is expected to be similar to the 2017 harvest. The population is expected to increase to 7,300 deer in 2018.


148
128
Dubois Mule Deer Seasonal Range
Hunt Areas 128, 148
Revised 2012
CRUWYL
SSF
WIN
WYL
N

2017 - JCR Evaluation Form

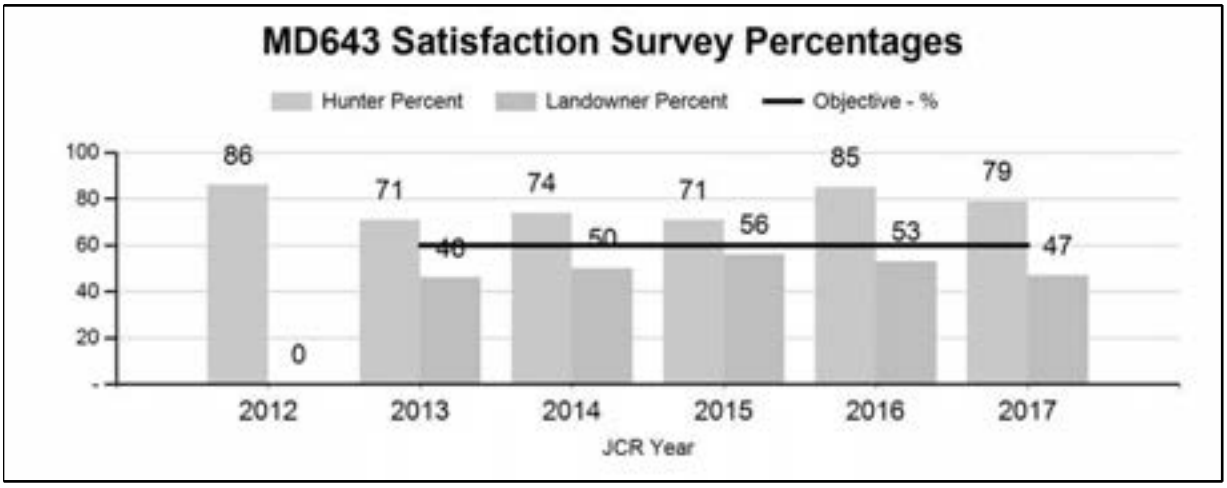
SPECIES: Mule Deer
HERD: MD643 - PROJECT
HUNT AREAS: 157, 170-171

PERIOD: 6/1/2017 - 5/31/2018

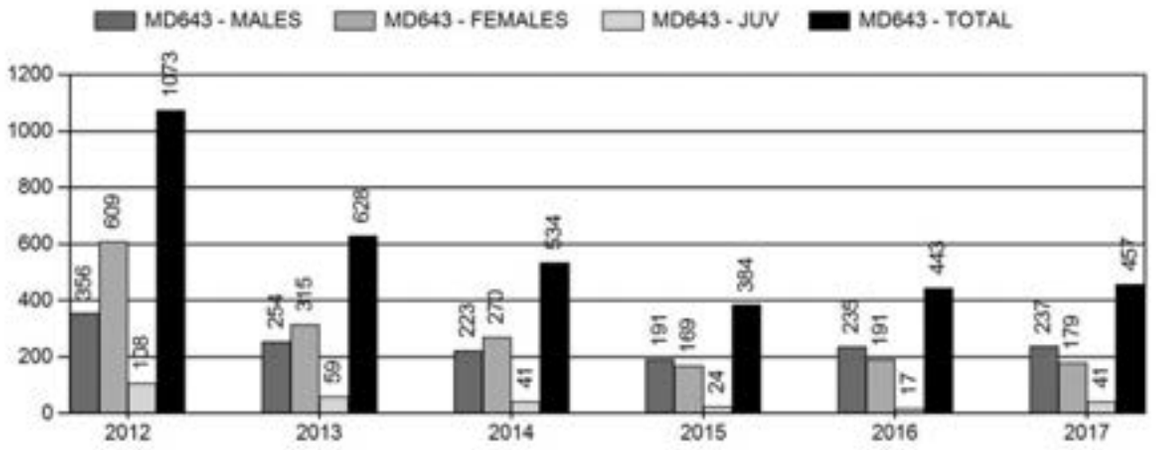
PREPARED BY: GREG ANDERSON

	2012 - 2016 Average	2017	2018 Proposed
Hunter Satisfaction Percent	78%	79%	75%
Landowner Satisfaction Percent	49%	47%	50%
Harvest:	612	457	550
Hunters:	721	620	680
Hunter Success:	85%	74%	81%
Active Licenses:	854	710	700
Active License Success:	72%	64%	79%
Recreation Days:	3,172	2,314	2,400
Days Per Animal:	5.2	5.1	4.4
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	

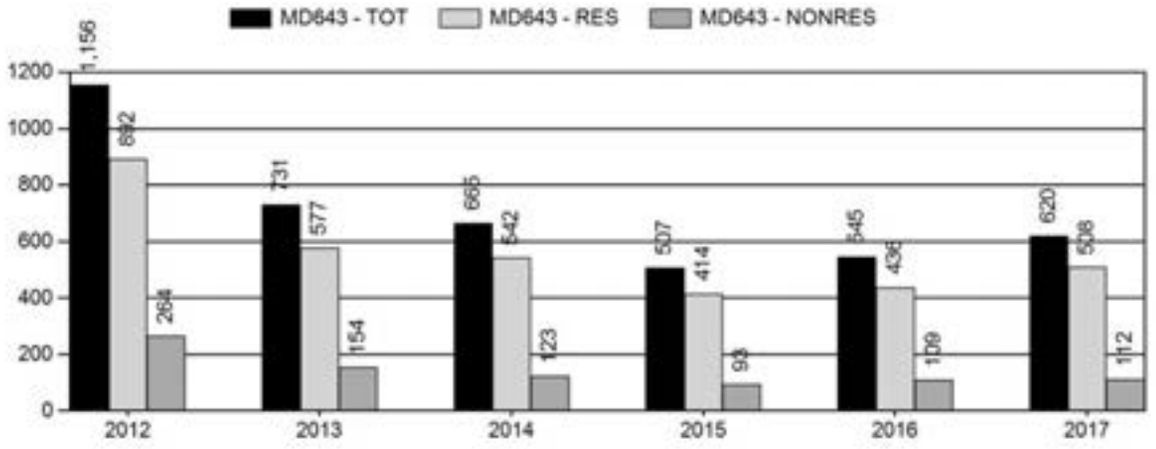
Satisfaction Based Objective	60%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	3%
Number of years population has been + or - objective in recent trend:	2



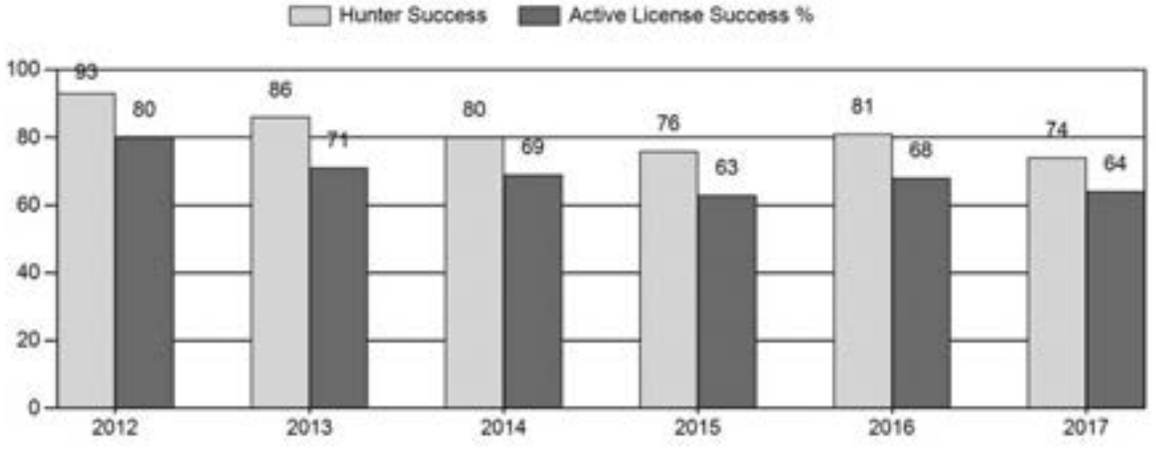
Harvest



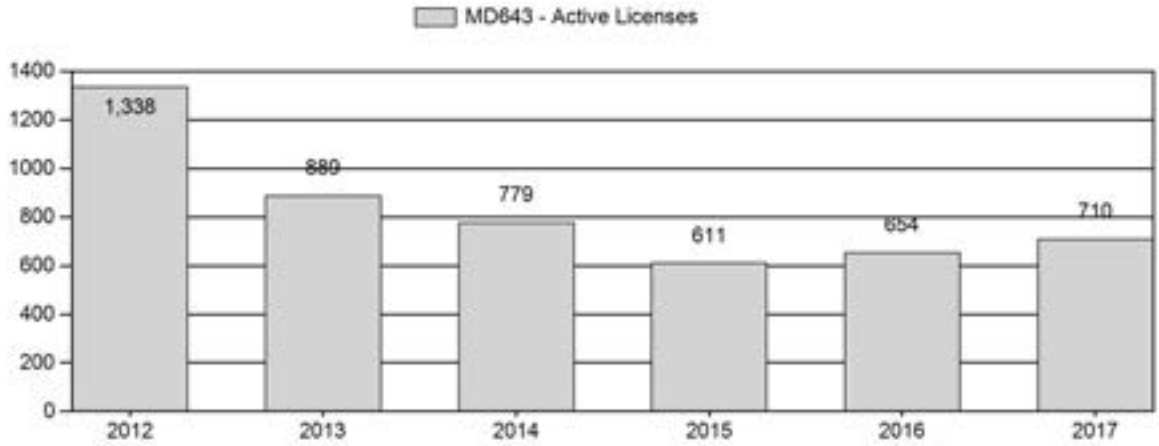
Number of Active Licenses



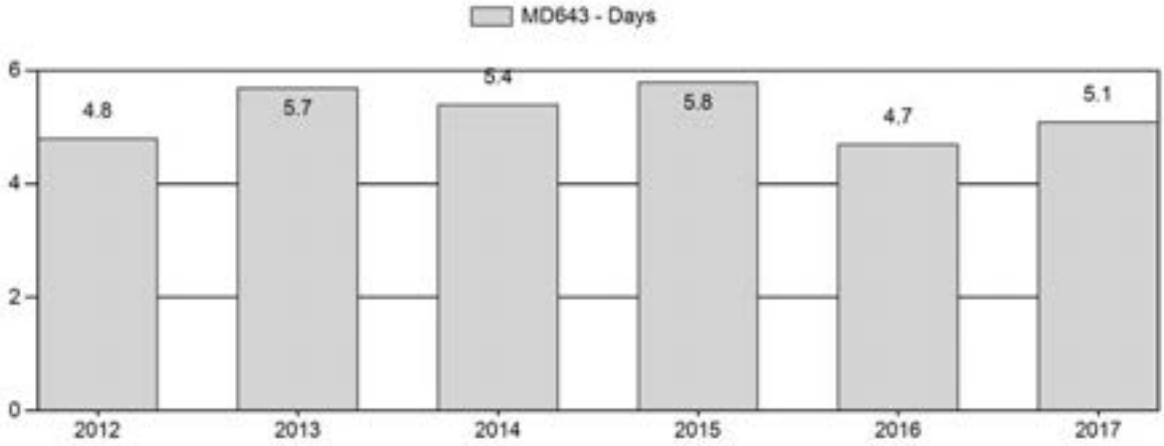
Harvest Success



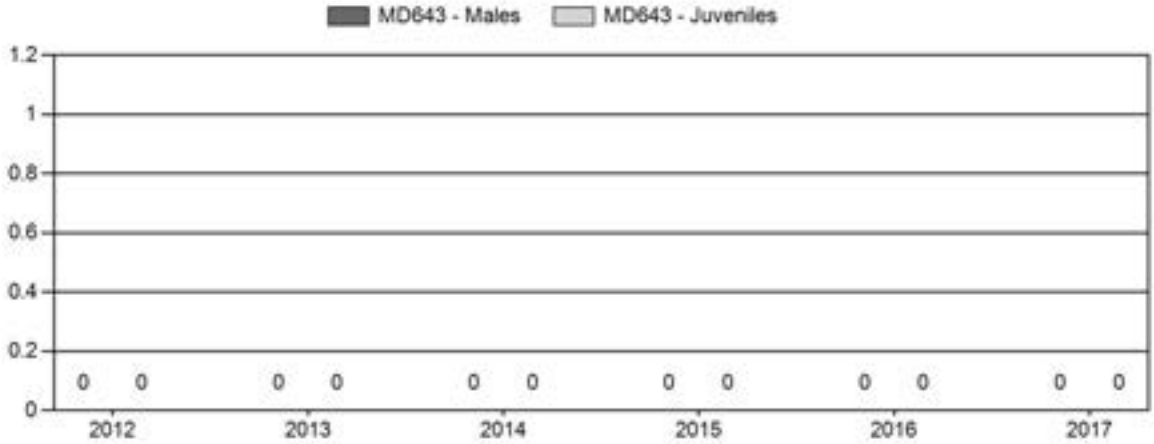
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2018 HUNTING SEASONS
PROJECT MULE DEER (MD 643)

Hunt Area	Type	Season Dates Opens	Closes	Quota	Licenses	Limitations
157	1	Oct. 1	Oct. 31	350	Limited quota	Any deer
157	3	Nov. 1	Nov. 30	150	Limited quota	Any white-tailed deer
157	6	Oct. 1	Nov. 10	350	Limited quota	Doe or fawn
157	8	Oct. 1	Oct. 31	225	Limited quota	Doe or fawn white-tailed deer
157	8	Nov. 1	Nov. 30			Doe or fawn white-tailed deer valid on private land
171		Oct. 1	Oct. 31		General	Any deer
171	3	Nov. 1	Nov. 30	75	Limited quota	Any white-tailed deer
171	6	Oct. 1	Nov. 30	250	Limited quota	Doe or fawn
Archery						
157		Sep. 1	Sep. 30			
171		Sep. 1	Sep. 30			

Hunt Area	Type	Quota change from 2017
157, 170	1	+50
	3	+50
	6	+50
	8	+100
Total		**+250**

Management Evaluation

Current hunter/landowner satisfaction management objective: Hunter/Landowner Satisfaction 60%
Management Strategy: Private Lands
2017 Hunter satisfaction estimate: 79%
2017 Landowner satisfaction estimate: 47% (17 contacts)
Most recent 3-Year running average hunter satisfaction estimate: 78%
Most recent 3-Year running average landowner satisfaction estimate: 52%

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 is gauged by talking directly to landowners. The objective was reviewed in 2018 and left unchanged as hunter/landowner satisfaction but with a private lands management strategy.

As noted, there is a substantial amount of deer movement between this herd unit and the WRR. The vast majority of deer wintering along the Wind River are thought to spend summer on the WRR. In 2018 the USFWS has plans to collar mule deer on WRR lands along the Wind River. Collared deer will be tracked for several years to determine migratory movements and timing as well as summer range distribution.

In 2018, hunt area 170 was combined with hunt area 157. Since the formation of this herd unit, licenses were valid in both 157 and 170 and the season structure was exactly the same. For the sake of parsimony and clarity in regulations, area 170 was eliminated.

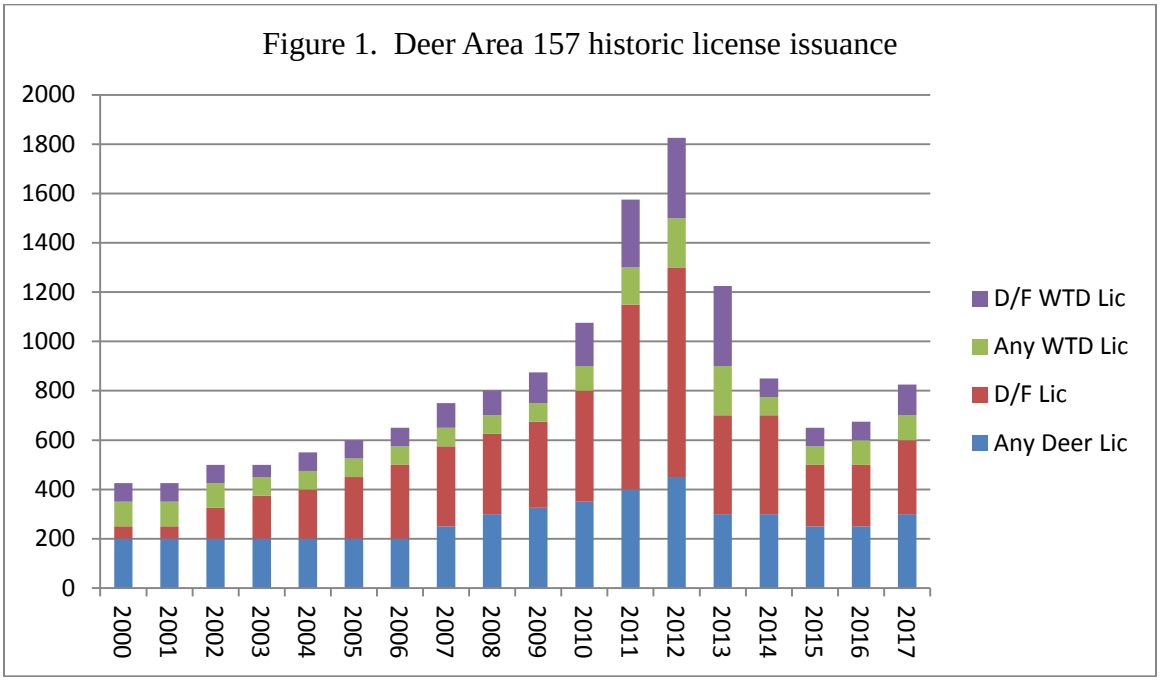
Habitat/Weather

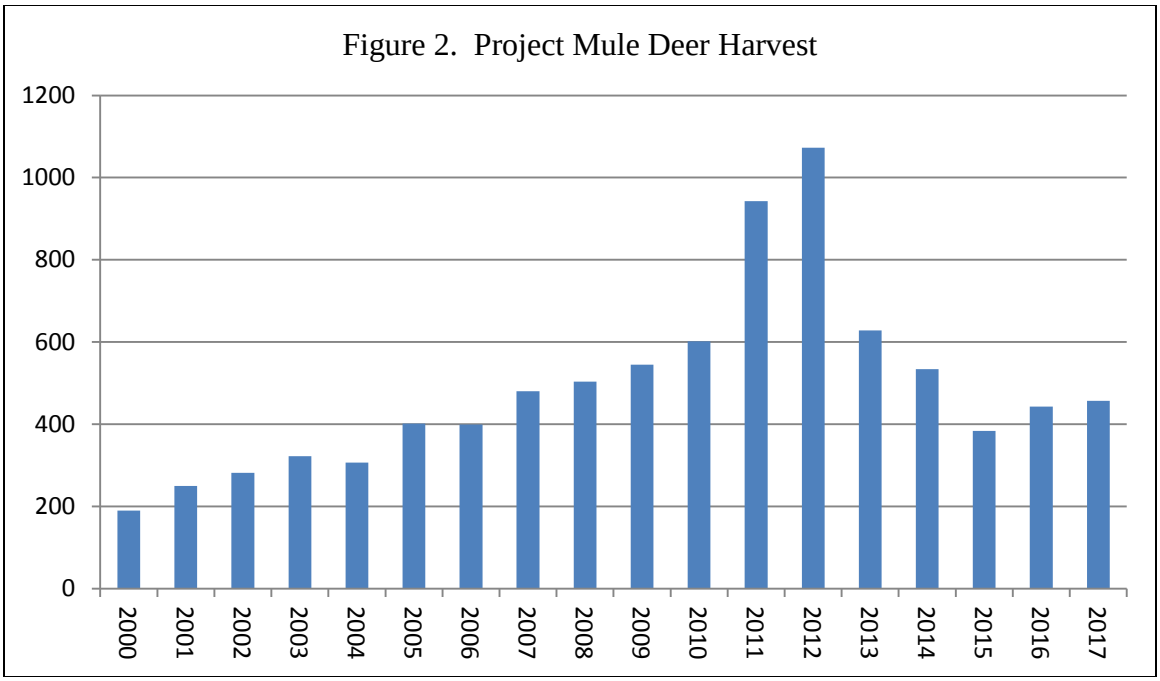
This herd occupies a predominantly agricultural area in central Wyoming as well as lands interspersed with the WRR. Land ownership patterns and extensive border with the WRR make it cost prohibitive to collect adequate demographic data in the herd unit. The highest densities of mule deer are found along the southern portion of hunt area 157 and along the Wind River through hunt area 171. 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 2017, weather conditions were conducive to average 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 interchange with the WRR and 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 license numbers 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. The season remained unchanged from 2015 to 2016 so deer harvest remained low compared to the 2009 through 2014 period (Fig. 2). Landowner comments as well as personnel observations indicate this deer population has begun to increase again. Landowner satisfaction did decline slightly from 53% in 2016 to 47% in 2017 despite increased deer harvest during the 2017 season. In conjunction with the small reduction in landowner satisfaction in 2017, damage complaints have been increasing. The relatively light harvest over the past 2 years appears to have contributed to population growth in 2017.



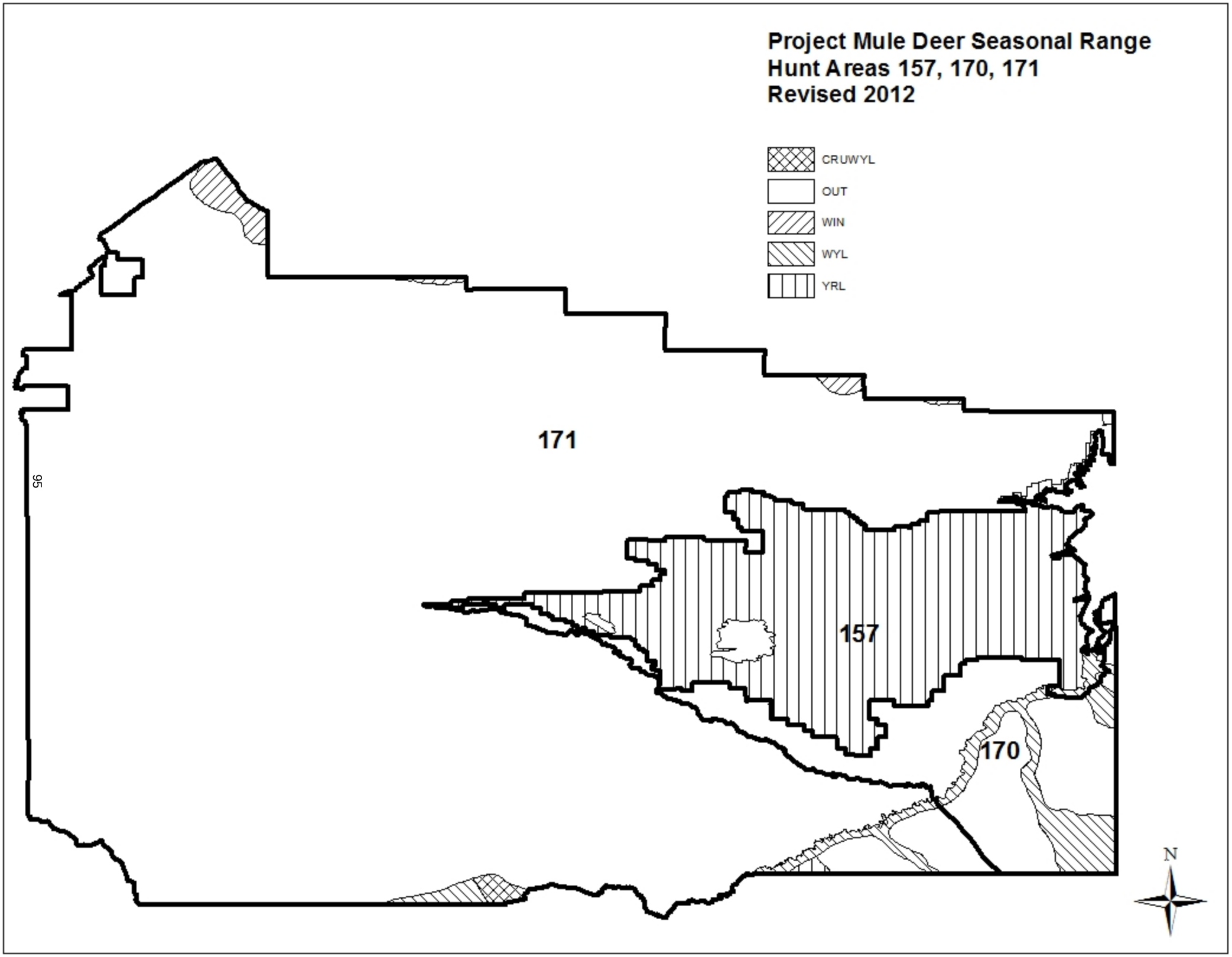


Hunter satisfaction was 79% in 2017. This was a bit lower than 2016 satisfaction but essentially the same as the 3-year average indicating hunters were pleased with recreational quality in 2017. This was the fifth year the landowner satisfaction survey was conducted so long term comparisons are not possible. 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 and continued to do so in 2017. Landowner satisfaction was 47% in 2017. Although it was below the desired level of 60% it should be noted landowner satisfaction remained close to 50% for each of the past 3 years. Personnel did receive more landowner comments regarding an increase in deer numbers. Information, including harvest statistics, hunter satisfaction, and landowner satisfaction indicate this mule deer population declined in response to high harvest in 2011 and 2012 as well as an EHD outbreak in 2013. More recently it appears the population has been growing slowly.

Management Summary

Perceptions of hunters, landowners, and Department personnel are that liberal seasons in 2011 and 2012 effectively reduced the deer population in this herd unit. Based on comments primarily from landowners it seems reduced harvest from 2013 to 2016 contributed to population growth. In response, license issuance increased in 2017. Despite a more liberal season in 2017, landowner concerns about too many deer are increasing. In response, license issuance will increase again 2018. Although satisfaction data do not reveal any remarkable changes in 2017, landowner complaints regarding too many deer and damage seemed more vocal. Hunter success and satisfaction remained high in 2017 indicating recreational quality continued to be good despite increased licenses in 2017. To address perceived population growth, Type 1, 3, and 6 licenses will be increased by 50 each to increase deer harvest. Type 8 licenses will be increased

by 100 to address greater concerns about white-tailed deer population growth along the Wind River. Smaller, incremental license increases like 2017 and 2018 at the first indication of population growth should preclude the need for large license increase such as those in 2011 and 2012.


Project Mule Deer Seasonal Range
Hunt Areas 157, 170, 171
Revised 2012
CRUWYL
OUT
WIN
WYL
YRL
171
157
170
N

2017 - JCR Evaluation Form

SPECIES: Mule Deer | PERIOD: 6/1/2017 - 5/31/2018

HERD: MD644 - SOUTH WIND RIVER

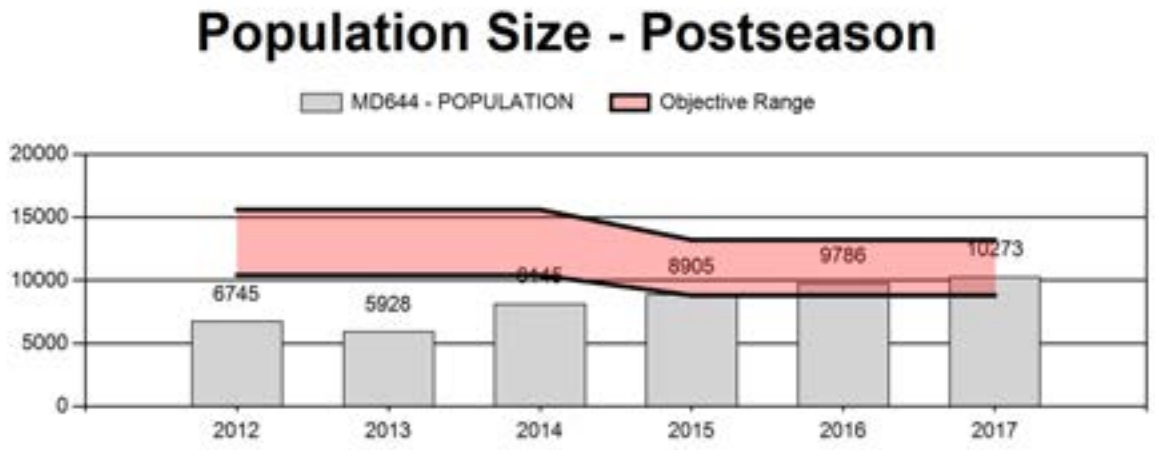
HUNT AREAS: 92, 94, 160 | PREPARED BY: STAN HARTER

	2012 - 2016 Average	2017	2018 Proposed
Population:	7,902	10,273	11,000
Harvest:	563	576	645
Hunters:	1,371	1,460	1,500
Hunter Success:	41%	39%	43 %
Active Licenses:	1,381	1,460	1,500
Active License Success:	41%	39%	43 %
Recreation Days:	5,849	6,021	6,500
Days Per Animal:	10.4	10.5	10.1
Males per 100 Females	29	28	
Juveniles per 100 Females	78	72	

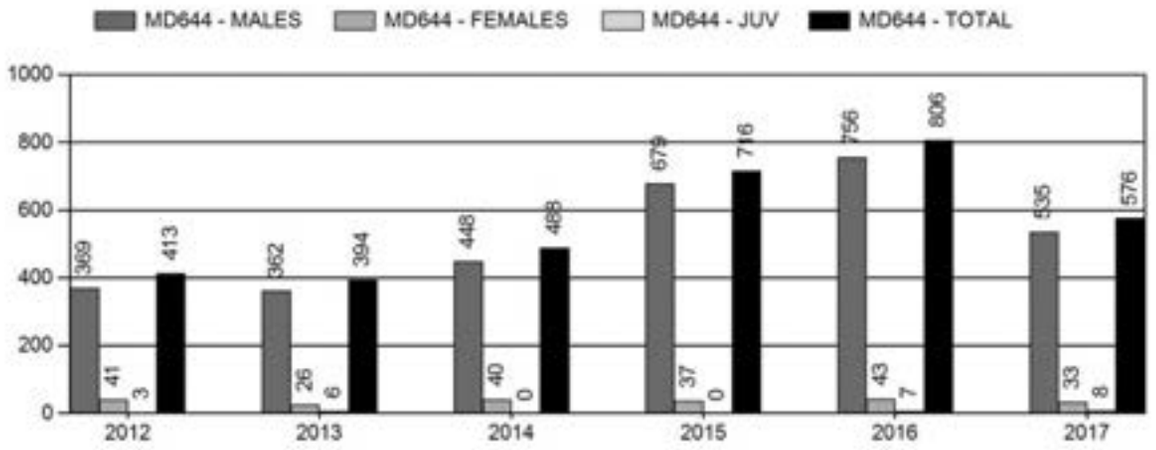
Population Objective (± 20%) :	11000 (8800 - 13200)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-6.6%
Number of years population has been + or - objective in recent trend:	4
Model Date:	3/6/2018

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

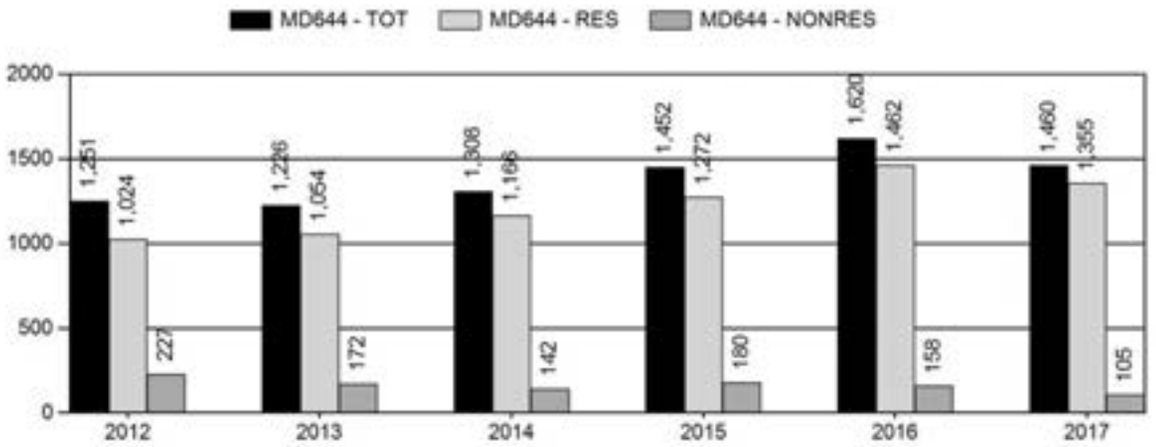
	JCR Year	Proposed
Females ≥ 1 year old:	0.7%	0.8%
Males ≥ 1 year old:	22.2%	22.7%
Total:	5.3%	5.5%
Proposed change in post-season population:	+5.0%	+7.6%



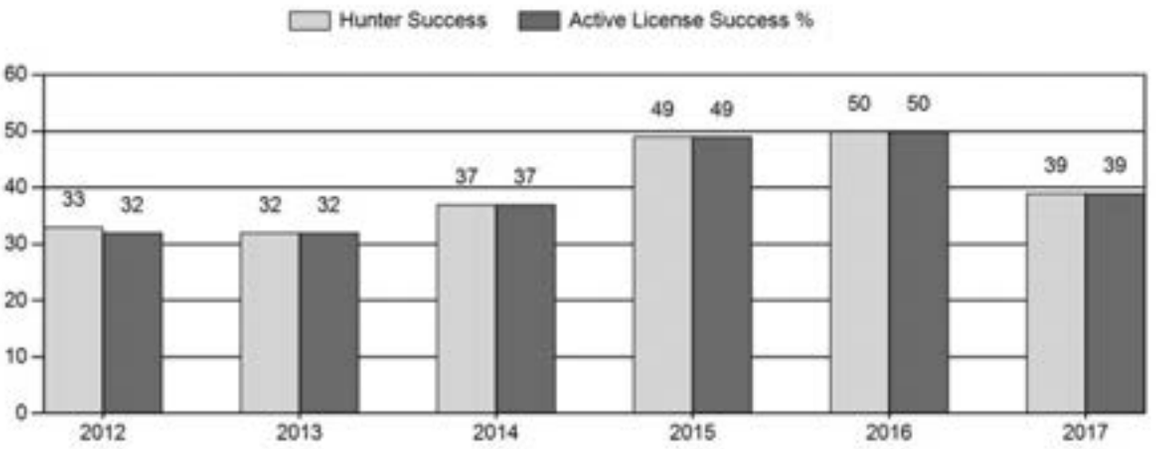
Harvest



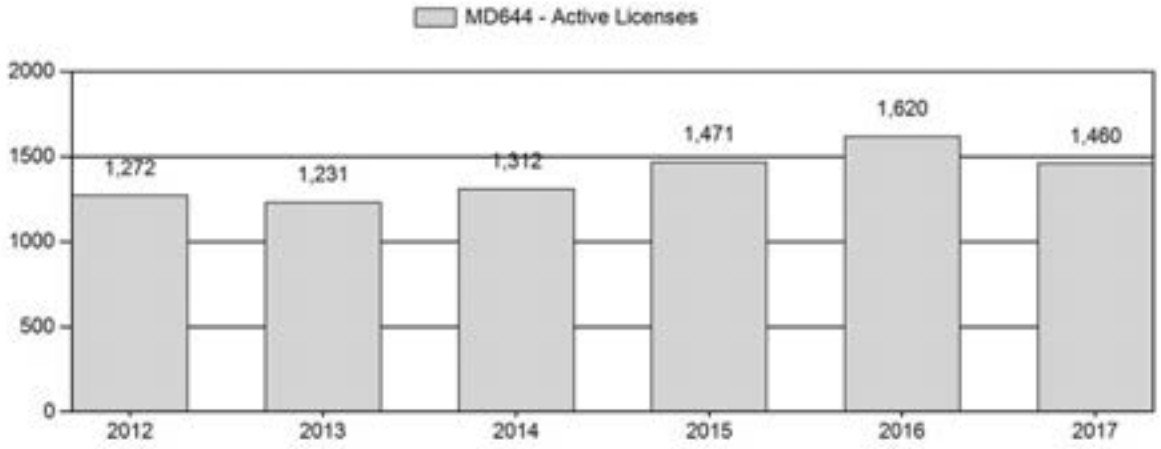
Number of Active Licenses



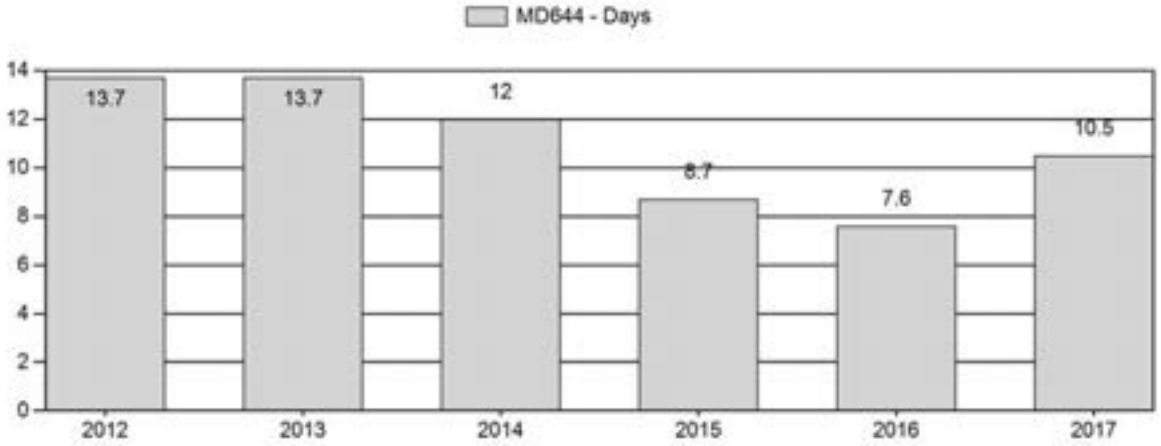
Harvest Success



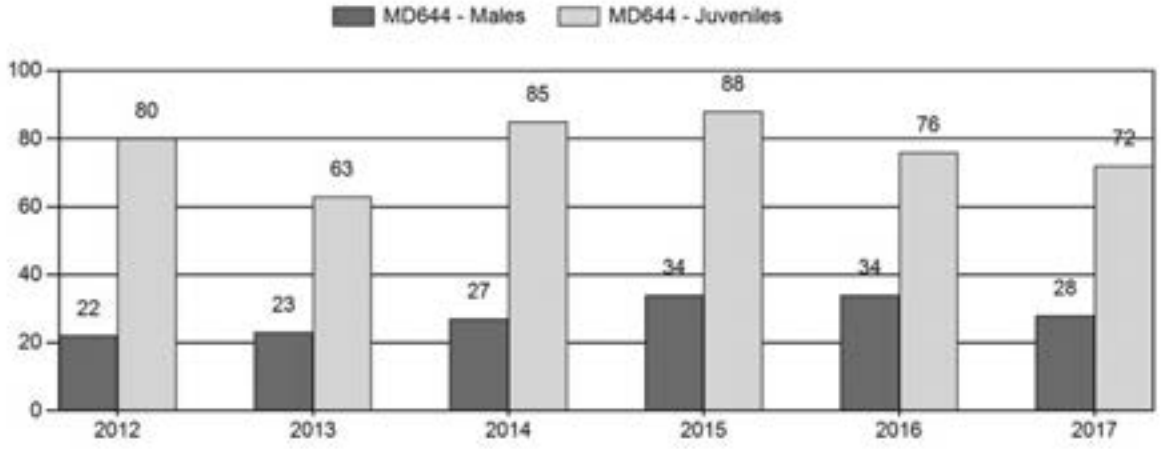
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2012 - 2017 Postseason Classification Summary

for Mule Deer Herd MD644 - SOUTH WIND RIVER

		MALES							FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	9,786	309	301	159	18	0	787	16%	2,347	48%	1,792	36%	4,926	1,554	13	20	34	± 1	76	± 2	57
2017	10,273	182	239	69	14	0	504	14%	1,828	50%	1,321	36%	3,653	1,406	10	18	28	± 1	72	± 3	57

2018 HUNTING SEASONS
South Wind River Mule Deer Herd Unit (MD 644)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
92		Oct. 1	Oct. 22		General Youth License	Any deer
92		Oct. 15	Oct. 22		General	Antlered mule deer or any white-tailed deer
92, 94, 160	3	Oct. 1	Nov. 30	75	Limited Quota	Any white-tailed deer
92, 94, 160	8	Oct. 1	Nov. 30	150	Limited Quota	Doe or fawn white-tailed deer
94		Oct. 1	Oct. 22		General Youth License	Any deer
94		Oct. 15	Oct. 22		General	Antlered mule deer or any white-tailed deer
160		Oct. 1	Oct. 22		General Youth License	Any deer
160		Oct. 15	Oct. 22		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: 400

Hunt Area	License Type	Quota Change from 2017
92, 94, 160	3	+25
92, 94, 160	8	+50
	Region E	-100
Herd Unit Total	**3** **8** **Region E**	**+25** **+50** **-100**

<u>MANAGEMENT EVALUATION</u>

Current Post-Season Population Management Objective: 11,000
Management Strategy: Recreation (20-29 bucks/100 does)
2017 Post-season Population Estimate: ~10,300
2018 Post-season Population Estimate: ~11,000

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 2017 post-season population rose to nearly 10,300 mule deer, 6.6% below objective.

Weather

Precipitation

The following 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 information is based on 9 weather stations located throughout the herd unit, which indicate precipitation from October 2016 through September 2017 was markedly higher than the 30-year average. Heavy winter snows contributed the majority of the annual precipitation. Precipitation during the growing season (April-June 2017) was also higher than the 30-year average, while precipitation in high elevation spring-summer-fall ranges was slightly below the 30-year average. Most of the growing season (April-June) precipitation fell during April and May, which was followed by a dry, hot summer and a mild fall.

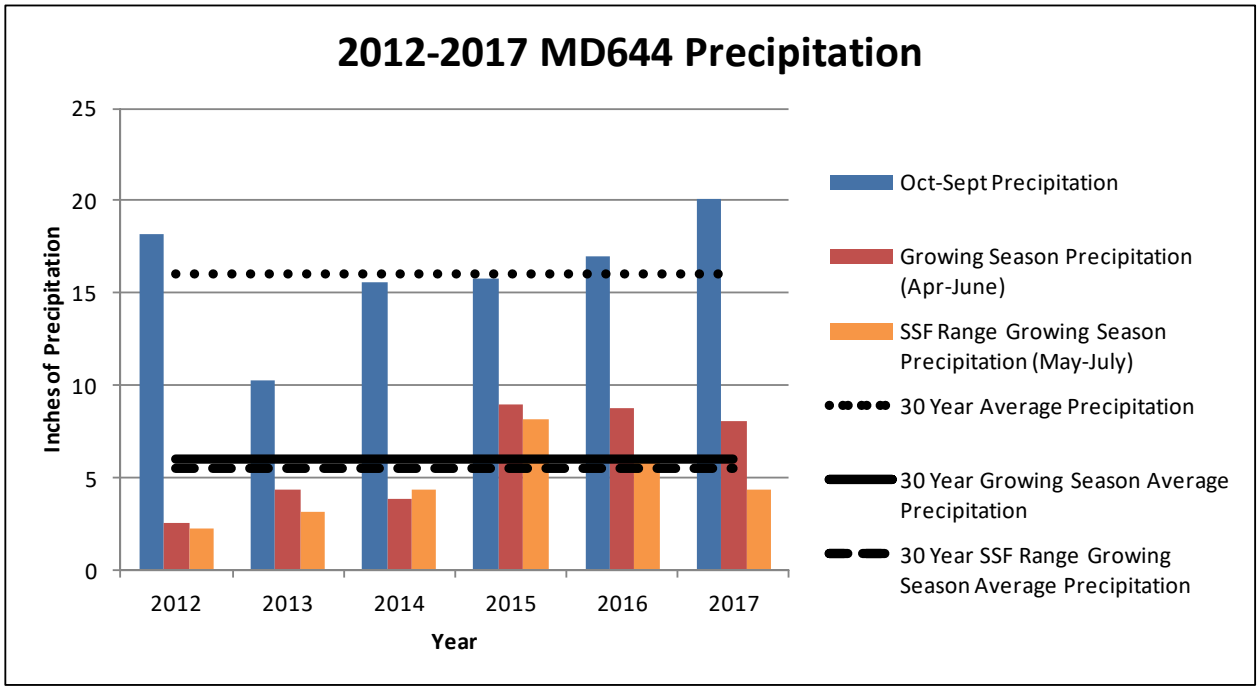


Figure 1. Precipitation values for South Wind River mule deer (2012 – 2017).

Winter Conditions

Winter 2017-18 has been characterized by warmer than average temperatures, with the temperature from November-February averaging 27 degrees Fahrenheit, which is considered above normal for this time period in the Lander Area. A mild fall gave way to a relatively mild winter. A total of 38.8”of snowfall has been recorded in Lander from November 2017-February 2018, 4.2” below the 30-year average. Below average snowfall and above average temperatures for Lander and the surrounding foothills is likely helping wildlife access forage and maintain body condition compared to the previous winter of continuous snow cover. However, less snow may negatively affect vegetation production during the coming growing season, if spring precipitation is also lacking. Snow water equivalents for the South Pass, Deer Park, and Townsend Creek SnoTel sites recorded February 15th, 2018 were 100%, 96%, and 96% of the official mean for those respective sites.

Habitat

Precipitation was above average during the spring of 2017 which provided good early forage production across the herd unit for mule deer does in early parturition. Above normal temperatures, and very low precipitation amounts from June-August likely caused lower vegetation production than the previous two years. Habitat conditions were still good overall, likely contributing to the fawn/doe ratio observed in the South Wind River Herd Unit (72 fawns/100 does).

Several rapid habitat assessments (RHA) were conducted in 2017, in shrub and aspen habitats. More RHAs will be conducted in the next 2 years prior to the next population objective review, for a total of 10 each in shrub, aspen, and riparian habitats. Results of the 2017 assessments indicate shrub and aspen habitats are generally in late-seral states, with moderate to severe herbivory. Yet, plant species diversity was medium to high for grasses, forbs, and shrubs, which is encouraging. However, the state and condition of shrubs and aspen are concerning, and will likely limit population growth and stability, especially in periods of drought.

Field Data

Good flying conditions allowed us to survey winter ranges thoroughly using a Bell 206L-4 Long Ranger helicopter in late-November and early-December 2017, and observed 3,653 mule deer. The sample size was above average since 2004, when helicopter type was switched to Jet Rangers, but was nearly 1,300 fewer deer than in 2016. The 2017 post-season total buck/doe ratio of 28M/100F also was a decline from 2016, but remains near the upper end of the recreational management range. The drop in the buck/doe ratio was partly due to lower fawn survival through winter 2016-17 which was more severe than in recent years, leading to lower than expected recruitment of yearling bucks following a very good fawn/doe ratio in 2016. The fawn/doe ratio dropped to 72J/100F in 2017 following a fairly severe winter, but was above the long-term average.

Antler width class data have been collected during post-season classification surveys the past 6 years, with the number of bucks in each width class shown in Figure 2. In 2017, nearly 84% 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), with only 16% in the Class 2 or 3 widths. The decline in the percentage of older bucks can be partially attributed to classifications occurring a

little later in the rut, but also may be due to more hunting pressure on them with fewer yearling bucks in the population following a hard winter.

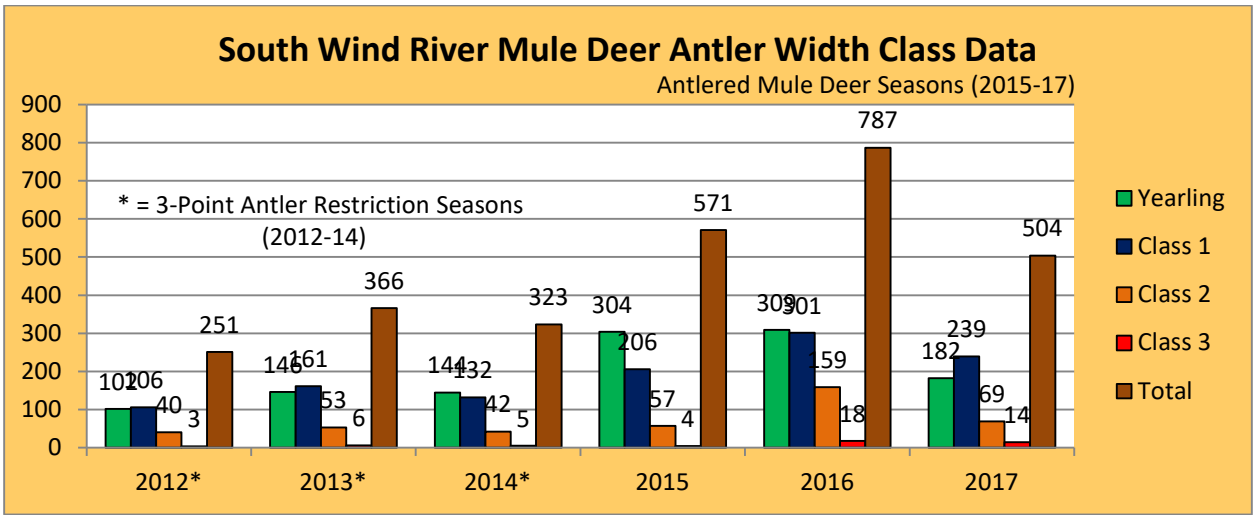


Figure 2. Antler width class data (number of bucks in sample) from classification surveys in the South Wind River Mule Deer Herd Unit, 2012 – 2017.

Harvest Data

Weather during the 2017 deer season was again quite mild across the South Wind River Herd Unit. Mostly dry conditions allowed mule deer and hunters to be dispersed across the herd unit. Very windy conditions on opening day and the final weekend led to seemingly low harvest. Total harvest dropped 29% in 2017, with 576 mule deer taken, which was not expected considering the good buck/doe ratios observed the previous 2 years. Hunters reported seeing good numbers of does and fawns, but were concerned about seeing fewer adult bucks than desired. The harvest of 535 bucks in 2017 was also 29% lower than in 2016. However, the number of mule deer bucks checked in the field or at check stations increased over 2016, and data collected indicates 15% were yearlings and 65% were Class 1 bucks, showing a shift in focus from yearlings to young adult bucks. Hunter success was 39%, 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, increased to 10.5 days/animal in 2017. Doe/fawn mule deer hunting by youth hunters allowed to hunt for "Any" deer, resulted in minimal harvest of 33 does and 8 fawns.

Antler width class data have been collected since 2012 during field checks and at check stations. Antler widths in field checks have not substantially improved over the last 6 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.

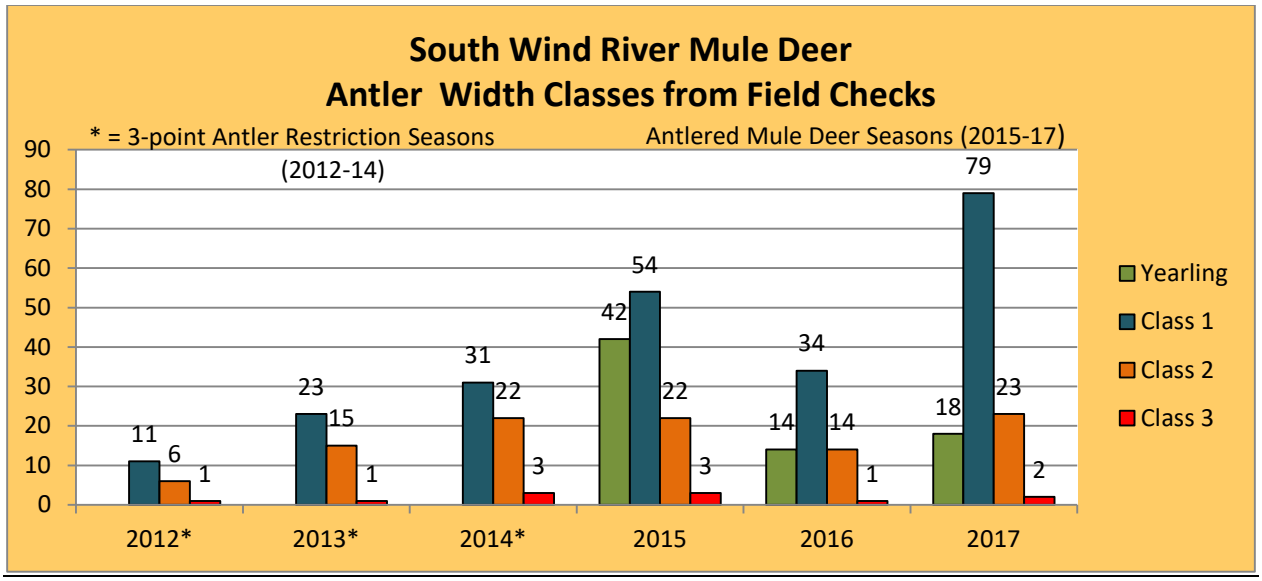


Figure 2. Antler width classes as measured during field checks and at check stations, 2012 – 2017.

Population

A spreadsheet model developed for this population in 2012 has been updated, utilizing 2017 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 2017 estimate of 10,273 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 improved substantially in 2015 and 2016, and remained quite good in 2017, following improvements in fawn

survival/yearling recruitment and increased buck detection during classification surveys, with the total buck/doe ratio of 28M/100F near the 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 "Habitat Management Plan for South Wind River and Sweetwater Mule Deer Herd Units" was completed in 2017, with direction to focus on transitional ranges and other important mule deer habitats.

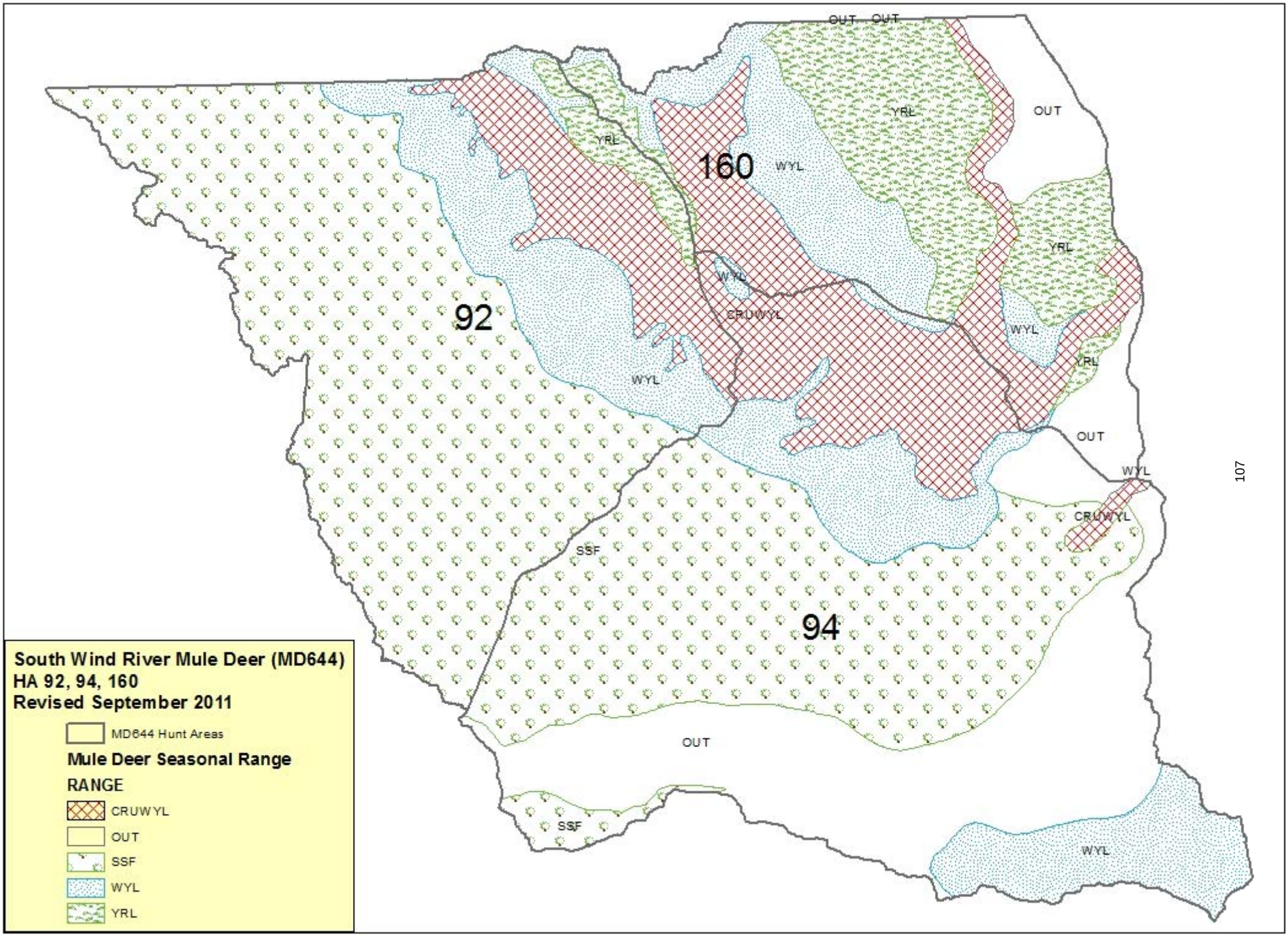
Youth hunters with General Licenses will continue to have extra opportunity with their season opening on October 1 valid for any deer to promote youth hunter retention and recruitment.

Specific hunts for white-tailed deer are again being offered with seasons running from October 1 through November, with 75 Type 3 (Any white-tailed deer) and 150 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, with recent observations around Lander showing perhaps a higher number of white-tails than before. 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 minimize the potential for overwhelming landowners with access requests.

With Youth General License hunters being allowed to harvest "any deer", we will work with landowners to provide opportunities to youth hunters in 2018 should the need arise to address any unforeseen damage issues.

In March 2016, 20 mule deer does were collared on winter ranges throughout the South Wind River herd unit in an effort to better understand migrations, seasonal use areas, and key stopover habitats associated with migration routes and corridors. Following 2 years of data collection, all collars deployed in 2016 were dropped in late 2017 as they neared the end of their battery life. Another 20 new collars were deployed in March 2017, in addition to 3 collars recovered from mortalities. Significant movement and habitat use data have been collected, and initial rapid habitat assessments were conducted in areas where these collar data were collected.

The 2018 season structure should result in a harvest of approximately 645 mule deer, including 600 bucks, along with about 45 does and fawns. With anticipated fawn survival, this should allow for population growth, with the 2018 post-season population reaching objective at just over 11,000 mule deer.


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
92
94
160
OUT
YRL
WYL
CRUWYL
SSF

2017 - JCR Evaluation Form

SPECIES: Mule Deer | PERIOD: 6/1/2017 - 5/31/2018

HERD: MD646 - SWEETWATER

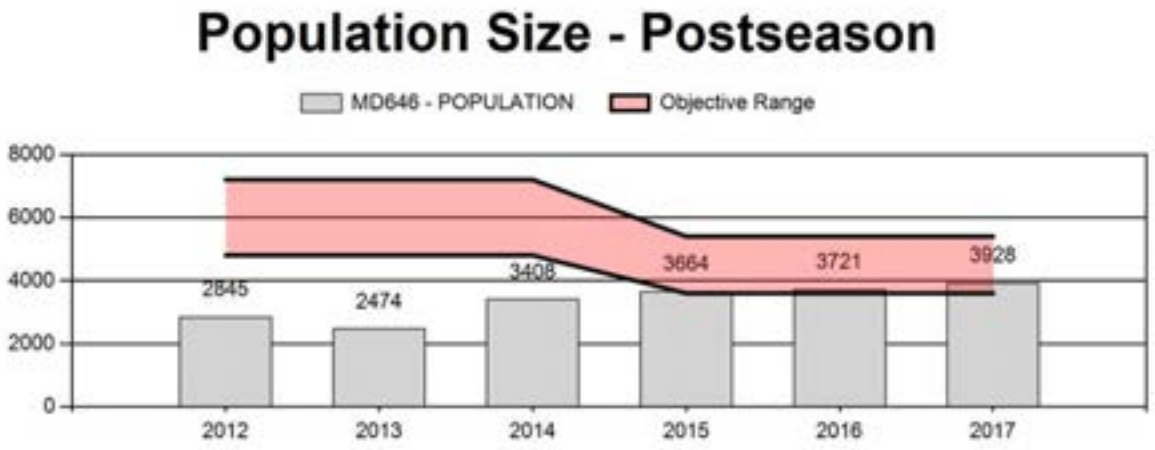
HUNT AREAS: 96-97 | PREPARED BY: STAN HARTER

	2012 - 2016 Average	2017	2018 Proposed
Population:	3,222	3,928	4,143
Harvest:	341	370	315
Hunters:	878	818	750
Hunter Success:	39%	45%	42%
Active Licenses:	881	818	750
Active License Success:	39%	45%	42 %
Recreation Days:	3,374	2,749	2,750
Days Per Animal:	9.9	7.4	8.7
Males per 100 Females	19	18	
Juveniles per 100 Females	76	82	

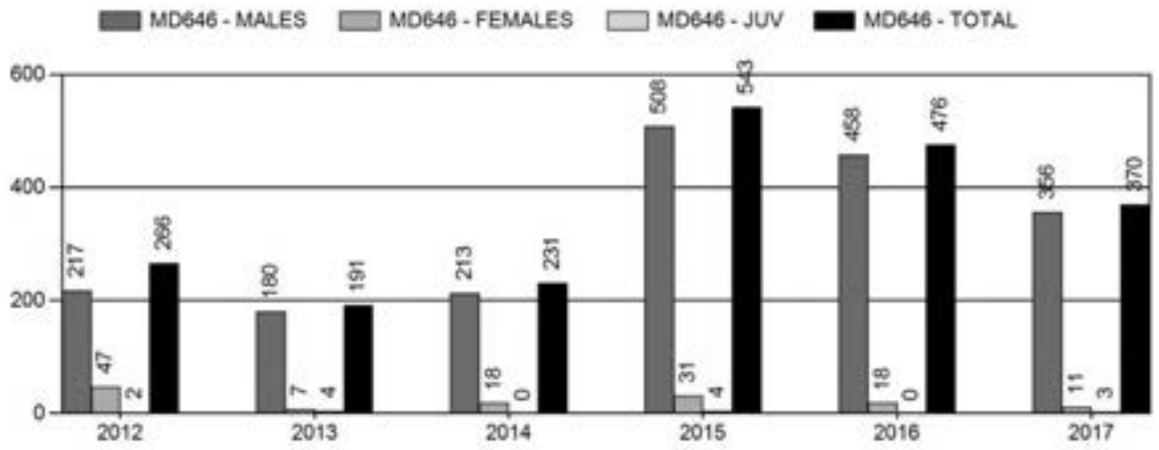
Population Objective (± 20%) :	4500 (3600 - 5400)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-12.7%
Number of years population has been + or - objective in recent trend:	4
Model Date:	3/8/2018

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

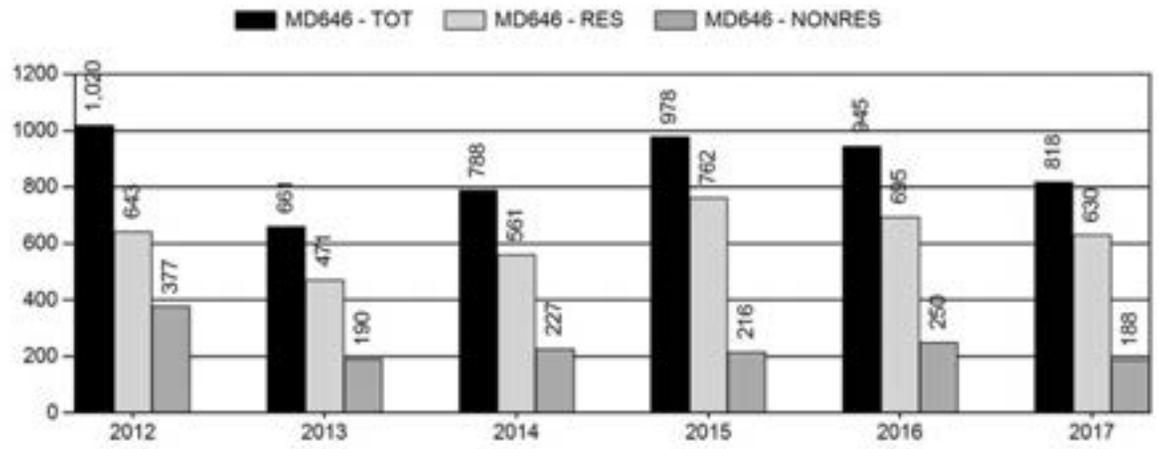
	JCR Year	Proposed
Females ≥ 1 year old:	0.6%	0.5%
Males ≥ 1 year old:	47.7%	37.5%
Total:	8.5%	7.0%
Proposed change in post-season population:	+5.6%	+5.5%



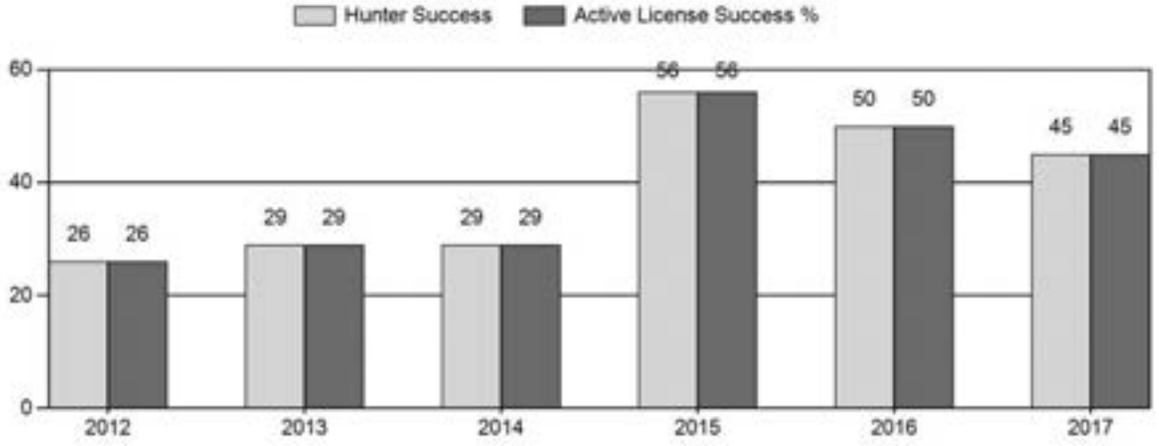
Harvest



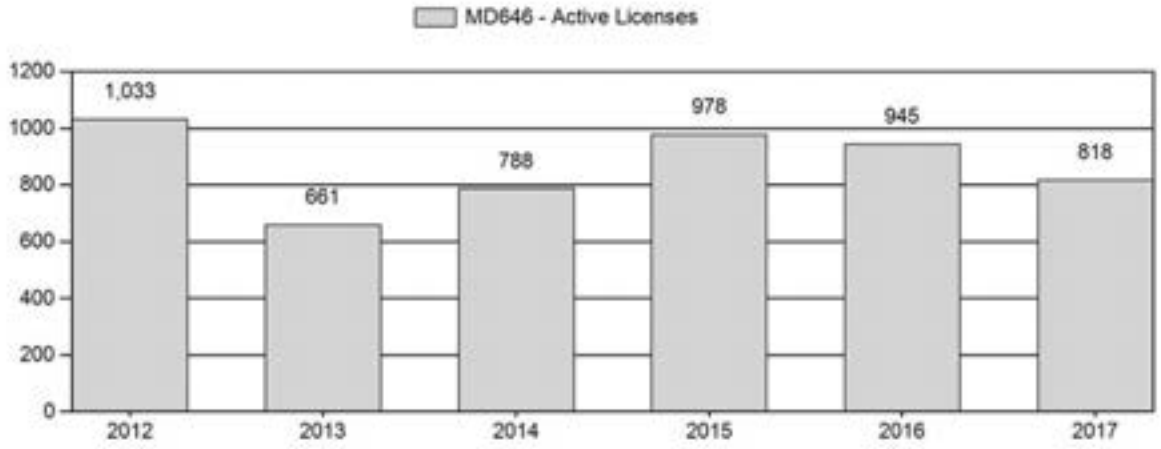
Number of Active Licenses



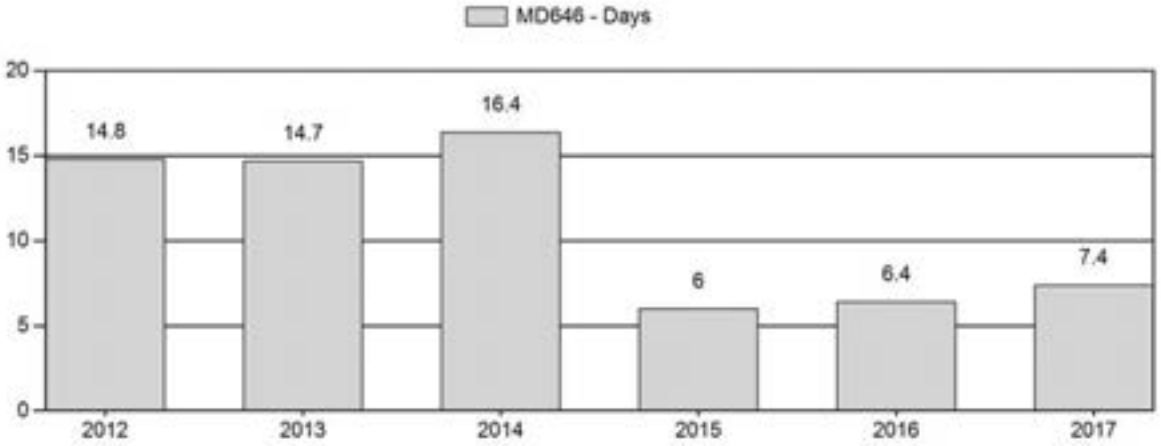
Harvest Success



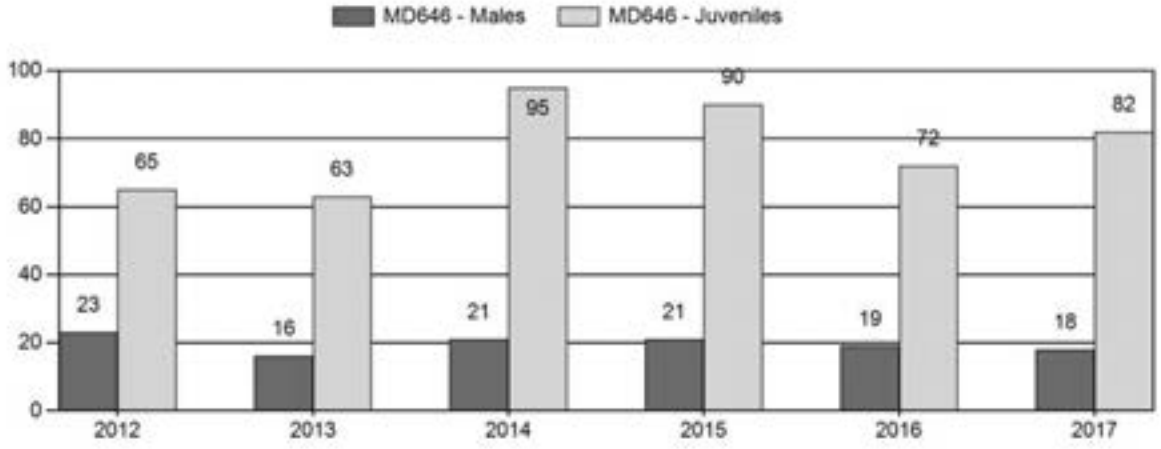
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2012 - 2017 Postseason Classification Summary

for Mule Deer Herd MD646 - SWEETWATER

		MALES							FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	3,721	105	47	10	0	0	162	10%	858	52%	618	38%	1,638	1,096	12	7	19	± 2	72	± 4	61
2017	3,931	74	67	16	4	0	161	9%	891	50%	729	41%	1,781	1,308	8	10	18	± 1	82	± 4	69

2018 HUNTING SEASONS
Sweetwater Mule Deer Herd Unit (MD 646)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
96		Oct. 15	Oct. 20		General	Antlered mule deer or any white-tailed deer
96		Oct. 15	Oct. 21		General youth license	Any deer
97		Oct. 15	Oct. 20		General	Antlered mule deer or any white-tailed deer
97		Oct. 15	Oct. 21		General youth license	Any deer
97	3	Oct. 15	Nov. 30	25	Limited quota	Any white-tailed deer
97	8	Oct. 15	Nov. 30	50	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: 400

Hunt Area	Type	Quota Change from 2017
97	8	+25
	Region E	-100
Herd Unit Total	**8**	**+25**
	Region E	**-100**

MANAGEMENT EVALUATION

Current Post-Season Population Management Objective: 4,500
Management Strategy: Recreation (20-29 bucks/100 does)
2017 Post-season Population Estimate: ~3,900
2018 Post-season Population Estimate: ~4,150

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 3 years, demonstrating the population seems capable of some recovery with improved habitat conditions which follow increased precipitation. We are concerned over-winter fawn survival may be limited, since the observed high fawn/doe ratios do not coincide with expected population increases. The 2017 post-season population is a little over 3,900 mule deer, 13% below objective.

Weather

Precipitation

For the Sweetwater Herd Unit, precipitation information is based on one weather station located near Jeffrey City, where precipitation recorded from October 2016 through September 2017 was markedly higher than the 30-year average. Precipitation during the growing season (April-June 2017) was slightly above the 30-year average; while precipitation in higher elevation spring-summer-fall seasonal ranges was below the 30-year average. Temperatures through the summer were slightly above average. This precipitation information is generated from the PRISM (Parameter-elevation Relationships on Independent Slopes Model) dataset developed by Oregon State University.

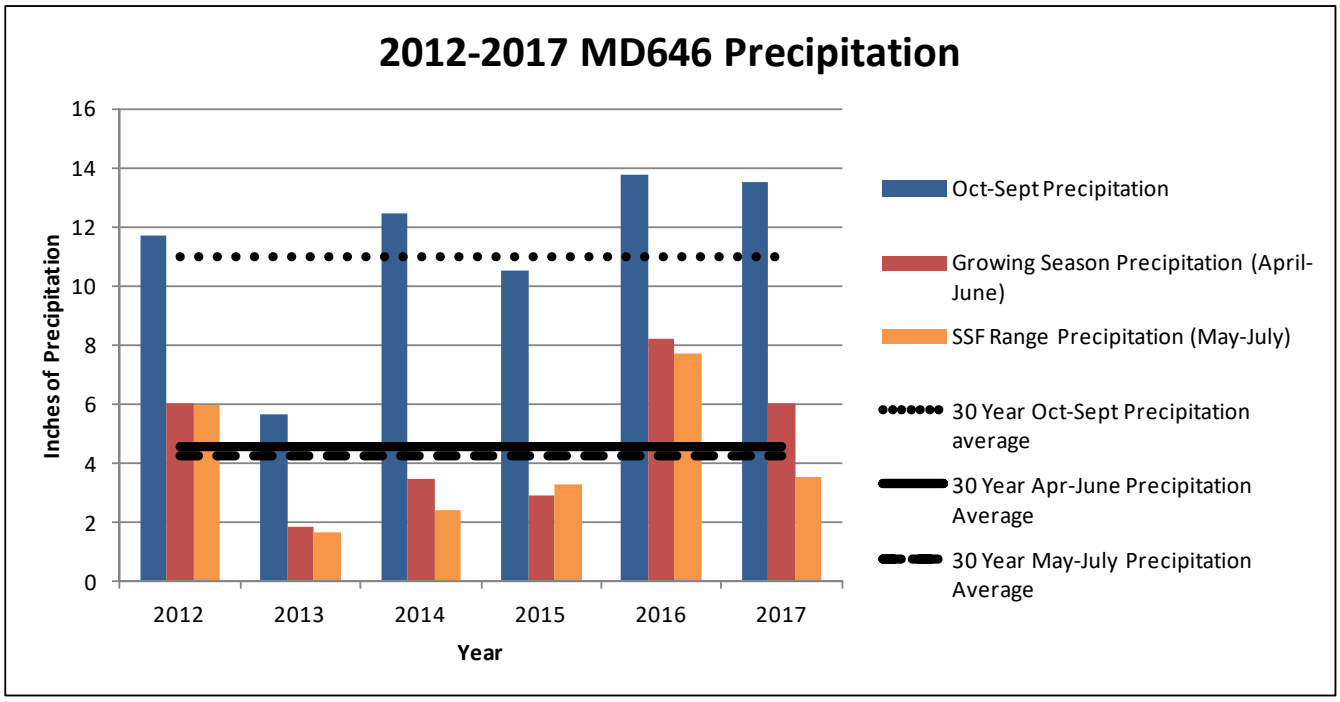


Table 1. Precipitation values for Sweetwater Mule Deer (MD646) from 2012 – 2017.

Winter Conditions

Winter 2017-18 has been characterized by slightly above normal snowfall amounts with temperatures averaging 28.11° F, which is considered above normal for the November-February time period in the Jeffrey City area. The area has experienced high winds across the herd unit for extended periods this winter, atypical even for this area which is in the middle of a corridor known for high winds. A total of 31.5”of snowfall has been recorded in Jeffrey City from November 2016-February 2017, 4.92” above the 30-year average.

Habitat

Growing season precipitation was nearly average during the spring/early summer of 2017 which provided good forage across the herd unit for mule deer does in early parturition. Above normal temperatures and low precipitation amounts from June-August likely caused lower vegetation production than the previous two years. Habitat conditions were still good overall, likely contributing to the fawn/doe ratio observed in the Sweetwater Herd Unit (82 fawns/100 does).

Rapid habitat assessments (RHA) were initiated in 2017, in shrub, riparian, and aspen habitats. More RHAs will be conducted in the next 2 years prior to the next population objective review, for a total of 10 each in shrub, aspen, and riparian habitats. Results of the 2017 assessments indicate shrub and aspen habitats are generally in late-seral states, with moderate to severe herbivory. A riparian assessment on West Cottonwood Creek on Green Mountain showed the site was in late seral state with medium site function and has experienced severe herbivory from wildlife, livestock, and feral horses. Yet, plant species diversity was high for grasses, forbs, and shrubs, which is encouraging. However, the state and condition of shrub, riparian, and aspen habitats are concerning, and will likely limit population growth and stability, especially in periods of drought.

Field Data

Classification flights were conducted in mid-December 2017, using a Bell 206L-4 Long Ranger helicopter. Light snow cover led to mule deer being widely distributed around Green and Crooks Mountains, which required spending more time surveying occupied habitats there and less time along the Sweetwater River and adjacent habitats in Area 97. Still, we observed 1,781 mule deer, eclipsing the 2016 survey by nearly 150 animals, leading to the 3rd highest classification sample ever observed. The 2017 post-season fawn/doe ratio rose to 82J/100F. We observed only one fewer bucks than in 2016, but with fewer yearling bucks and more adult bucks, along with an increase in females observed. As such, the overall buck/doe ratio was once again below the recreation management range at 18M/100F. With fewer yearling bucks observed, the yearling buck/doe ratio dropped to 8YM/100F in 2017, likely the result of lower fawn survival in winter 2016-17 and continued high hunter pressure in Area 96. The adult buck ratio rose to 10AM/100F in 2017, with increases in all antler width classes. Antler width class data have been collected (Figure 1) during classification surveys the past 6 years. In 2017, nearly 88% of the mule deer bucks classified in the Sweetwater Herd Unit were either yearlings or had Class 1 antler widths (adult bucks ≤ 18" wide), indicating a shortage of older age-class bucks, likely due to high harvest in extremely accessible areas with high hunter density.

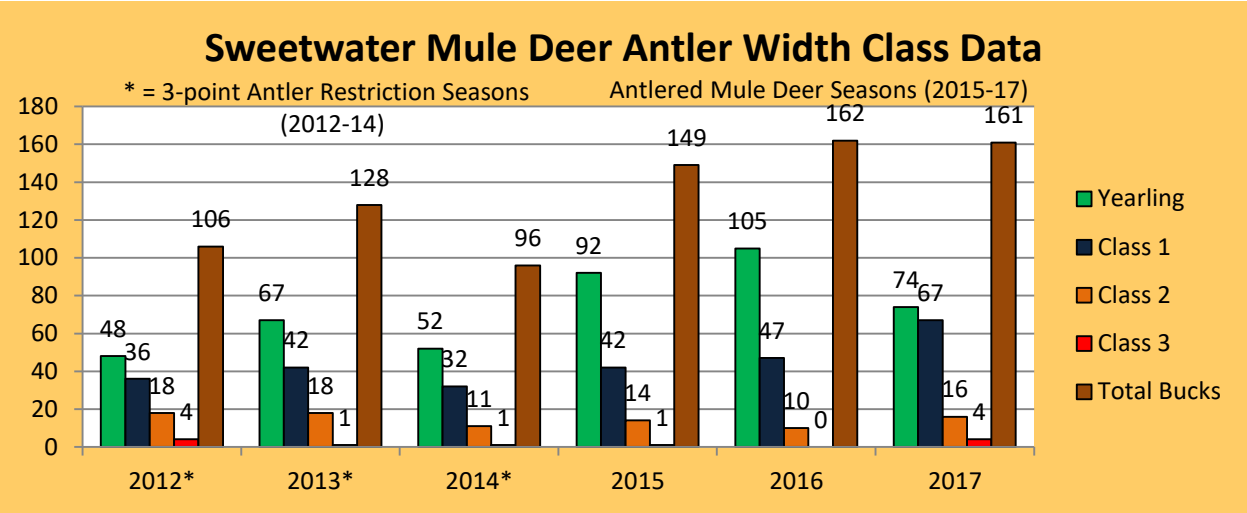


Figure 1. Antler class data from classification surveys in the Sweetwater Mule Deer Herd Unit, 2012 – 2017.

Harvest Data

Weather during the 2017 deer season was once again quite mild in the Sweetwater Herd Unit. Mostly dry conditions allowed hunters to go wherever they pleased. Very windy conditions on opening day and the final weekend led to lower harvest than might have occurred with more typical hunting conditions with snow cover. Hunters reported seeing good numbers of does and fawns, but were concerned about seeing fewer adult bucks than desired. The total harvest of 356 mule deer bucks was 22% lower than in 2016, but still equates to taking 48% of the pre-season bucks from this population, which is unlikely to be sustainable. The adult buck/doe ratio increased to 10AM/100F along with a drop in the yearling buck/doe ratio to 8YM/100F, reducing the total buck/doe ratio to 18M/100F, amplifying our concern about continued harvest at such a high level. Hunter success dropped to 45%, but remained quite good 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, was 7.4 days/animal in 2017, the highest in several years for seasons without APRs. Antlerless mule deer harvest as allowed by youth and archery hunters, resulted in minimal take of 11 does and 3 fawns.

Antler width class data have been collected since 2012 during field checks and at check stations. Antler widths have not improved over the last 6 years, and the proportion of Class 1 bucks harvested has increased compared with Class 2 and Class 3 bucks (Figure 2). The drop in yearling bucks checked matches the decline in yearling buck/doe ratio observed in December classification survey, and overall field check data follows the general trend in antler width classes observed in post-season classification surveys outlined in the previous section.

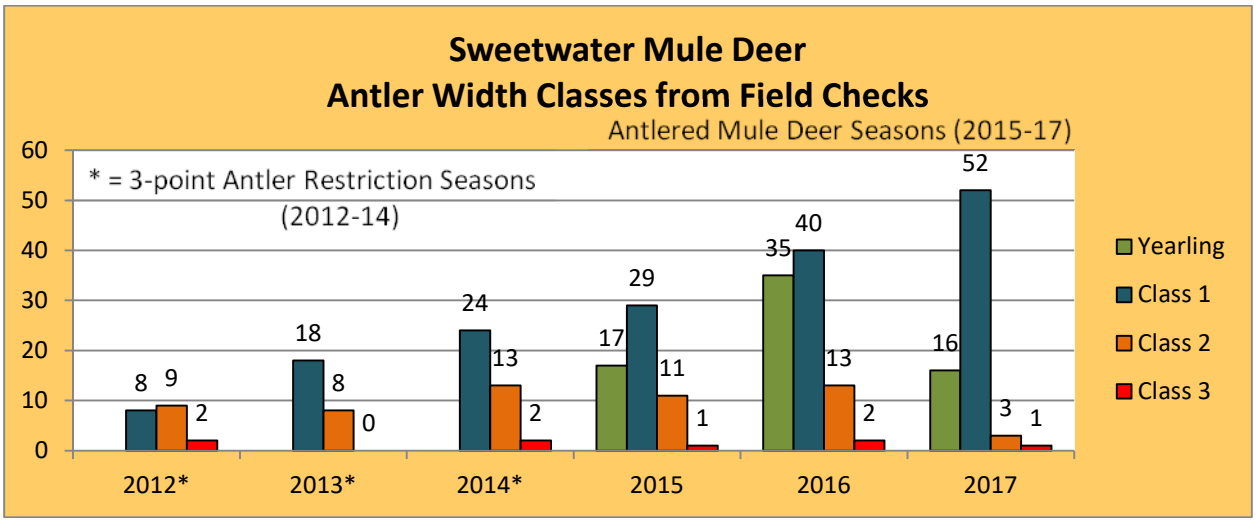


Figure 2. Antler class data as measured during field checks and at check stations, 2012 –2017.

Population

A spreadsheet model developed for this population in 2012 has been updated, utilizing 2017 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 2017 estimate of 3,928 mule deer, and since 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. Post-season buck/doe ratios declined again in 2017, and the total buck/doe ratio of 18M/100F is below 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 "Habitat Management Plan for South Wind River and Sweetwater Mule Deer Herd Units" was completed in 2017, with direction to focus on transitional ranges and other important mule deer habitats.

The Department and our partners have begun implementation 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.

Habitat use mapping will be a key component of a movement study to be initiated in March 2018 with deployment of 30 GPS tracking collars, with the intent of focusing future habitat projects where deemed likely to provide the greatest benefit to mule deer in the Sweetwater herd unit.

Youth hunters with General Licenses will have 1 day of additional opportunity following the "regular" season with their licenses valid through October 21 for any deer, to promote youth hunter retention and recruitment.

In response to concern about low buck/doe ratios, we are maintaining the "regular" General License season as a 6 day season – beginning on Monday and ending on Saturday, to minimize buck harvest to the extent possible and allow for youth hunting opportunity as described above.

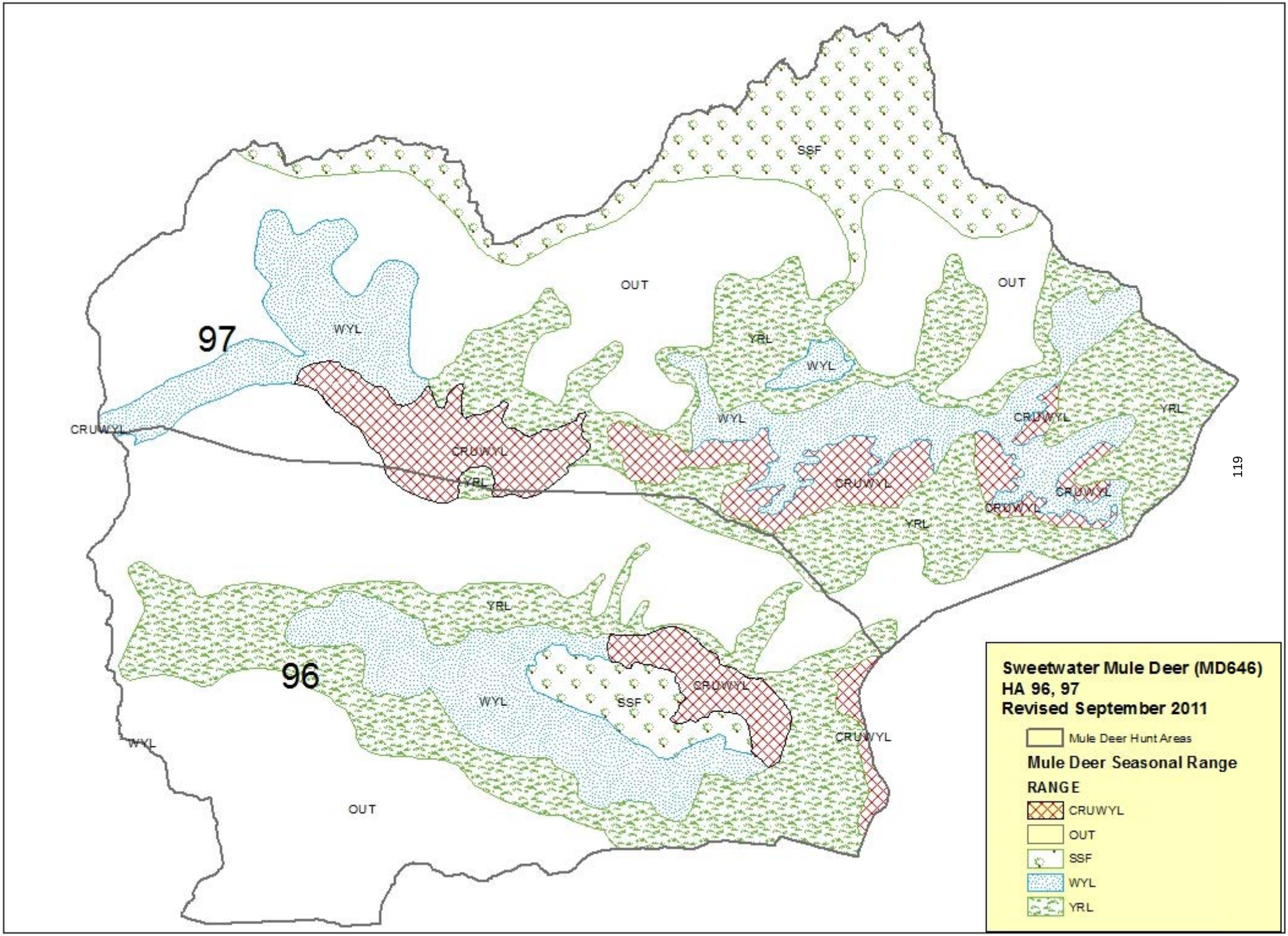
Specific hunts for white-tailed deer are again being offered with longer seasons running from October 15 through November, with 25 Type 3 (Any white-tailed deer) and 50 Type 8 (Doe or fawn white-tailed deer) licenses valid in Hunt Area 97. White-tailed deer numbers have slowly increased following the 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.

Most hunting seasons in the Sweetwater mule deer herd have experienced elevated numbers of hunters with respect to mule deer populations, as illustrated by the number of hunters compared with the number of pre-season bucks according to the models (Sweetwater herd unit had 1.1 hunters/preseason buck in 2017, compared with 0.6 hunters/pre-season buck in the South Wind River herd unit in 2017). In addition, the number/percentage of non-resident hunters, particularly in Hunt Area 96 is often much higher than in other portions of non-resident general license Region E, and we hear resident hunters complain about the number of non-residents annually. The 2017 harvest survey indicated non-residents made up 23% of the total number of hunters in the Sweetwater herd unit (28% in Hunt Area 96). As such, the non-resident Region E general license quota is reduced by 100 licenses in 2018 in hopes of reducing the percentage of non-residents hunting in the Sweetwater herd unit and lessen hunter crowding, and reduce buck harvest.

If buck/doe ratios continue to falter even with reductions in non-resident hunters and a shortened season, we will likely need to consider other options to further reduce buck harvest in order to maintain buck/doe ratios at desired levels. A possible option recently discussed is to split non-resident Region E in order to retain or improve non-resident opportunity in general license areas away from the Sweetwater herd unit without over-pressuring mule deer in such a small population.

The 2018 season structure should result in a harvest of approximately 300 buck mule deer and about 15 does and fawns. With anticipated fawn survival, this should allow for slight population growth to about 4,150 mule deer following the 2018 hunting season, moving toward objective.


Sweetwater Mule Deer (MD646)
HA 96, 97
Revised September 2011
Mule Deer Hunt Areas
Mule Deer Seasonal Range
RANGE
CRUWYL
OUT
SSF
WYL
YRL
97
96
SSF
OUT
OUT
WYL
YRL
WYL
WYL
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SSF
CRUWYL
CRUWYL
WYL
OUT

2017 - JCR Evaluation Form

SPECIES: Mule Deer | PERIOD: 6/1/2017 - 5/31/2018

HERD: MD647 - FERRIS

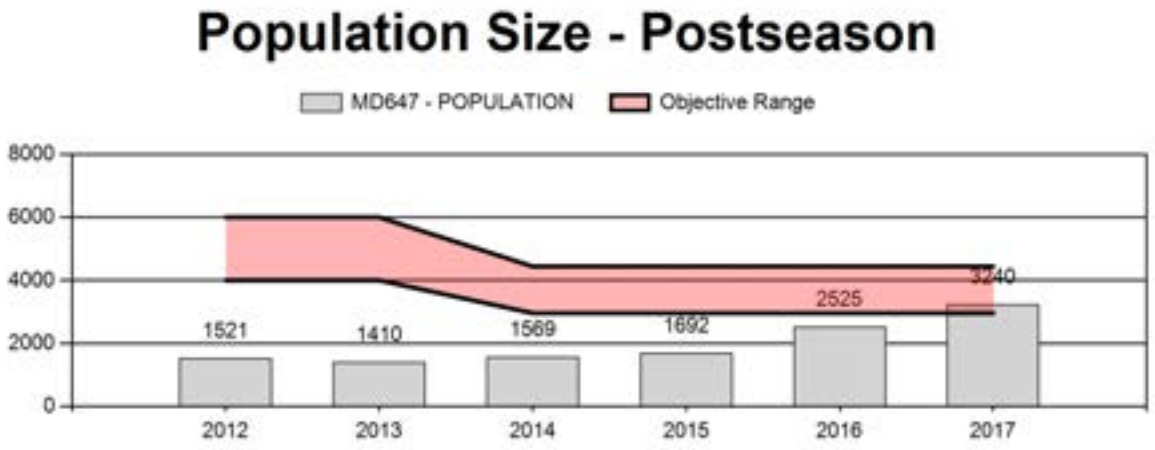
HUNT AREAS: 87 | PREPARED BY: GREG HIATT

	2012 - 2016 Average	2017	2018 Proposed
Population:	1,743	3,240	3,375
Harvest:	45	102	135
Hunters:	55	120	165
Hunter Success:	82%	85%	82%
Active Licenses:	55	120	165
Active License Success:	82%	85%	82 %
Recreation Days:	265	599	800
Days Per Animal:	5.9	5.9	5.9
Males per 100 Females	46	64	
Juveniles per 100 Females	64	96	

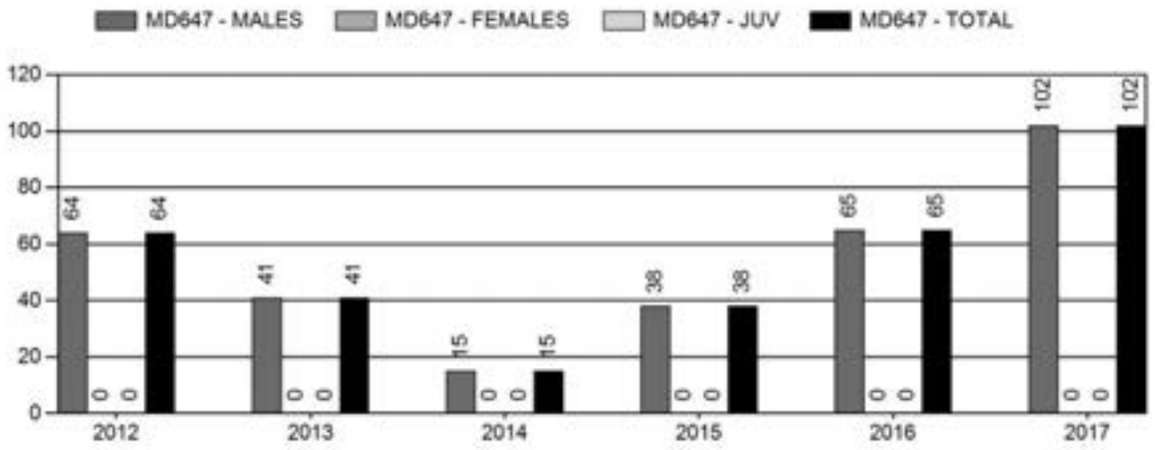
Population Objective (± 20%) :	3700 (2960 - 4440)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-12.4%
Number of years population has been + or - objective in recent trend:	6
Model Date:	02/15/2018

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

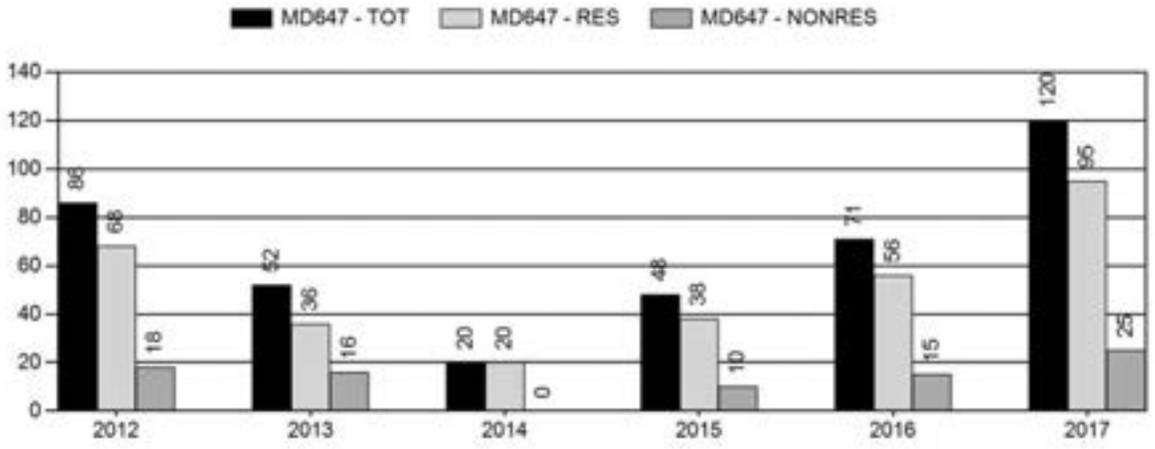
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	14.1%	15.2%
Total:	3.4%	3.8%
Proposed change in post-season population:	+1.7%	+4.2%



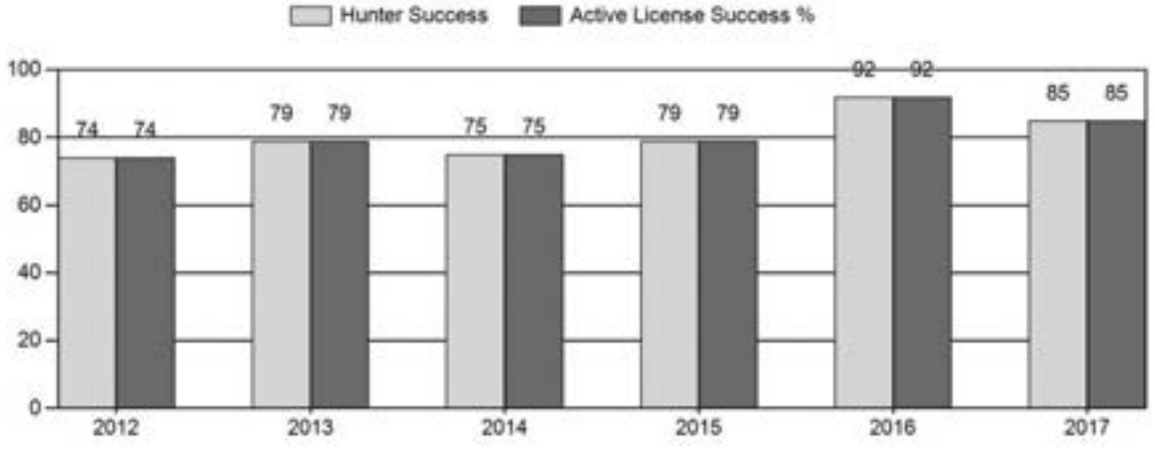
Harvest



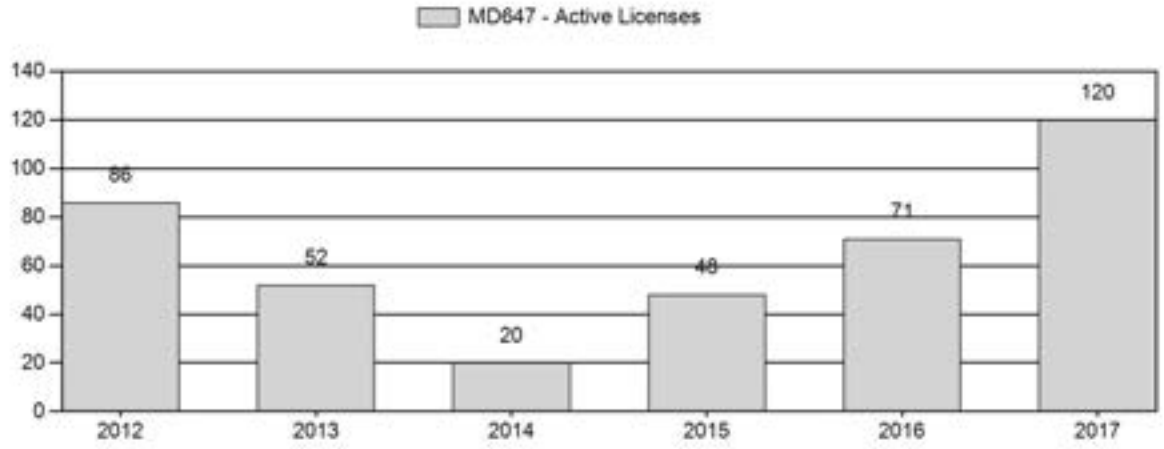
Number of Active Licenses



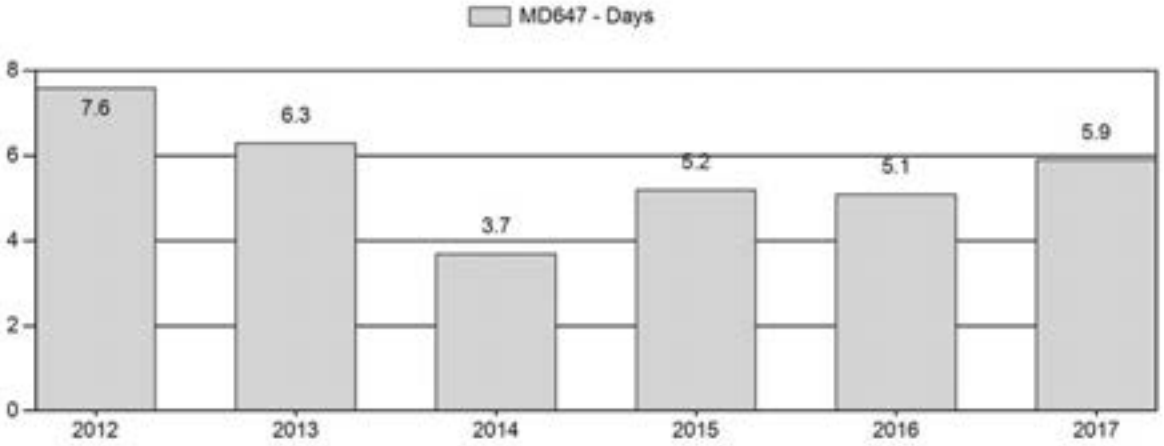
Harvest Success



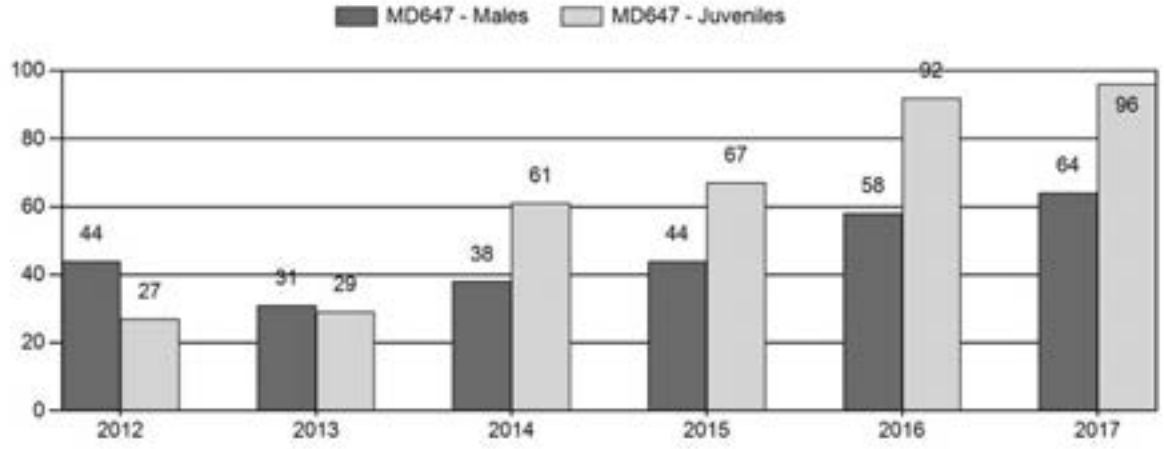
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2012 - 2017 Postseason Classification Summary

for Mule Deer Herd MD647 - FERRIS

		MALES							FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	2,525	101	141	114	25	0	381	23%	656	40%	604	37%	1,641	1,350	15	43	58	± 3	92	± 4	58
2017	3,240	106	191	155	22	0	474	25%	736	38%	708	37%	1,918	1,614	14	50	64	± 3	96	± 4	59

2018 HUNTING SEASONS
FERRIS MULE DEER HERD (MD647)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	License	Limitations
87	1	Oct. 15	Oct. 31	**175**	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 2017
87	1	+50
Herd Unit Total	**1**	**+50**

<u>Management Evaluation</u>
Current Postseason Population Management Objective: 3,700
Management Strategy: Special
2017 Postseason Population Estimate: 3,050
2018 Proposed Postseason Population Estimate: 3,375

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 intended to exceed 29:100. The objective and management strategy were last publicly reviewed in 2014.

The 2016 post-season population estimate was about 2,500 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. Restrictive 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 by record precipitation in 2015, producing exceptional vegetative growth and the highest fawn crop since 2009. Above average precipitation continued through spring of 2016, further enhancing vegetative recovery and fawn

production. While the 2016-17 winter had numerous periods of bitter cold with significant snowfall, condition of mule deer going into that winter was good and survival appears to have been near average. Heavy snowfalls contributed to good spring moisture again in 2017, again improving fawn production and forage. The 2017-18 winter again had periods of bitter cold, but with little snowfall for much of the herd unit, leaving most winter ranges open and available. Losses during this winter are expected to be near 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 2017.

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

The Seminoe Fire burned over 3,800 acres in the Seminoe Mountains including areas within Morgan Creek WHMA. Following the fires, the Rawlins BLM coordinated and funded aerial application of Plateau® 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 Seminoe Mountains, particularly on the Morgan Creek WHMA, have been accelerated to take advantage of the secure fire breaks provided by the 2012 wildfire. Long-term plans for returning fire to the Ferris Mountains also call for additional prescribed fires, moving west from the 2011 and 2012 fires to take advantage of the firebreaks created by those burn scars.

Field Data

Despite conservative seasons, deer numbers remained below objective levels over most of the past two decades due to several severe winters and persistent drought conditions. Poor habitat conditions on most seasonal ranges prevented the rapid population response seen after similar weather events in previous decades. Fawn:doe ratios remained exceptionally low until 2014, inhibiting recovery of the population. With increased precipitation and vegetative response from both prescribed and wild fires, fawn production improved to 61:100 in 2014 and 67:100 in 2015. Classification sample size increased in 2016, yielding the largest sample in at least 35 years without increasing the number of helicopter survey hours. Fawn production rose to a record 92:100, exceeding the previous record for this herd of 91:100 recorded in 1985. High fawn production was a response to improved precipitation, vegetative recovery from prescribed and

wild fires, and predator control measures initiated in spring 2016 in the dunes between Ferris and Seminoe Mountains.

Classification sample size increased yet again in 2017, although partially due to a slight increase in flight time. Fawn production rose again, to a new record of 96:100. While habitat treatments and predator control would have contributed to fawn survival, most of the increase is attributed to good spring precipitation as high fawn numbers seen during the classification survey did not appear to be correlated with either habitat treatment sites or the predator control site.

The buck:doe ratio increased again to a new record of 64:100 in 2017, exceeding the previous records of 58:100 recorded in 2016. All of the increase was in the adult buck:doe ratio, with the yearling buck ratio declining slightly. Given the high fawn production seen in 2016, the moderate yearling buck ratio suggests fawn survival was reduced during the 2016-17 winter. Hunter access is greatly restricted to large portions of this herd, yielding segments of the population that are essentially unhunted, inflating the adult buck:doe ratio. 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 10 years have attempted to uniformly cover all major winter ranges, yielding more representative ratios. While ratios no longer fluctuate as wildly, a significant proportion of the bucks in the sample still come from areas with limited or no public access. This herd is in special management, but less than 5 percent of the bucks in the sample were Class 3, compared to 7 percent in 2016 and 9 percent in 2015. Roughly 63 percent were yearlings or Class 1, similar to the 64 percent seen in these two categories in 2016.

Harvest Data

Hunter success dropped to 85 percent from the record high 92 percent reported in 2016, but was still above the 5-year average of 80 percent. Hunter effort increased to 5.9 days, above the 5-year average of 5.5 days. Both statistics probably reflect the increased number of hunters afield rather than a decline in the number of bucks available for harvest. With the high demand for licenses in this herd, hunters tend to be more selective about the quality of bucks they are willing to harvest, but still managed to harvest 102 bucks. This was the largest harvest in six years, but still less than harvests taken prior to the 2011-12 winter and 2012 drought.

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 2017 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. Because the resulting model matches well with dips and peaks in observed buck:doe ratios and predicts annual adult survival at 88 percent, a reasonable level, it is considered a “fair” model. Population estimates track well with recent classification sample sizes. AICc value for the selected model was slightly higher than the simpler SCJ,SCA model but vastly improved over the CJ,CA model. Population estimates from the simpler SCJ,SCA model were only a few hundred animals different from the selected model.

Fawn production in 2018 was projected at an average rate. The model predicts a slight increase in herd size in 2018, nearing objective of 3,700, but also predicts buck:doe ratios will remain high. As with many mule deer herds, herd growth appears to be limited by fawn production and survival. If improved precipitation seen in the past four years continues, the large acreages of treated habitat may improve fawn production and survival and provide for more significant herd growth in the future.

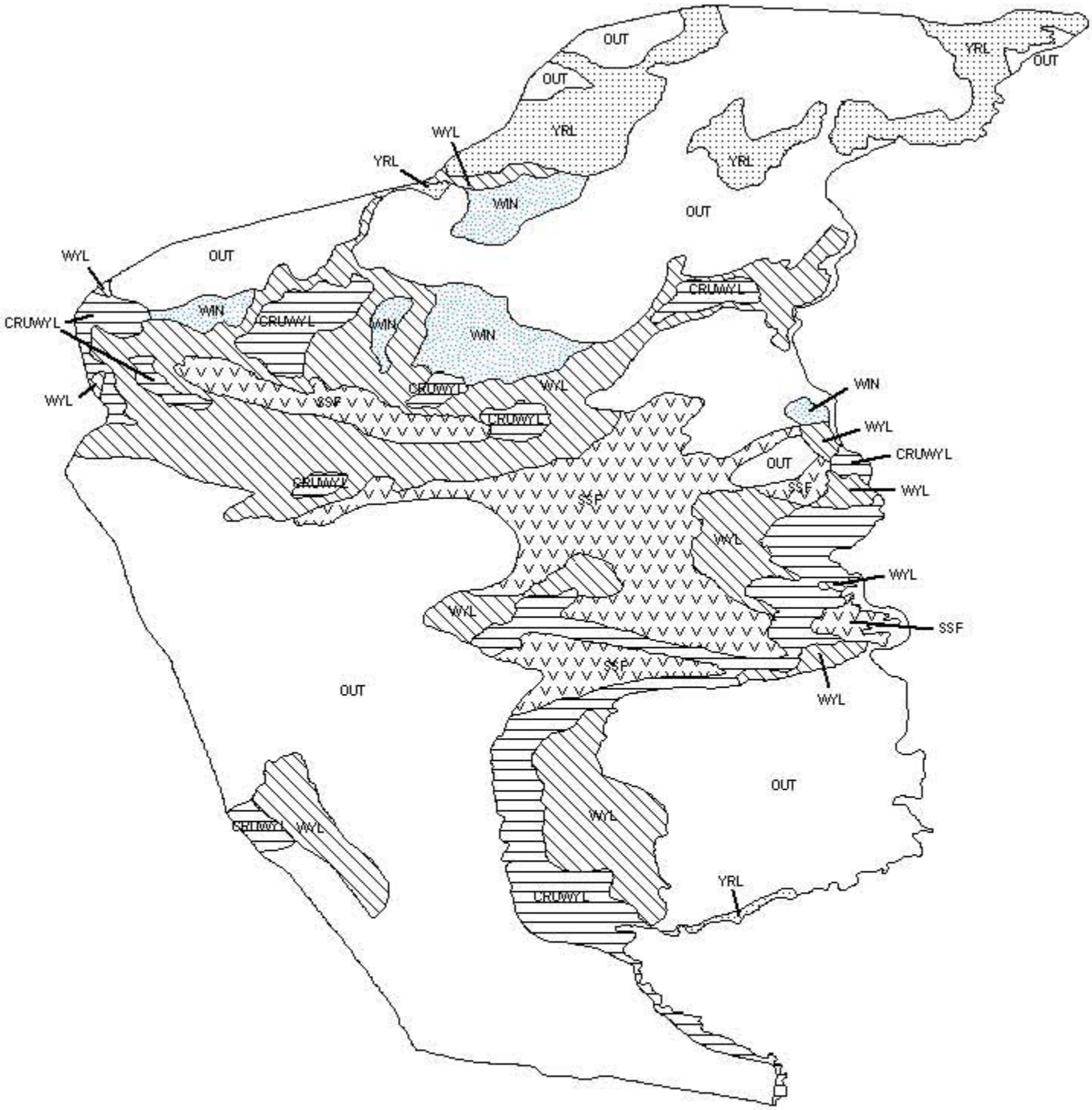
Management Summary

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 recommended license quota is increased by 50 licenses in 2018.

Expected harvest would be roughly 135 buck deer. As in the previous 22 years, these licenses are valid only for antlered mule deer during the regular season. As in the previous three years, hunters will also be allowed to harvest any white-tailed deer. The quota is increased by 40 percent over that available in 2017 and more than double the 2016 quota. With the herd still below objective, no doe harvest is warranted and no doe/fawn licenses are available. Youth hunters 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 18 years. Archery season dates are standard and the same as used in previous years.

Prior to 2014 the objective for this herd was 5,000 deer, and had been since the 1970s. This objective was met several times, until severe winters and drought reduced deer numbers. During the last objective review there was considerable public support for retaining that 5,000 objective, but the 3,700 figure was adopted because it was considered more realistic for a five-year goal. If the recent trend in fawn production and survival continues, that 3,700 objective may soon be reached. If so, consideration should be given to publicly reviewing the old objective of 5,000 deer prior to introducing doe harvests to control deer numbers.



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

N

2017 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2017 - 5/31/2018

HERD: MD648 - BEAVER RIM

HUNT AREAS: 90

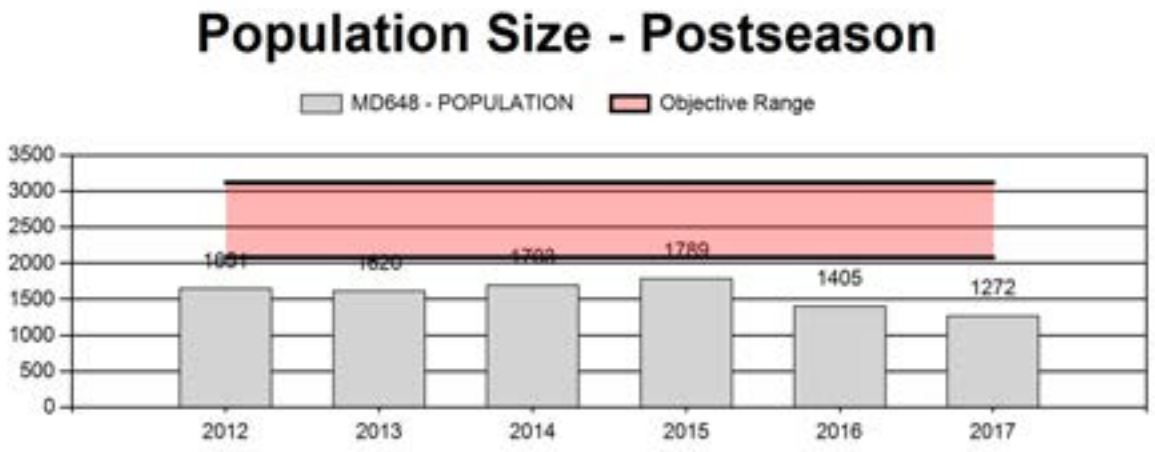
PREPARED BY: GREG ANDERSON

	2012 - 2016 Average	2017	2018 Proposed
Population:	1,634	1,272	1,315
Harvest:	46	59	60
Hunters:	62	69	75
Hunter Success:	74%	86%	80 %
Active Licenses:	62	69	75
Active License Success:	74%	86%	80 %
Recreation Days:	406	502	550
Days Per Animal:	8.8	8.5	9.2
Males per 100 Females	35	28	
Juveniles per 100 Females	46	68	

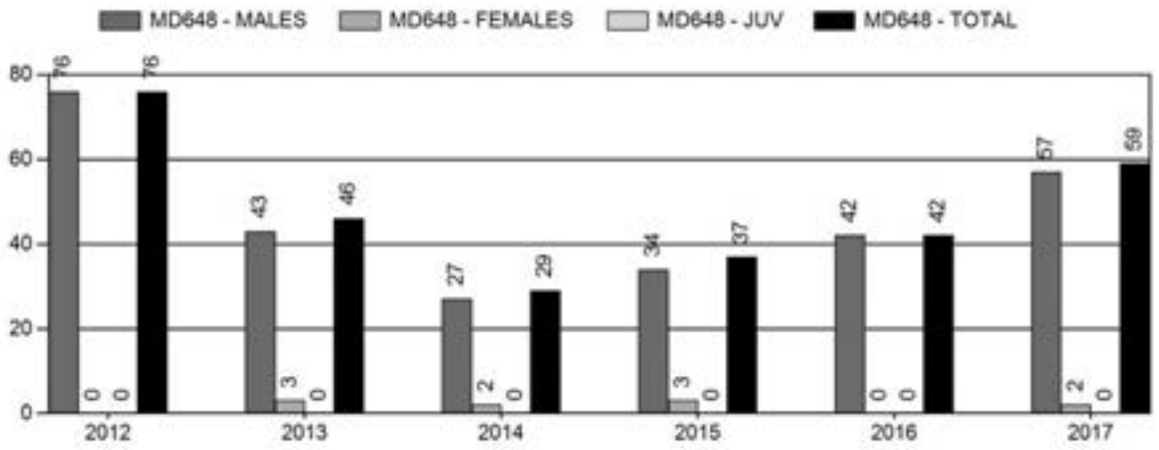
Population Objective (± 20%) :	2600 (2080 - 3120)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-51.1%
Number of years population has been + or - objective in recent trend:	10
Model Date:	2/25/2018

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

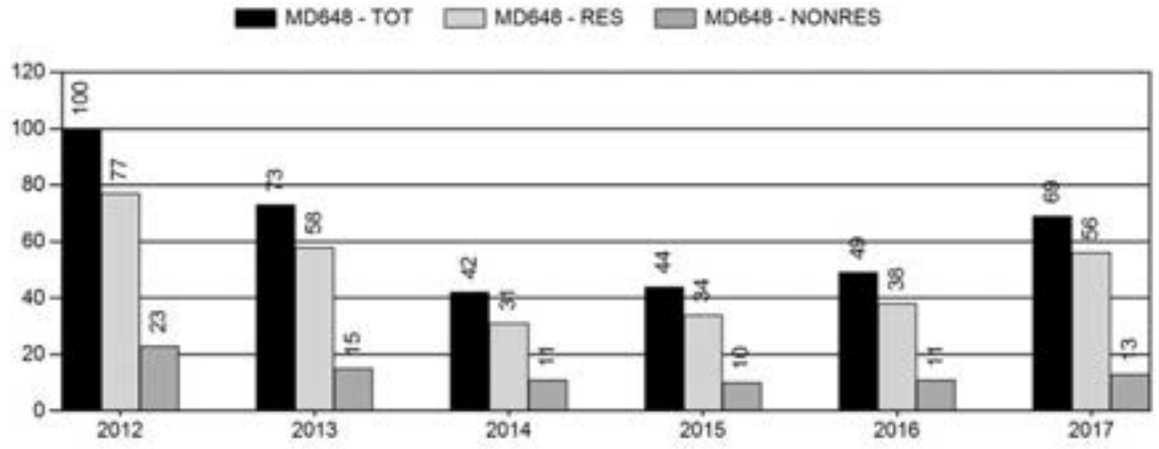
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	23%	21%
Total:	4%	4%
Proposed change in post-season population:	+7%	+4%



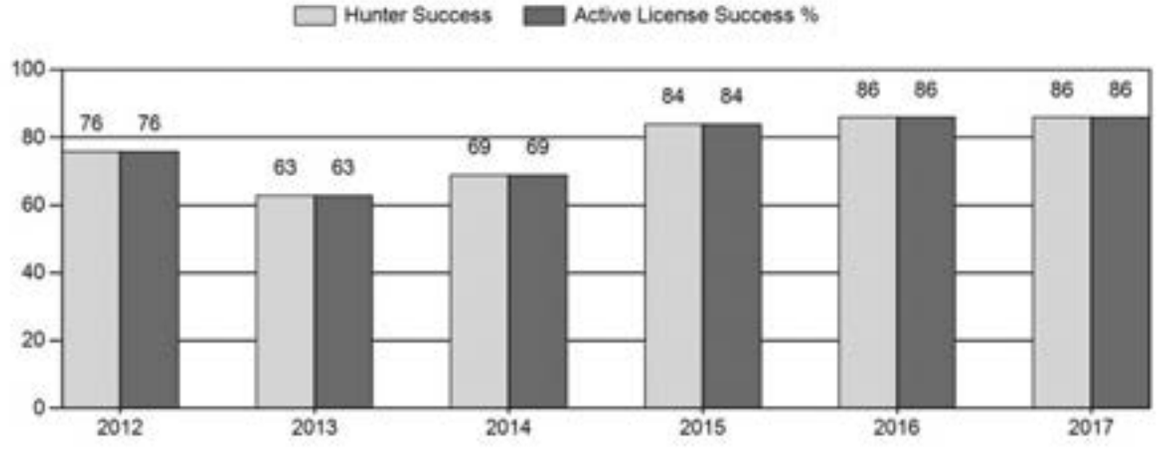
Harvest



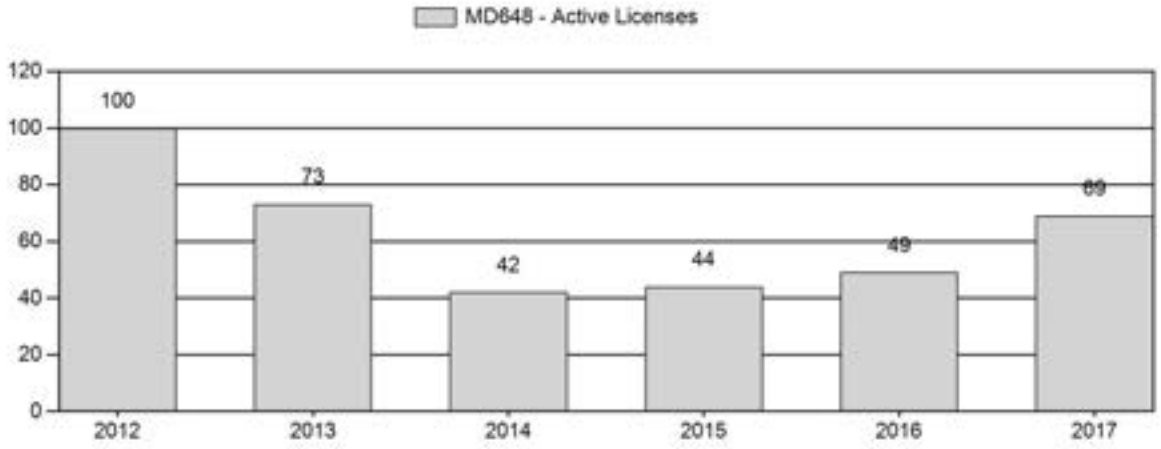
Number of Active Licenses



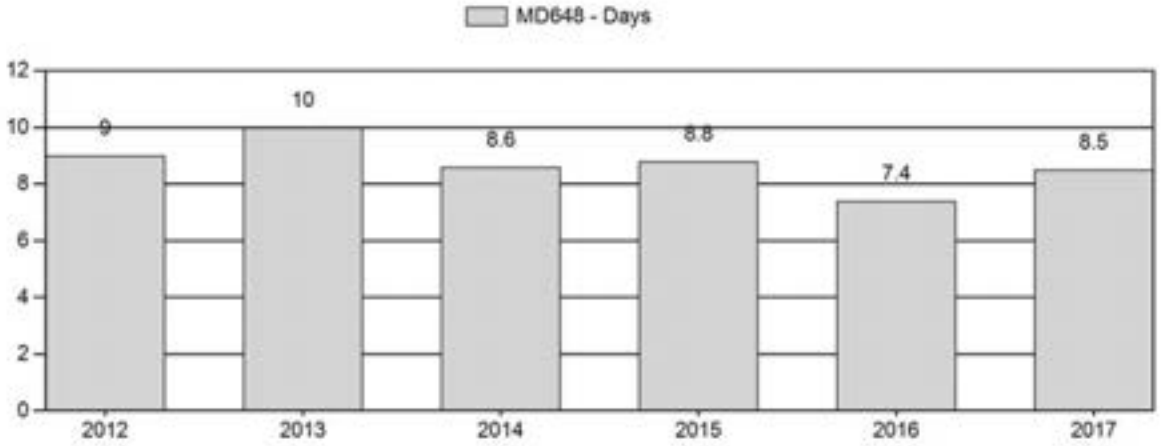
Harvest Success



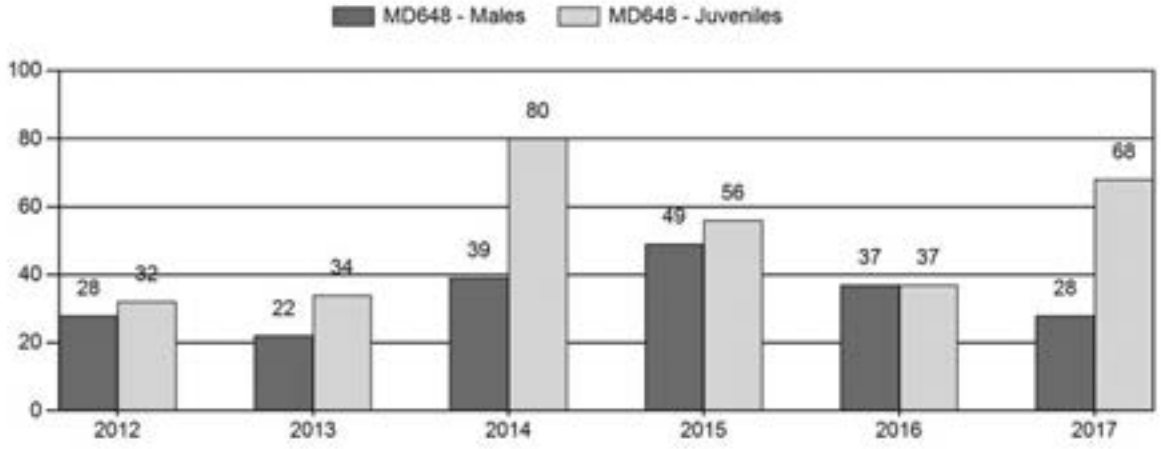
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2012 - 2017 Postseason Classification Summary

for Mule Deer Herd MD648 - BEAVER RIM

		MALES							FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	1,405	25	28	24	9	0	86	21%	235	58%	87	21%	408	410	11	26	37	± 5	37	± 5	27
2017	1,272	4	9	11	3	0	27	14%	95	51%	65	35%	187	682	4	24	28	± 7	68	± 13	53

2018 HUNTING SEASONS
BEAVER RIM MULE DEER (MD 648)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
90	1	Oct. 1	Oct. 31	75	Limited quota	Any deer
Archery 90		Sep. 1	Sep. 30			

Hunt Area	Type	Quota change from 2017
90		
Total		

<u>Management Evaluation</u>
Current Postseason Population Management Objective: 2,600
Management Strategy: Special
2017 Postseason Population Estimate: ~1,300
2018 Proposed Postseason Population Estimate: ~1,300

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 2016 and 2017 appeared to be fairly average. It is believed recent drought conditions resulted in a substantial population decline from 2010 through 2013. Casual observations as well as the current population model suggest the population has been fairly stable over the past 2 years.

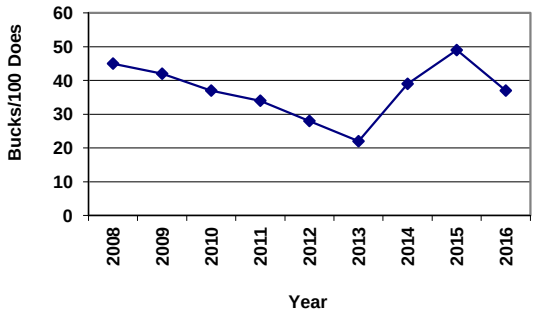
Habitat/Weather
This population was once significantly larger than it currently is. The population declined dramatically in the early 1990's following a catastrophic winter die-off. Deer numbers then languished for over a decade. The population showed signs of a slow, steady increase from 2000 through 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 2015 was outstanding and average in 2016 and 2017. Two years of good vegetation growth combined with mild winter conditions in 2017 are believed to have contributed to a stable population in the herd unit.

Field/Harvest Data/Population

Due to low deer densities in the herd unit, classification sample sizes have generally been far below desired levels for estimating age and sex ratios. That remained true in 2017 when personnel classified 187 deer but the adequate sample size was 682. Conditions were particularly mild in November, 2017. Consequently deer were widely dispersed and difficult to locate. 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 classification sample in 2017 yielded a fawn/doe ratio of 68/100. This was higher than the 5-year average of 46/100. The buck/doe ratio in 2017 was 28/100 and was below the 5-year average of 35/100. The buck/doe ratio in this herd unit does tend to fluctuate significantly from year to year; likely an artifact of small sample sizes (Fig. 1). In 2016 personnel began distinguishing between mature buck classes during surveys. As this data accumulates it should provide another measure of trophy hunting potential in the area. In 2016, 9 of 61 (15%) mature bucks classified were Class III bucks and in 2017 3 of 23 (13%) bucks were Class III.

Figure 1. Buck/doe ratio in deer area 90.



Both the days/animal statistic and Type 1 license success indicate hunt quality has been very similar over the past 3 years. In 2017, hunter success was 86% which was the same as 2016 and virtually the same as the 2015 success rate of 84% (Fig. 2). During the same time period the days/animal statistic varied from 8.8 in 2015 to 8.5 in 2017 (Fig. 3). Taken in combination, harvest statistics and classification data indicate hunt quality has been stable over the past 3 years.

Figure 2. Type 1 license success in deer area 90.

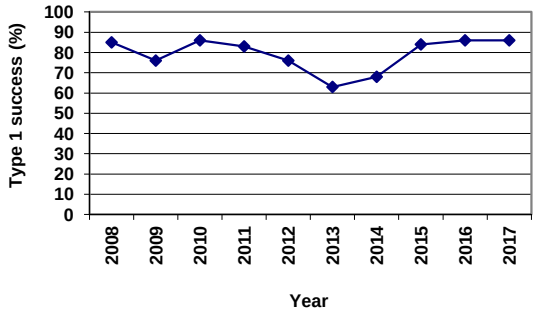
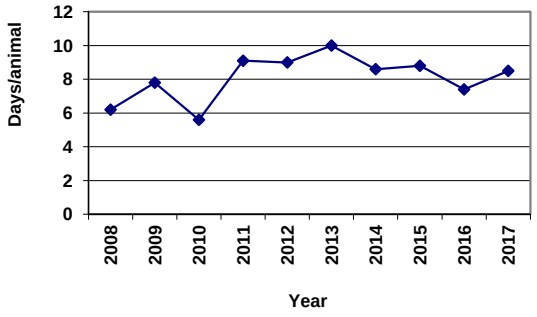


Figure 3. Type 1 license days/animal statistic

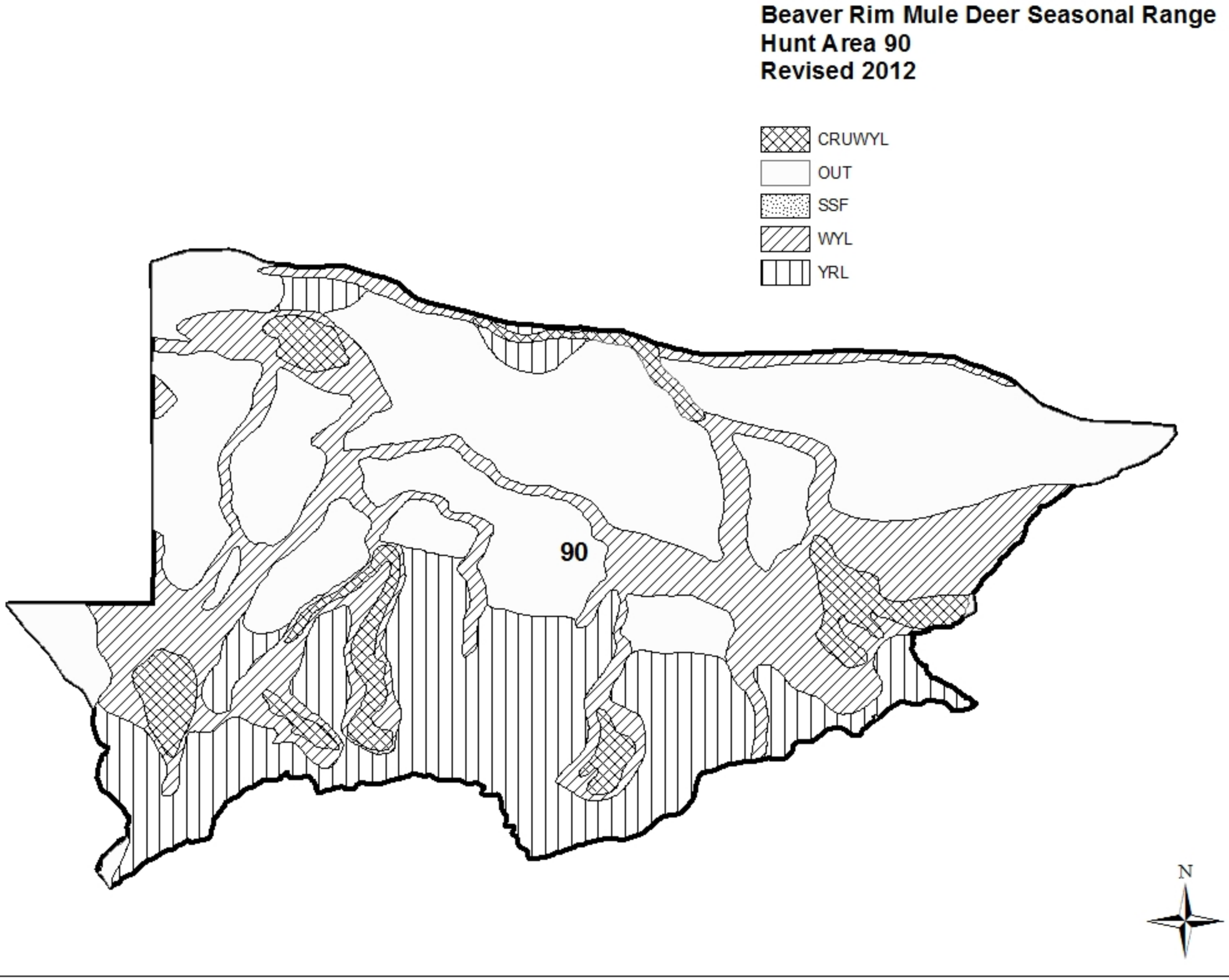


A spreadsheet model was developed for this population in 2012. The addition of 2013 and 2014 data did not dramatically change the estimates produced by the model. The SCJ/SCA model appeared to provide the best fit in both 2013 and 2014, however, with the addition of data in 2015, the model inexplicably produced an estimate 53% higher than what was previously modeled for 2015. The same trend held true with the addition of 2016 data. Addition of 2017 data did not change the model function appreciably. Likely the erratic year-to-year behavior of the model is due to lack of data (small classification sizes and low harvest). In the current spreadsheet both the CA/CJ and SCJ/SCA produce trends showing unmitigated growth over the life of the model. These trends are not biologically realistic. As such, the TSJ/CA model was selected as the population estimator each of the last 3 years. Again, addition of 2017 data did not change any population trends produced by the model and had minimal effect on the overall estimates (2017 estimates were generally within 10% of the previous year's model). The 2017 population estimate is approximately 1,300 deer and is 50% below objective. Given average reproduction and survival, the population is expected to remain unchanged at 1,300 deer in 2018. This model is considered poor quality due to the fact age/sex ratio data are based on very small samples and classification data are completely missing several years.

Management Summary

All factors indicate this population declined significantly from 2010 through 2013 then grew in 2014. It appears the population has been relatively stable over the past 3 years. The population is still well below objective but recreational hunt quality has been similar for several years. In response, Type 1 licenses will remain unchanged for 2018 to provide the same hunting

opportunity as the last several years in the area. Given average winter conditions, it is expected this population will remain unchanged in 2018 at 1,300 deer.


Beaver Rim Mule Deer Seasonal Range
Hunt Area 90
Revised 2012
CRUWYL
OUT
SSF
WYL
YRL
90
N

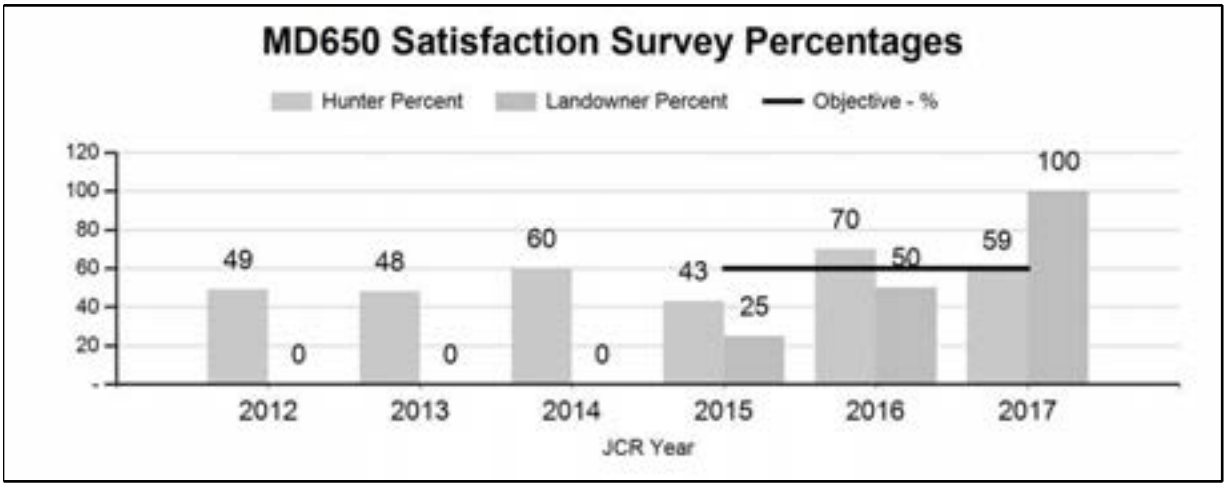
2017 - JCR Evaluation Form

SPECIES: Mule Deer
HERD: MD650 - CHAIN LAKES
HUNT AREAS: 98

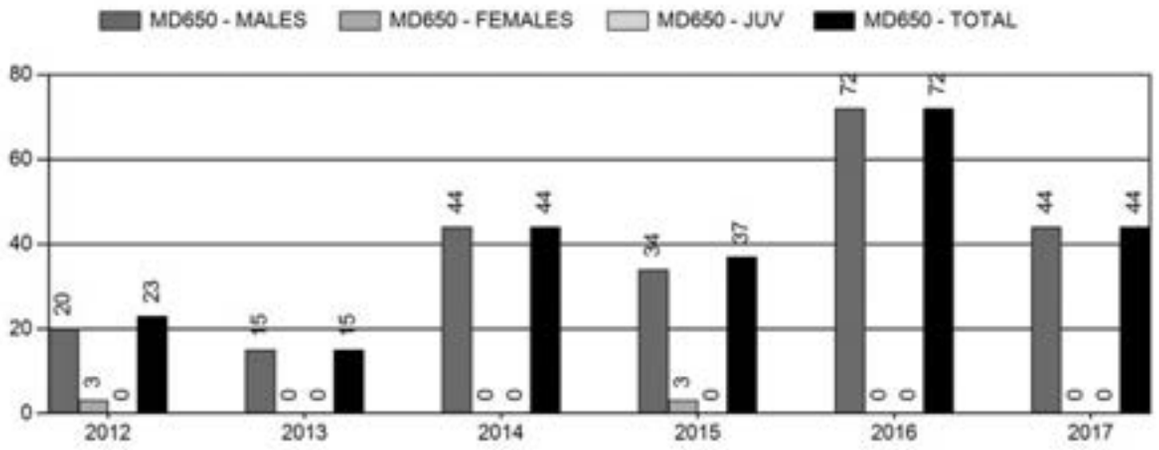
PERIOD: 6/1/2017 - 5/31/2018
PREPARED BY: GREG HIATT

	2012 - 2016 Average	2017	2018 Proposed
Hunter Satisfaction Percent	56%	59%	60%
Landowner Satisfaction Percent	38%	100%	100%
Harvest:	38	44	40
Hunters:	110	115	115
Hunter Success:	35%	38%	35%
Active Licenses:	110	115	115
Active License Success:	35%	38%	35%
Recreation Days:	435	340	310
Days Per Animal:	11.4	7.7	7.8
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	

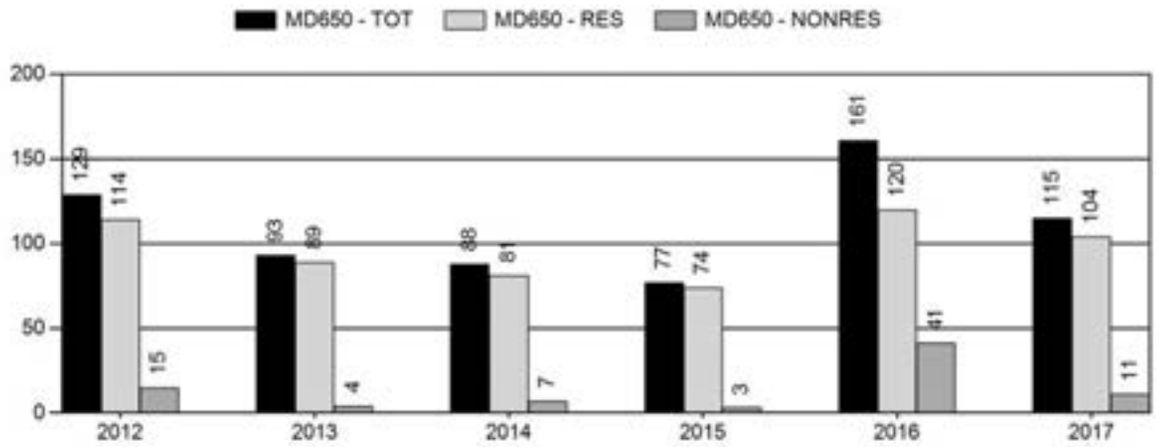
Satisfaction Based Objective	60%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	20%
Number of years population has been + or - objective in recent trend:	1



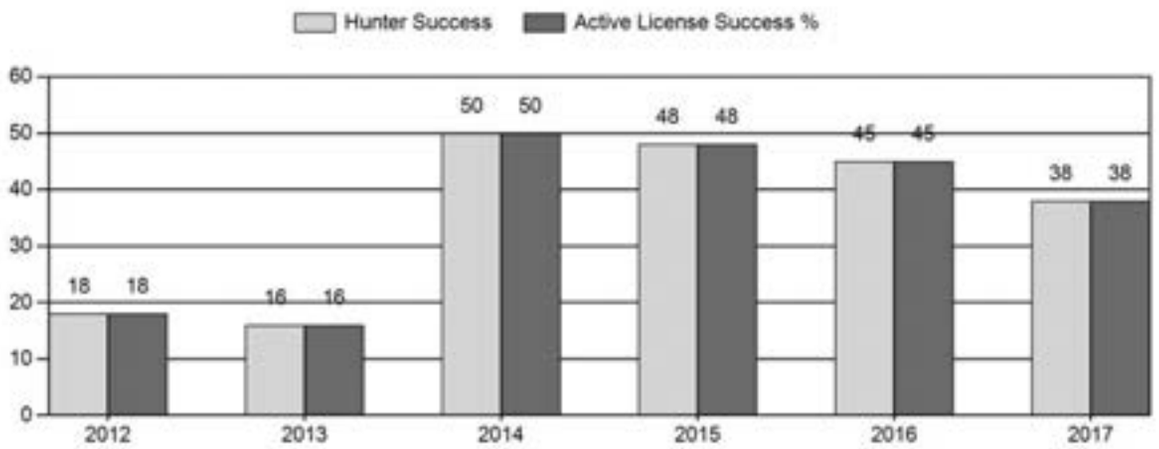
Harvest



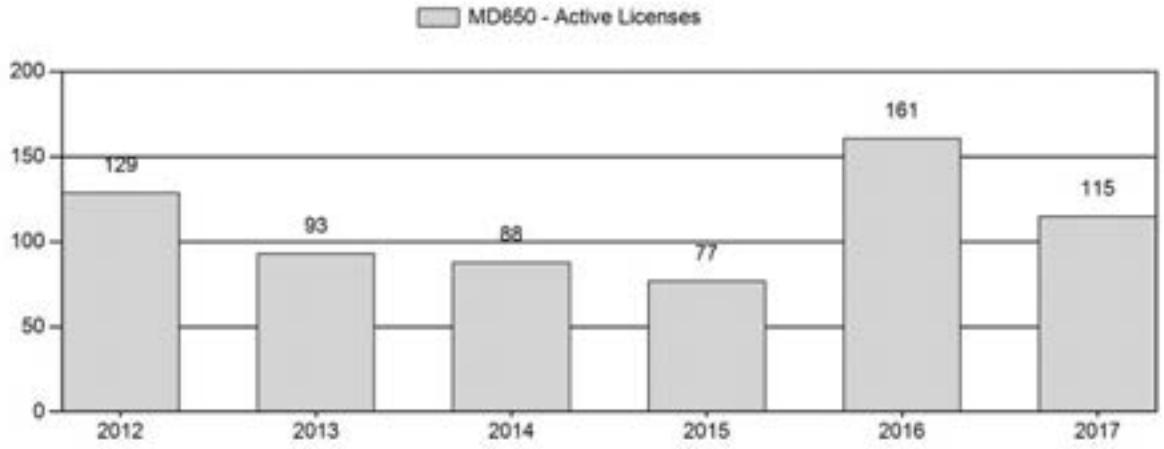
Number of Active Licenses



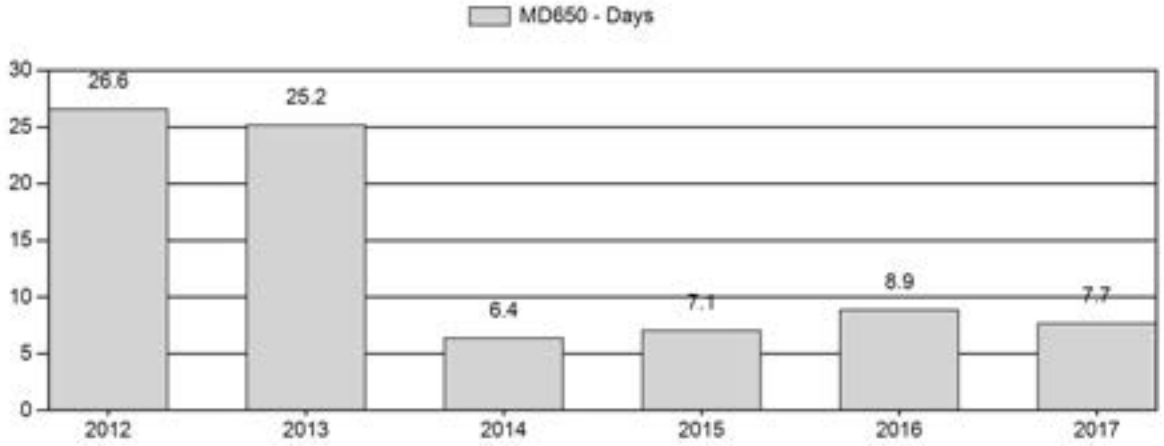
Harvest Success



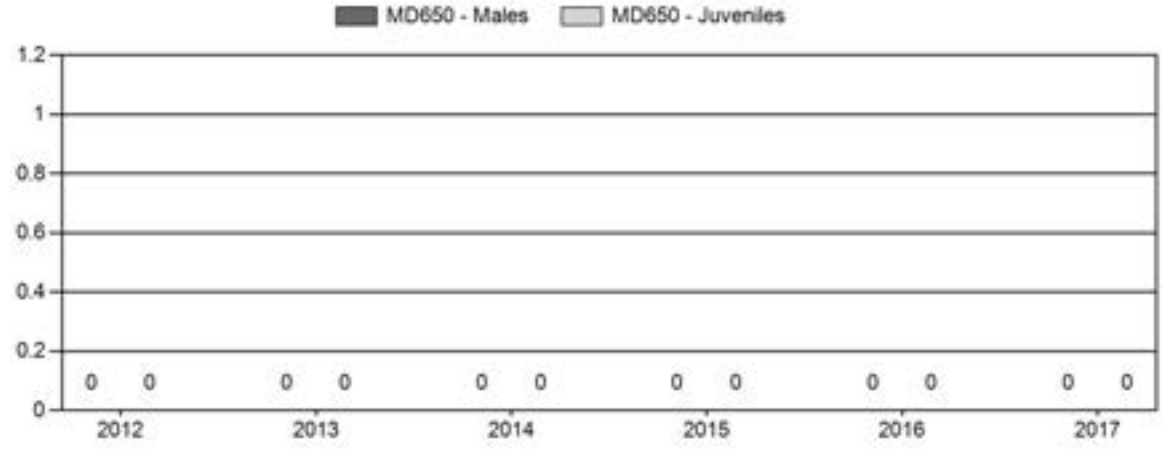
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2018 HUNTING SEASONS
CHAIN LAKES MULE DEER HERD (MD650)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	License	Limitations
98		Oct. 15	Oct. 20		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 2017
98	Gen	0
Herd Unit Total		**0**

Management Evaluation

Current Hunter/Landowner Satisfaction Management Objective: 60% hunter/landowner satisfaction; 35% hunter success
Management Strategy: Recreational
2017 Hunter Satisfaction Estimate: 59%
2017 Landowner Satisfaction Estimate: 100%
2017 Hunter Success: 38%
Most Recent 3-year Running Average Hunter Satisfaction Estimate: 58%
Most Recent 3-year Running Average Landowner Satisfaction Estimate: 53%
Most Recent 3-year Running Average Hunter Success: 44%

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

Record precipitation was received in 2015, producing exceptional vegetative growth and good fawn survival. This was followed by good precipitation again in the springs of 2016 and 2017, allowing some recovery of winter ranges from the severe drought of 2012 and 2013. Condition of mule deer going into the 2017-18 winter is expected to have been good or better. The 2017-18 winter had numerous periods of bitter cold but with little significant snowfall, continuing through February. Most winter ranges were available throughout the winter. With improved condition of both animals and forage, winter losses are expected to be near average.

Habitat

Only one shrub transect has been established in this herd unit, on the Chain Lakes WHMA, but was not read in 2017. 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 beginning in 2015. While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be good in 2017 due to high spring 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. Even with increased fawn production and survival, the herd is believed to still be recovering from 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 2018. These combined muzzleloader and archery seasons, used for the past 35 years, have been popular with both resident and nonresident hunters. Hunter numbers declined to 115 in 2017, but were near the 5-year average for this herd.

Hunter success declined for the fourth consecutive year, but was comparable to success enjoyed prior to losses in 2012 and 2013. The average number of days hunted for each harvested deer dropped slightly, to 7.7 days, probably a result of decreased numbers of hunters. As in 2016, no antlerless deer were reported in the 2017 harvest, a possibility created by youth hunters who were allowed to harvest any deer. These data suggest buck numbers were at least stable the past year.

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 fawn:doe 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 2017. All four of the four who responded were satisfied.

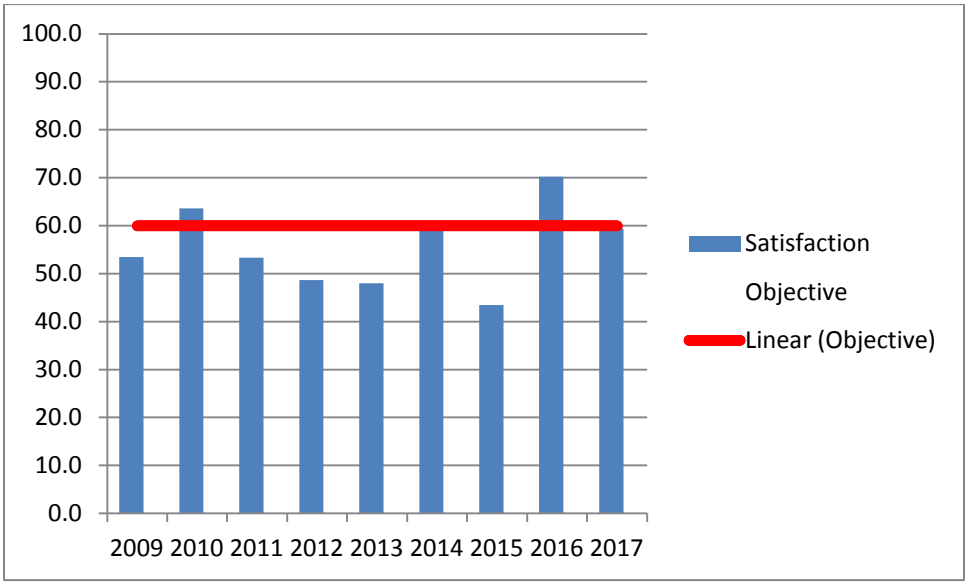


Figure 1. Hunter satisfaction for the Chain Lakes Mule deer Herd.

Hunter satisfaction in 2016 exceeded the objective of 60 percent for the first time since losses in the 2011 winter (Figure 1.), but fell slightly below objective again in 2017. Many hunters have been dissatisfied with the number of deer they see in this herd in recent years, but that dissatisfaction declined in 2016 and 2017 (Figure 2.), with a increased proportion reportedly "neutral" over deer numbers. Landowner satisfaction has also improved in recent years, exceeding the 60 percent objective in 2017. With hunter satisfaction still failing the 60 percent criterion, hunting seasons and harvests should remain conservative.

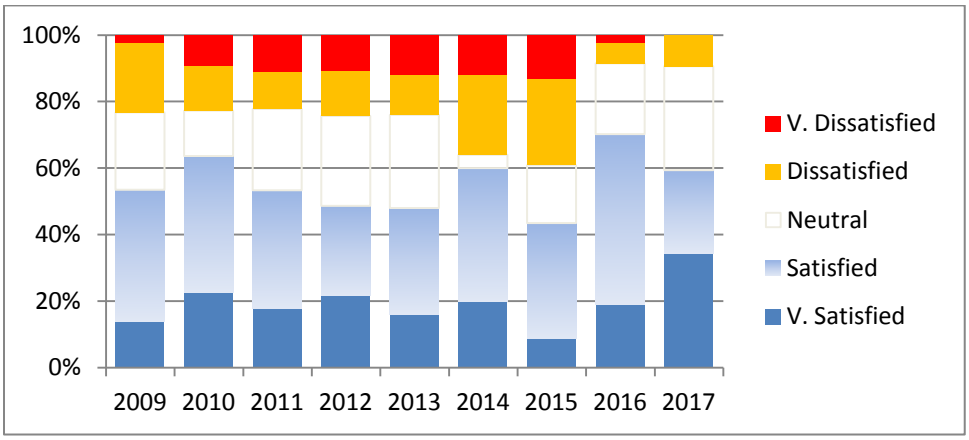


Figure 2. Hunter satisfaction and dissatisfaction for the Chain Lakes Mule deer Herd.

A secondary objective of 35 percent hunter success was also adopted for this herd in 2015. As shown in Figure 3, the past four hunting seasons attained that objective. While the 3-year running average exceeds the 35 percent criterion, the declining trend in hunter success is a concern and again suggests harvests should remain conservative.

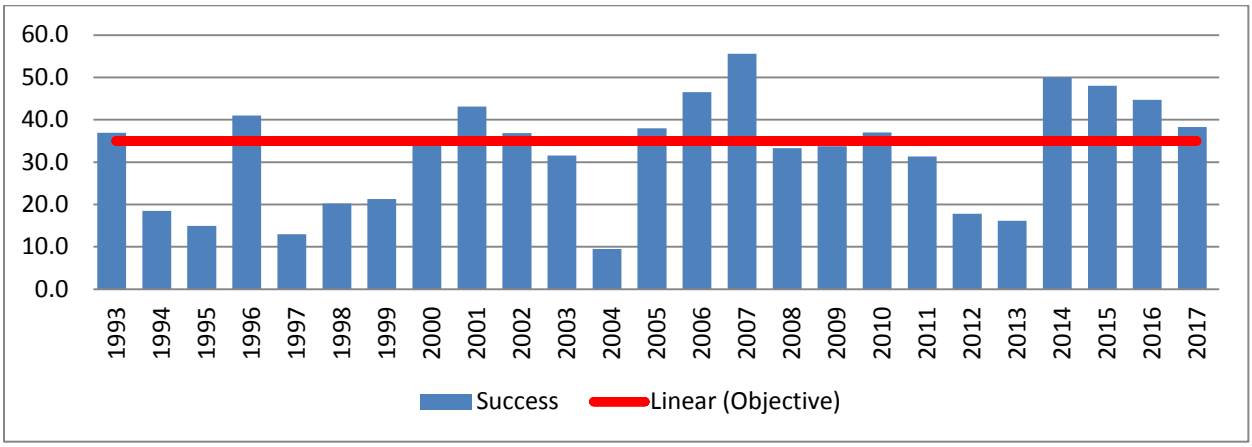
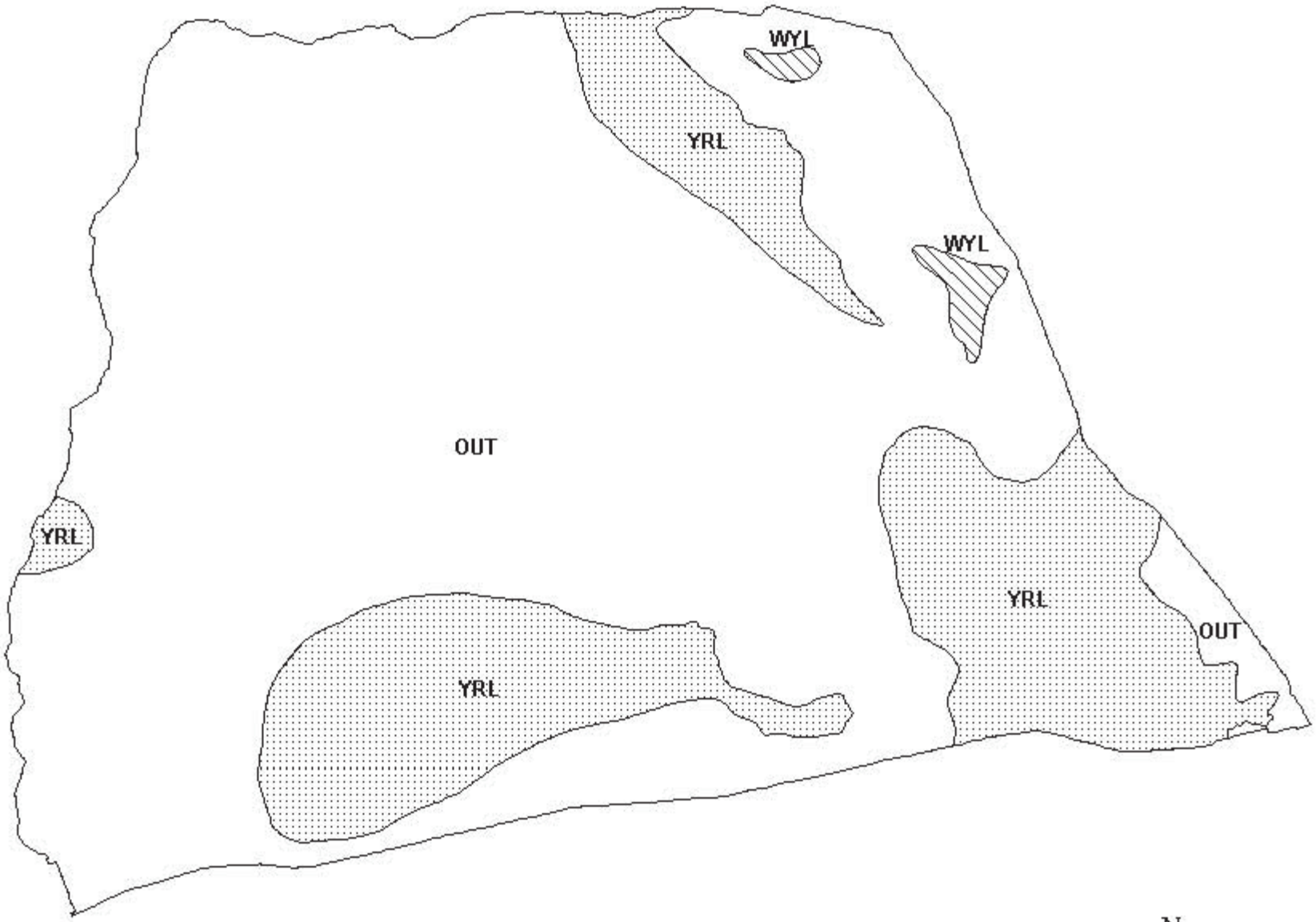


Figure 3. Hunter success for the Chain Lakes Mule deer Herd.

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 2017-18 winter is expected to have improved because of good spring precipitation, and survival through the 2017-18 winter is expected to be near average.

Expected harvest from the 2018 season would be about 50 antlered deer by roughly 110 hunters. The opening date is the same used in the past 22 years and opens simultaneously with neighboring areas in Region E. The closing date is the same as in 2017 and aligns with general license hunts in neighboring areas in Region E. As in 22 of the previous 23 years, most hunters during the regular season would be restricted to harvesting only antlered deer. Opportunities for archery hunting will again be available during the October season in addition to the special archery season in September.



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