2018 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2018 - 5/31/2019

HERD: MD642 - DUBOIS

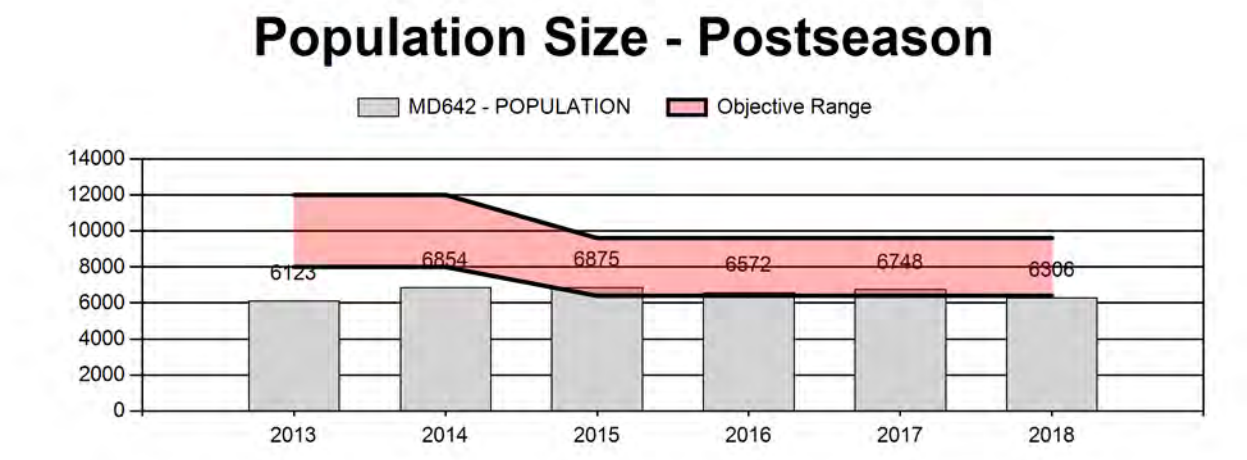
HUNT AREAS: 128, 148
PREPARED BY: GREG ANDERSON

	2013 - 2017 Average	2018	2019 Proposed
Population:	6,634	6,306	6,014
Harvest:	497	295	445
Hunters:	1,214	1,074	1,100
Hunter Success:	41%	27%	40 %
Active Licenses:	1,230	1,088	1,115
Active License Success:	40%	27%	40 %
Recreation Days:	6,437	6,398	6,400
Days Per Animal:	13.0	21.7	14.4
Males per 100 Females	28	26	
Juveniles per 100 Females	59	49	

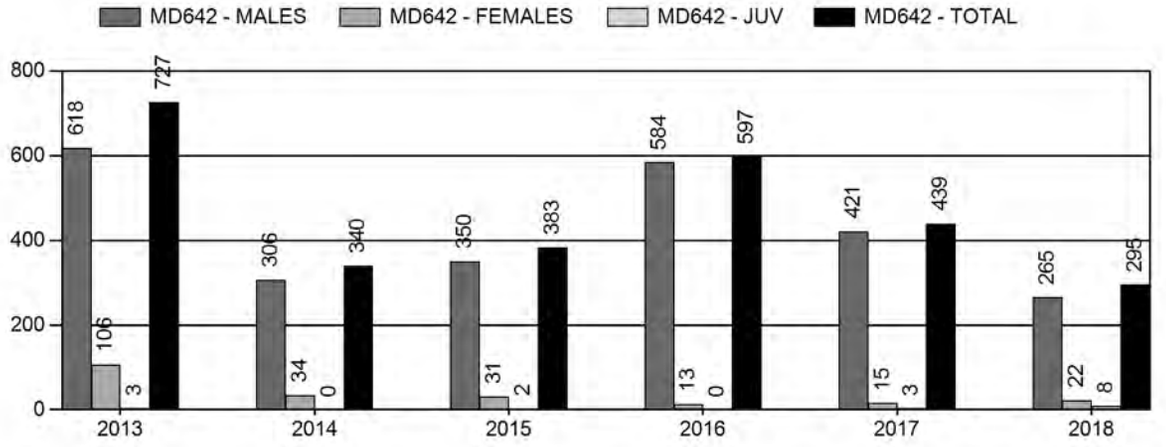
Population Objective (± 20%) :	8000 (6400 - 9600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-21.2%
Number of years population has been + or - objective in recent trend:	2
Model Date:	02/18/2019

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

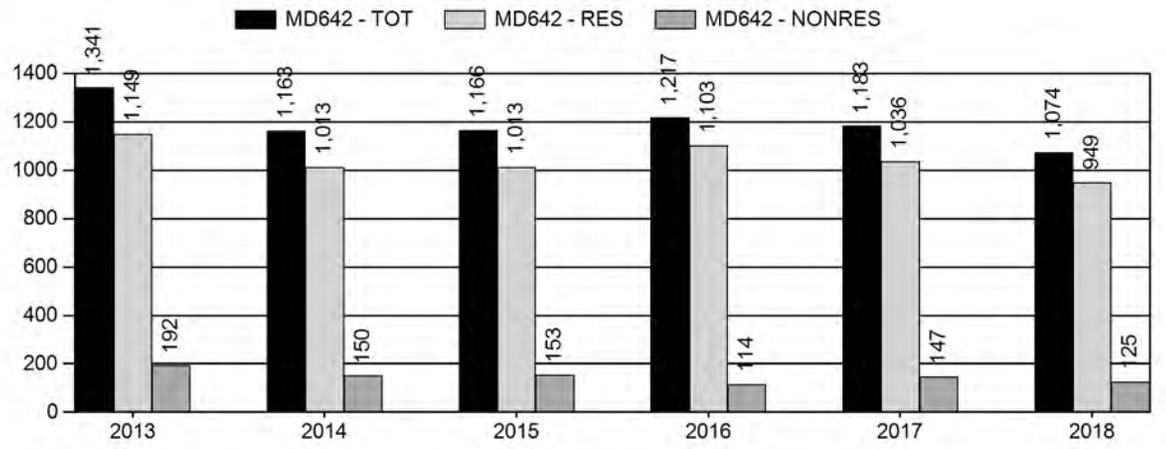
	JCR Year	Proposed
Females ≥ 1 year old:	1%	0%
Males ≥ 1 year old:	24%	40%
Total:	4%	7%
Proposed change in post-season population:	-6%	-5%



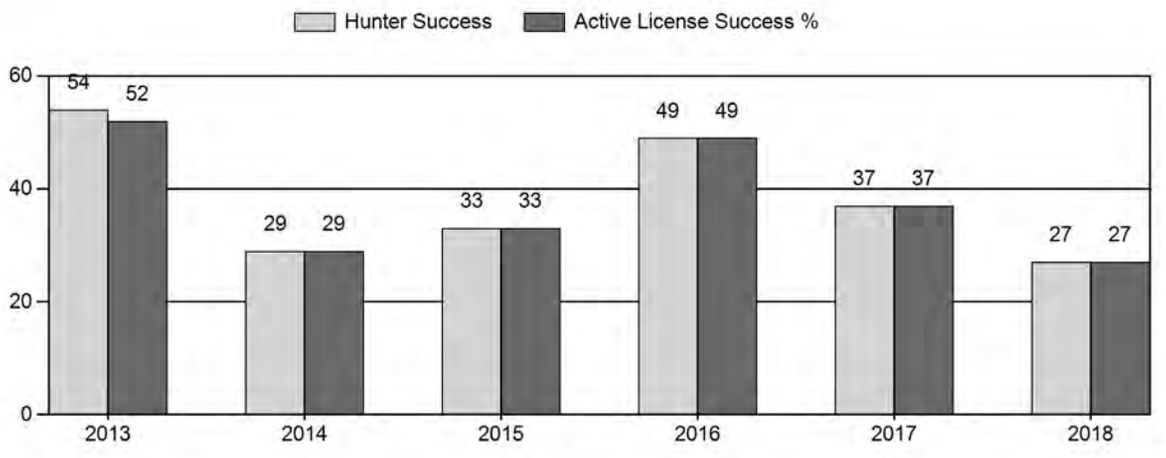
Harvest



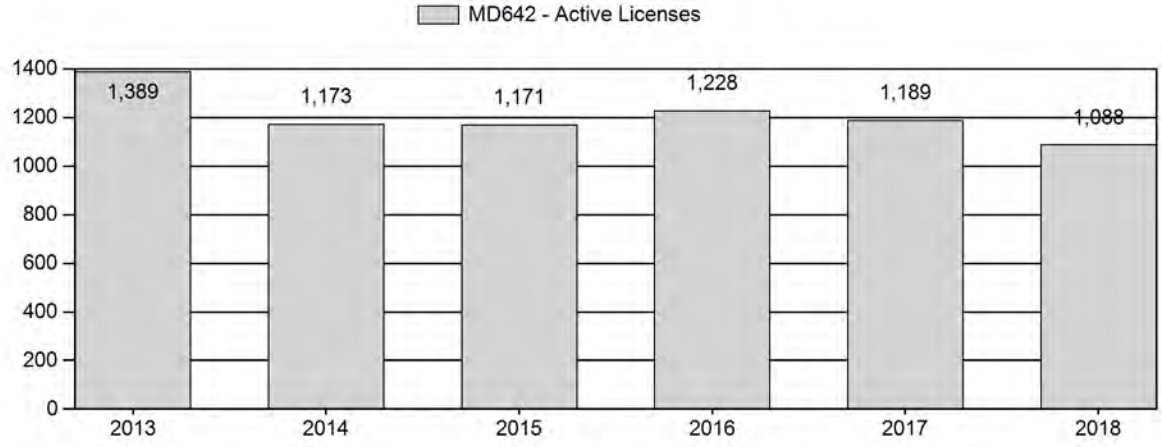
Number of Active Licenses



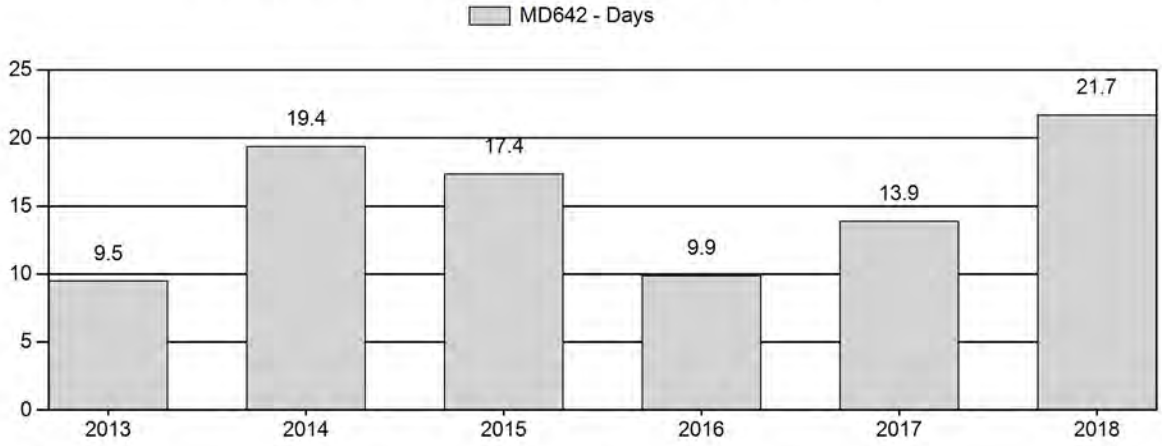
Harvest Success



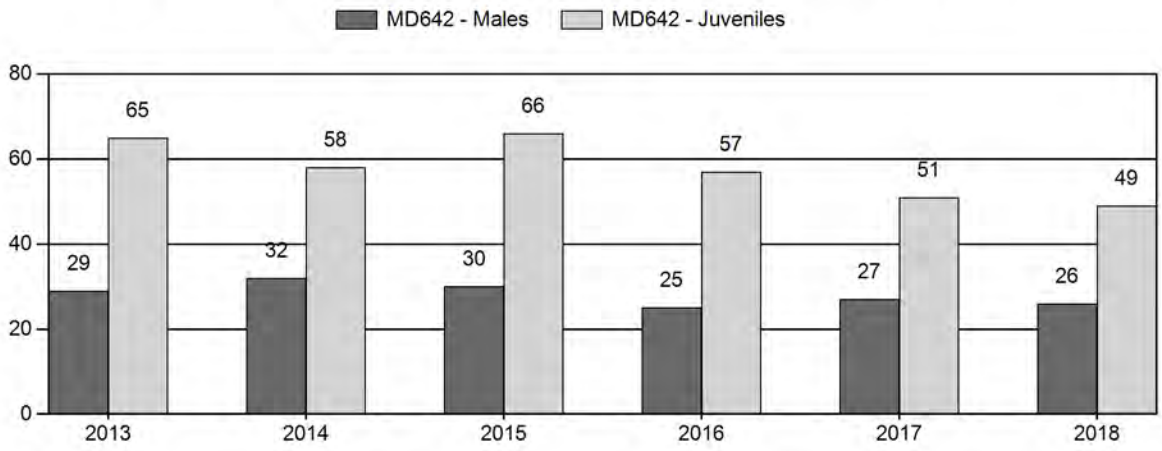
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 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	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	6,306	51	43	56	8	0	158	15%	605	57%	298	28%	1,061	742	8	18	26	± 3	49	± 4	39

2019 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	50	Limited quota	Doe or fawn valid on private land
128	8	Oct. 1	Oct. 31	50	Limited quota	Doe or fawn white-tailed deer
148		Sep. 15	Oct. 25		General	Antlered deer
Archery						
128		Sep. 1	Sep. 30			
148		Sep. 1	Sep. 14			

Non Resident Region L Quota: 300

Hunt Area	Type	Quota change from 2018
128	7	+25
	8	+50
Total		**+75**

Management Evaluation

Current Postseason Population Management Objective: 8,000
Management Strategy: Recreational
2018 Postseason Population Estimate: ~6,300
2019 Proposed Postseason Population Estimate: ~6,000

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.

Personnel and public observations indicate the white-tailed deer population in the herd has been growing for several years. In response, hunters were allowed to harvest any white-tailed deer with a general license beginning in 2013. An increasing number of hunters have recognized they are allowed to harvest doe white-tailed deer on their general license over the past 5 years. However, white-tailed deer numbers appear to continue to increase. To address this, a Type 8 license will be introduced in 2019. The license will be valid for the month of October. Unlike the migratory mule deer population, white-tailed deer are resident in hunt area 128 and are available for harvest in October. This will allow hunters to harvest doe white-tailed deer without increasing hunter densities during the November Type 1 and Type 3 hunts.

The non-resident Region E quota had been steadily decreasing over the past several years primarily to address high hunter densities in Hunt Area 96. To reduce hunter densities in Area 96 and provide more hunter opportunity in other Region E areas, the Region will be split into Regions L and Q beginning in 2019. Hunt areas 128, 148, and 171 will become part of the new Region L. For 2019 the Region L quota will be 300 licenses.

Habitat/Weather

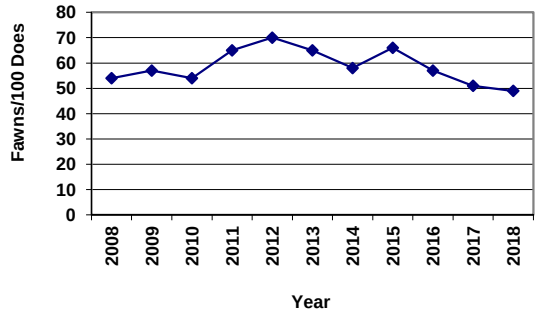
The past year was characterized by mild conditions and good early season vegetation growth throughout the herd unit. Vegetation transects monitored to determine the amount of forage available on elk winter range revealed herbaceous vegetation production was higher than the previous two years. Vegetation did cure early due to warm temperatures and lack of moisture in early summer. No shrub data is collected in the herd unit, but the growing conditions likely resulted in average browse production. Given herbaceous production in 2018 and the amount of residual vegetation the previous few years, feed resources should not have been limited for deer in 2018. Fall weather was mild followed by average winter conditions in December and January. Snow cover remained low through January. In February, temperatures declined below average resulting in some physiological stress on animals. Overall, winter precipitation in the upper Wind River Basin was 87% of average through February, 2019.

Field/Harvest Data/Population

In 2018, personnel classified 1,061 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 2018 classification sample yielded a fawn/doe ratio of 49/100. This was close to the 2017 ratio of 51/100 but near the low end of the range normally observed in this herd. Despite annual fluctuations, there are no long

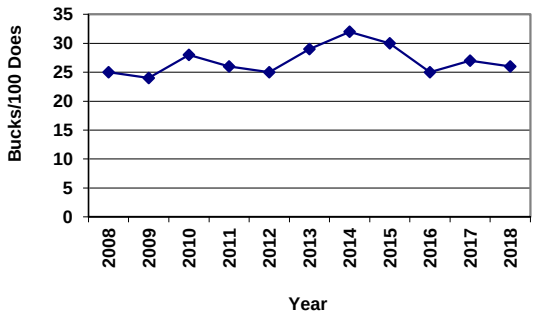
term recruitment trends evident in this population. Fawn production has been fairly stable for many years but slightly low the last few (Fig. 1).

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 2018 the buck/doe ratio was 26/100 which was virtually the same as the 2017 ratio of 27/100.

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



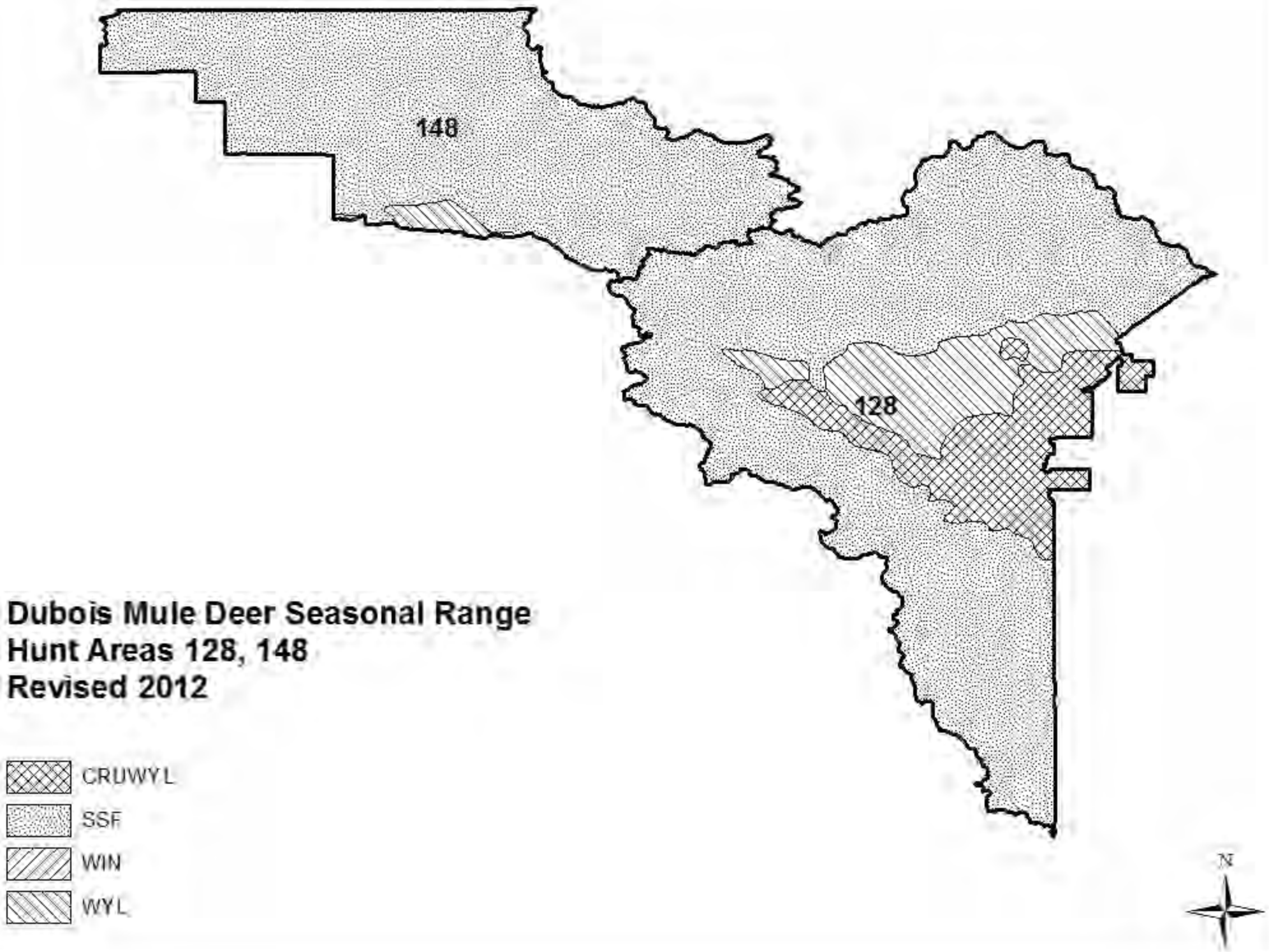
Hunter success during the general, October season tends to be low and is related to the fact many deer are not in the herd unit during that period. Deer typically migrate into Hunt Area 128 in late October and are present for the limited quota season in November. The vast majority of harvest is taken in Hunt Area 128 each year. General license success did decline each of the past 3 seasons in Hunt Area 128. In 2016 general license success was unusually high at 50%. This was likely due to unusually early winter conditions forcing deer to return to winter range early that year and making them vulnerable to harvest. In 2017 general license success was 34% which is more typical for this herd unit. General license success declined again in 2018 to 24%. While this was lower than the last several years, it was not unusual for the area where general license success has ranged from 16% to 50% over the past decade. That said, the days/animal was high for the hunt area at 24.6 in 2018. Despite being within the normal range of variation, these harvest statistics combined with somewhat low fawn recruitment over the past 2 years indicate the population may have declined.

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 2018. Each year of the model's use, the TSJ/CA version of the model was selected to track the population. In 2018 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 over the past 2 years. This decline is supported by the harvest statistics showing decreased success in 2017 and 2018 as well as somewhat lower recruitment each of the last 2 years. The 2018 population estimate is 6,300 and 79% of objective. The model is considered fair given adequate age/sex ratio data but lacking survival estimates.

Management Summary

The 2018 hunting season is designed to maintain recreational opportunity at the same level as the 2017 season. This population appears to have declined slightly over the past 2 years but has been quite stable over the past decade. Based on input from landowners regarding damage concerns, Type 7 licenses will be increased by 25 for the 2019 season. Given only this minor change, 2019 harvest is expected to be similar to the average of the past several years. Given average recruitment, the population is expected to decrease slightly to 6,000 in 2019.


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

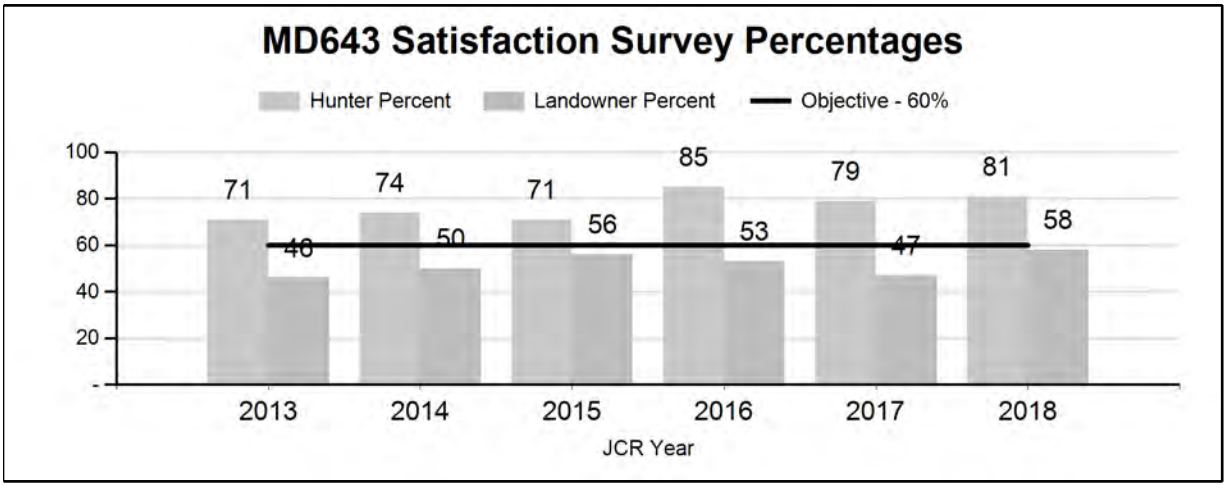
2018 - JCR Evaluation Form

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

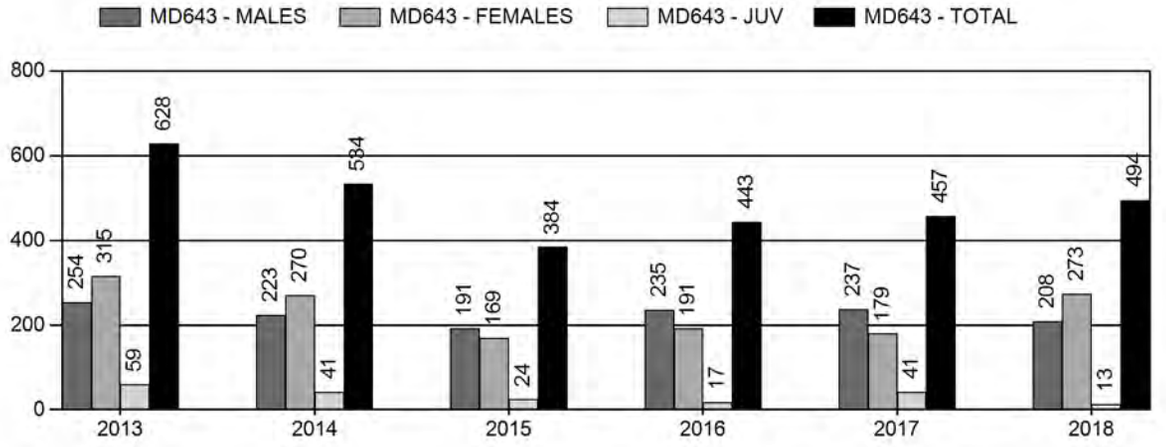
PERIOD: 6/1/2018 - 5/31/2019
PREPARED BY: GREG ANDERSON

	2013 - 2017 Average	2018	2019 Proposed
Hunter Satisfaction Percent	76%	81%	80%
Landowner Satisfaction Percent	49%	58%	60%
Harvest:	489	494	520
Hunters:	614	686	700
Hunter Success:	80%	72%	74%
Active Licenses:	729	800	825
Active License Success:	67%	62%	63%
Recreation Days:	2,604	2,792	2,850
Days Per Animal:	5.3	5.7	5.5
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	

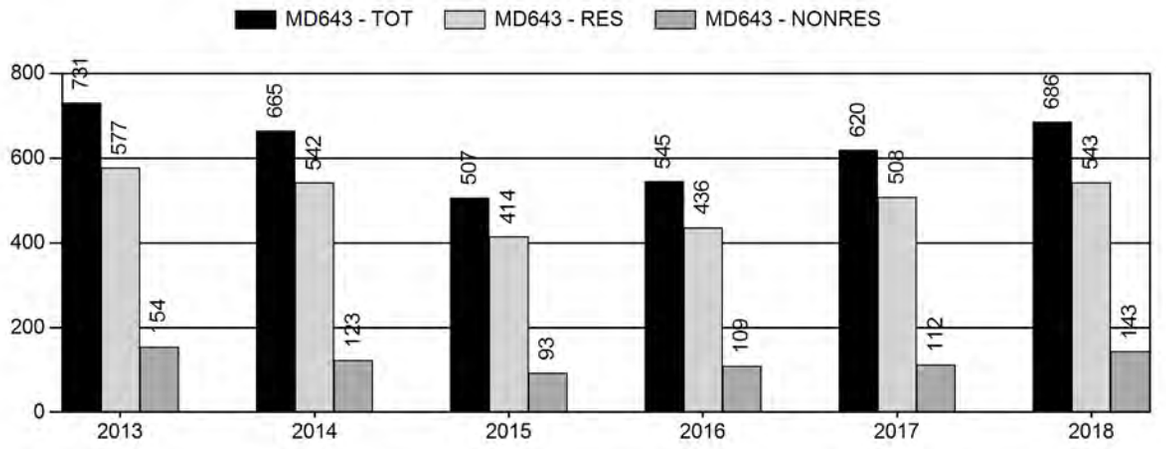
Satisfaction Based Objective	60%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	10%
Number of years population has been + or - objective in recent trend:	1



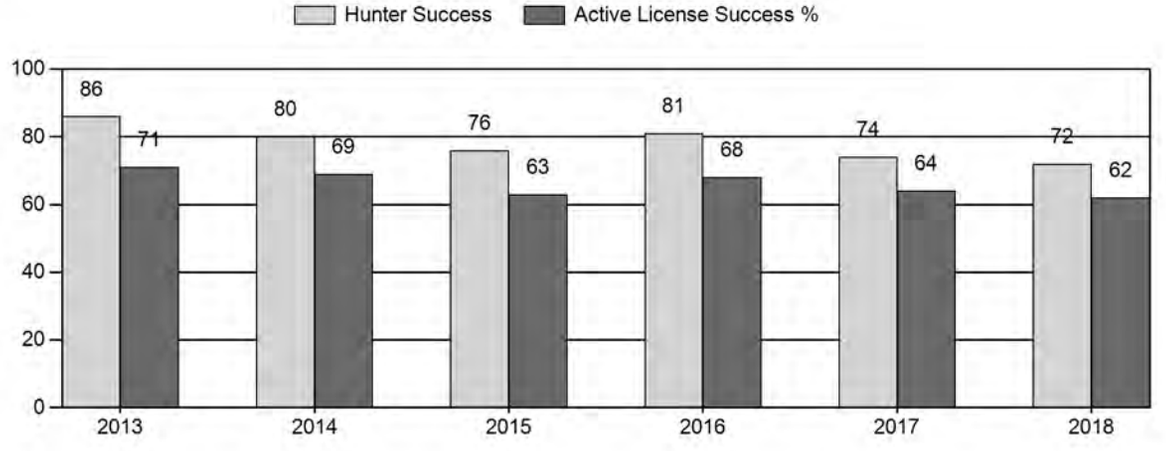
Harvest



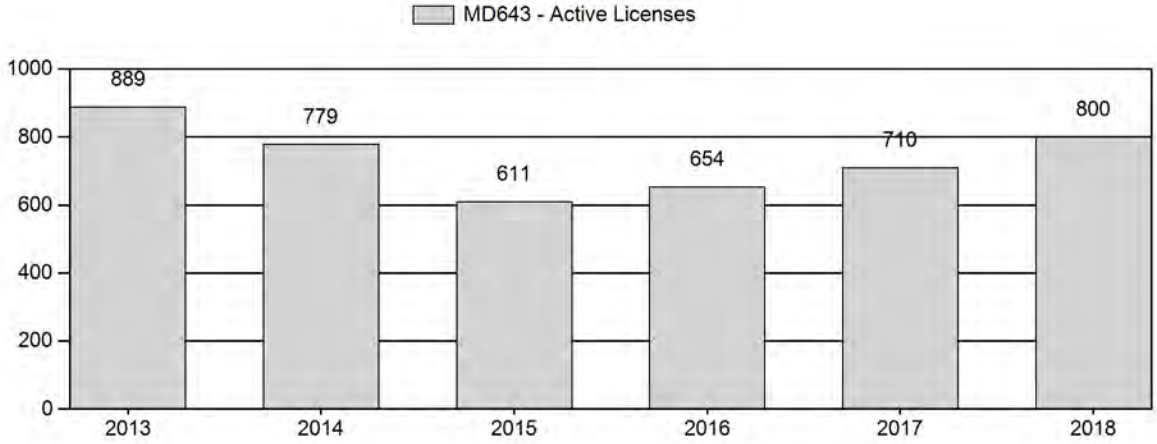
Number of Active Licenses



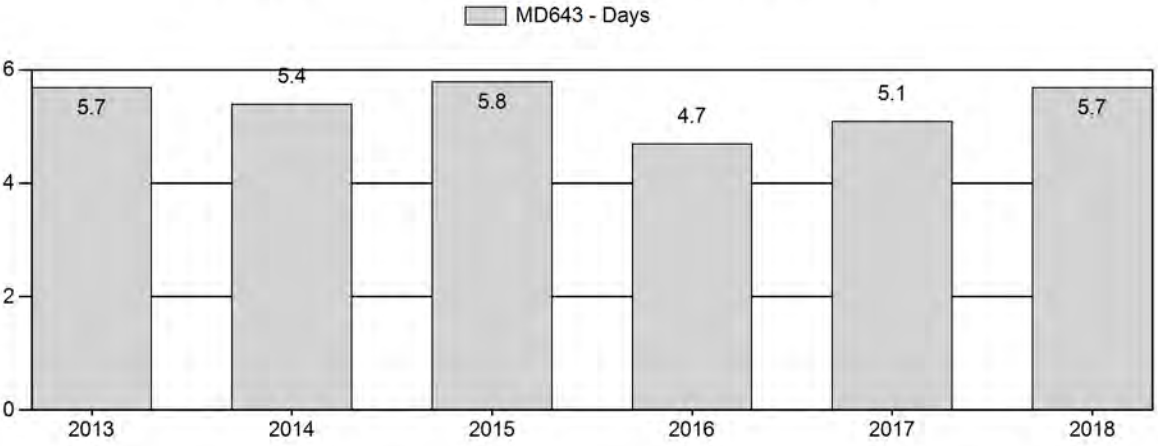
Harvest Success



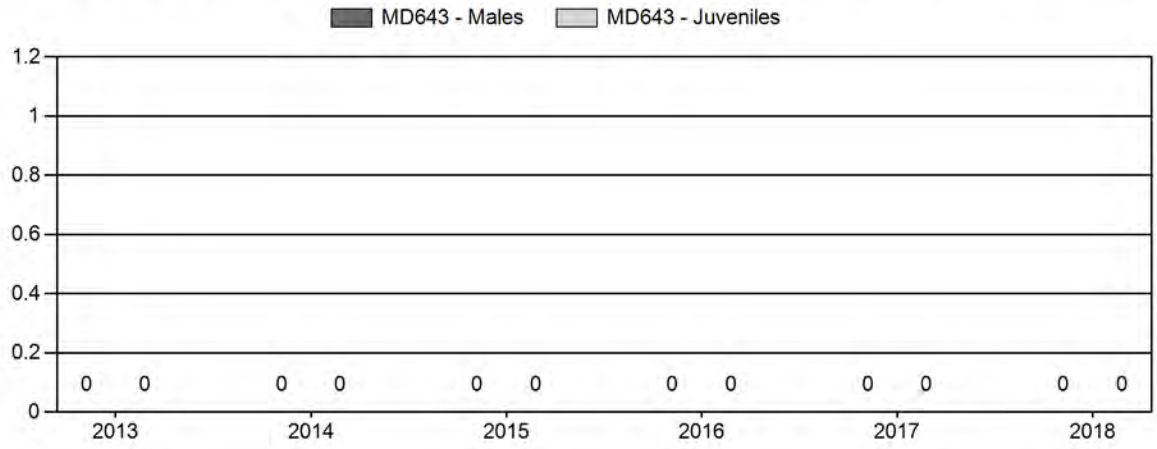
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2019 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	400	Limited quota	Doe or fawn
157	8	Oct. 1	Oct. 31	275	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	Oct. 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 2018
157, 170	6	+50
	8	+50
Total		**+100**

Management Evaluation

Current hunter/landowner satisfaction management objective: Hunter/Landowner Satisfaction 60%
Management Strategy: Private Lands
2018 Hunter satisfaction estimate: 81%
2018 Landowner satisfaction estimate: 58% (12 contacts)
Most recent 3-Year running average hunter satisfaction estimate: 82%
Most recent 3-Year running average landowner satisfaction estimate: 53%

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 collared 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.

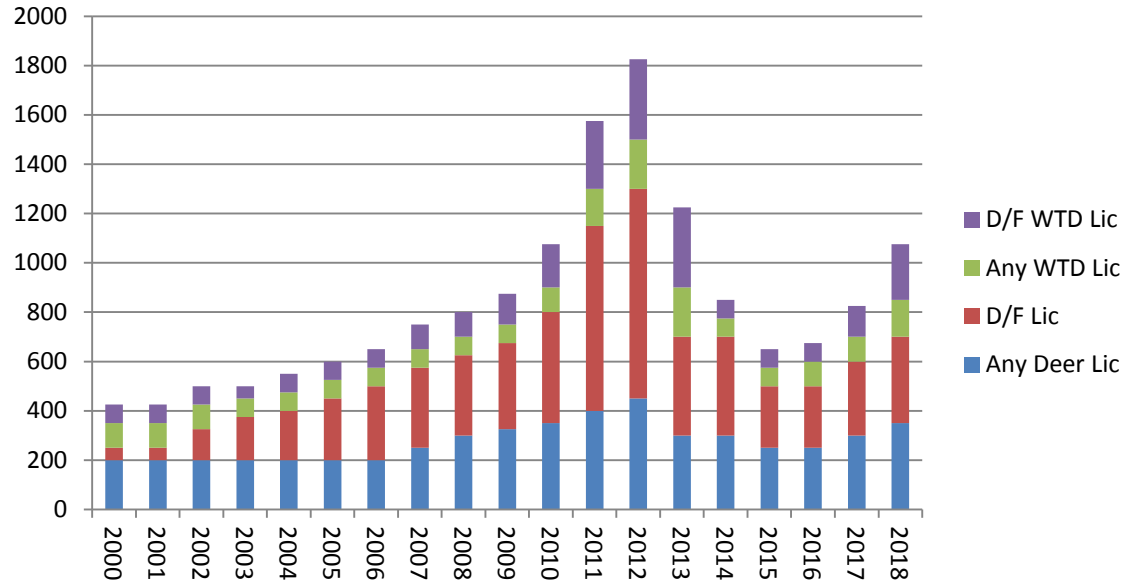
Habitat/Weather

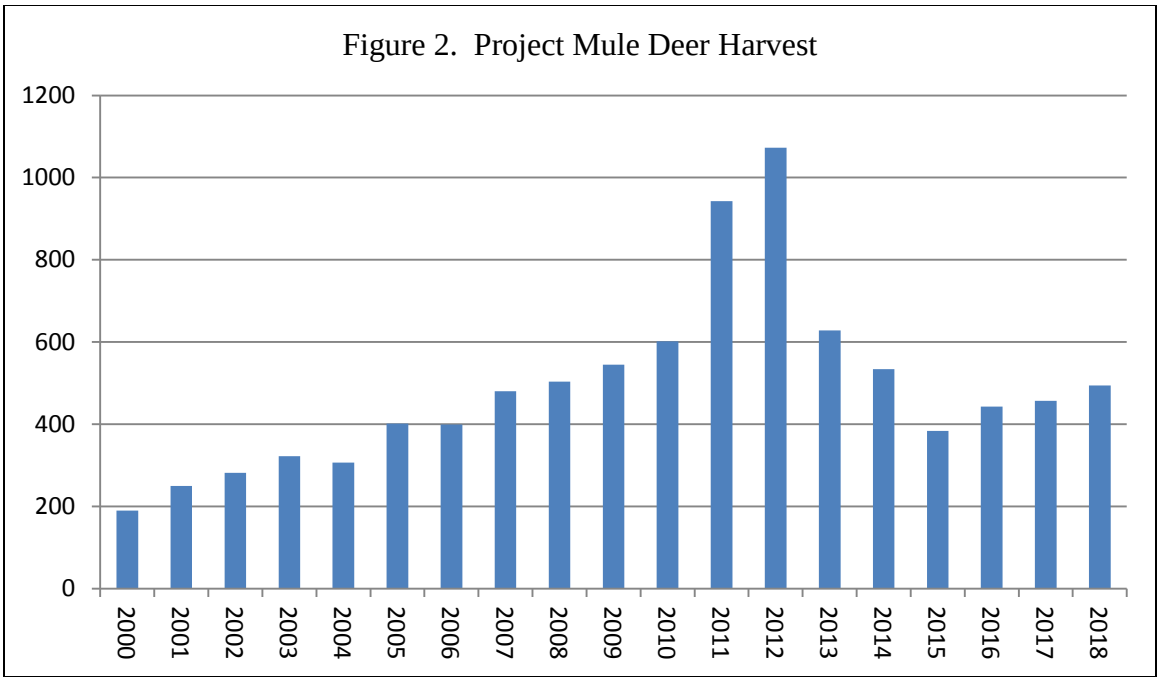
This herd occupies a predominantly agricultural area in central Wyoming as well as lands interspersed with the WRR. Land ownership patterns and extensive border with the WRR make it cost prohibitive to collect adequate demographic data in the herd unit. The highest densities of mule deer are found along 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 2018, weather conditions were conducive to average vegetative production throughout the herd unit including upland, native range. Dry conditions in summer resulted in early vegetation curing that appeared to negatively impact antelope recruitment in the area. Given below average antelope production in the same area, it is likely mule deer recruitment was below average. Fall observations and field checks indicate mule deer in the herd unit entered winter in average 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 began to increase again in 2016. Landowner satisfaction has remained stable around 50% each of the last 3 years, but harvest was increased significantly in both 2017 and 2018 in an attempt to reduce deer numbers. Although landowner satisfaction has been stable, personnel have been receiving increased damage complaints the last couple of years.

Figure 1. Deer Area 157 historic license issuance

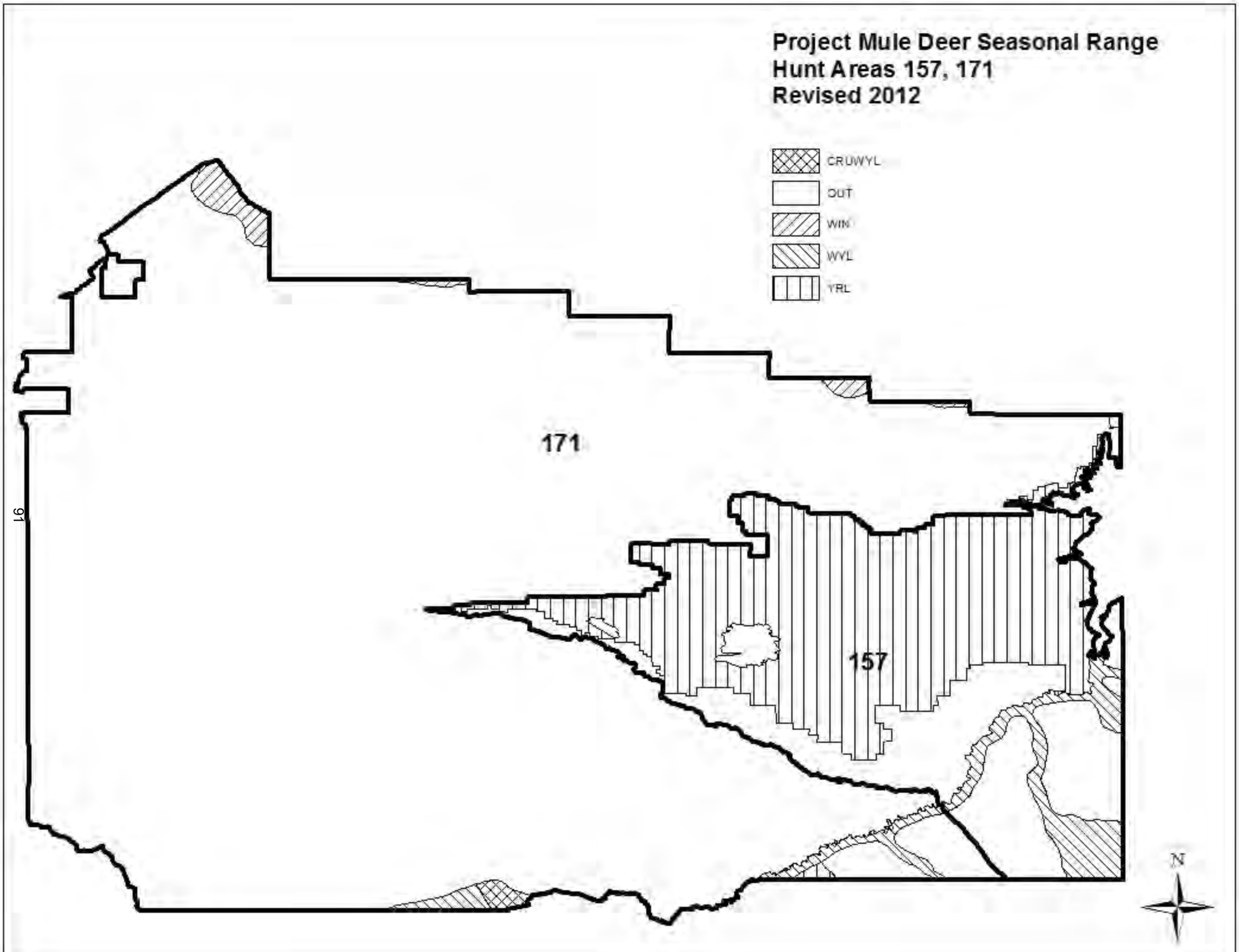




Hunter satisfaction was 81% in 2018. This was essentially the same as the 2017 satisfaction of 79% and the 3-year average of 82%. Indications are hunters have been pleased with recreational quality in the herd unit despite recent license increases. This was the sixth year the landowner satisfaction survey was conducted so long term comparisons are not possible. Although landowner satisfaction has never reached 60% over the past 6 years it has been very stable around 50% indicating many landowners are satisfied with the Department's deer management in the herd. Landowner satisfaction did increase from 47% in 2017 to 58% in 2018 again indicating recent license increases have resulted in decreased deer numbers.

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 over those years. In response, license issuance and harvest increased in both 2017 and 2018. Landowner satisfaction has remained stable around 50% but a number of landowners continue to express a desire for more harvest. Hunter satisfaction has also remained stable over the last several years indicating good recreational quality. To maintain the recreational quality in the area, Type 1 licenses will remain unchanged for 2019 follow two preceding years of increases. To address landowner concerns, Type 6 licenses will be increased for the third consecutive year in 2019. Also, the majority of landowner comments in 2018 indicated white-tailed deer numbers increased over the last couple of years significantly. In response, Type 8 licenses will be increased by 50 for the 2019 season. Finally, the opening date for Type 3 licenses in Hunt Area 171 will be moved to October 1 in 2019. Given there is a concurrent general license season in the area, there is no reason Type 3 license holders should not be able to utilize their tag prior to November if they wish.


Project Mule Deer Seasonal Range
Hunt Areas 157, 171
Revised 2012
CRUWYL
OUT
WIN
WYL
YRL
171
157
91
N

2018 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2018 - 5/31/2019

HERD: MD644 - SOUTH WIND RIVER

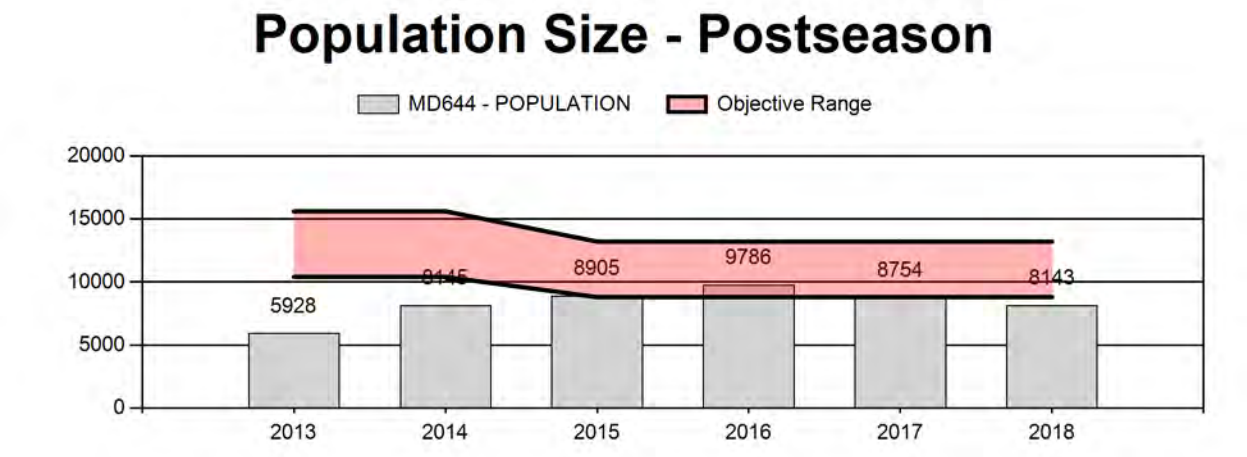
HUNT AREAS: 92, 94, 160
PREPARED BY: STAN HARTER

	2013 - 2017 Average	2018	2019 Proposed
Population:	8,304	8,143	8,864
Harvest:	596	537	585
Hunters:	1,413	1,300	1,300
Hunter Success:	42%	41%	45%
Active Licenses:	1,419	1,300	1,300
Active License Success:	42%	41%	45%
Recreation Days:	5,924	5,368	5,500
Days Per Animal:	9.9	10.0	9.4
Males per 100 Females	30	25	
Juveniles per 100 Females	76	73	

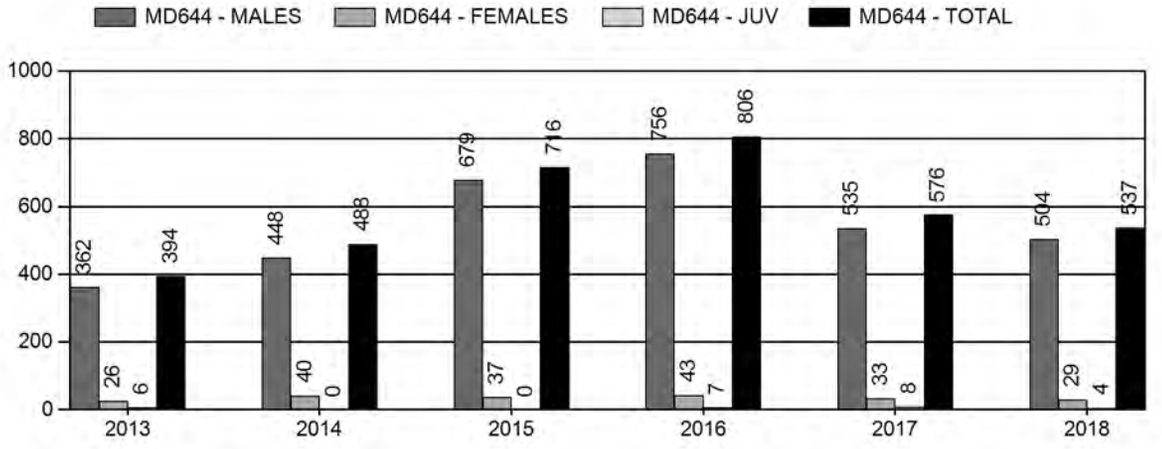
Population Objective (± 20%) :	11000 (8800 - 13200)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-26.0%
Number of years population has been + or - objective in recent trend:	3
Model Date:	2/27/2019

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

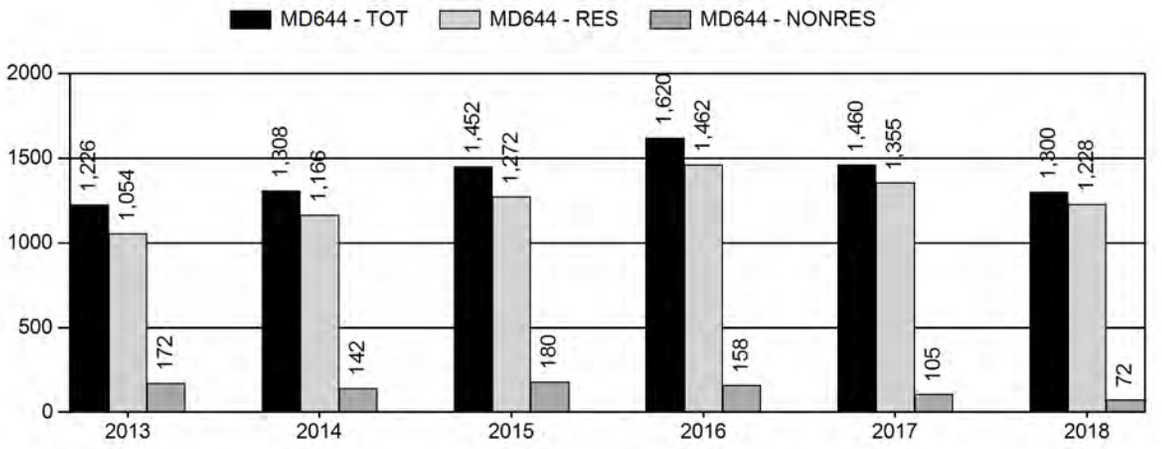
	JCR Year	Proposed
Females ≥ 1 year old:	0.8%	0.8%
Males ≥ 1 year old:	34.0%	32.9%
Total:	6.1%	6.2%
Proposed change in post-season population:	-5.7%	+8.9%



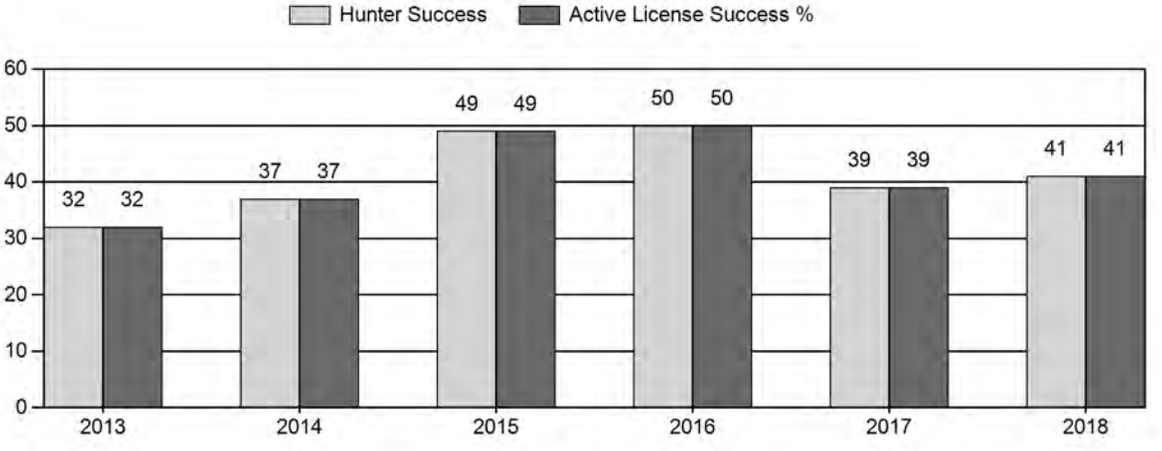
Harvest



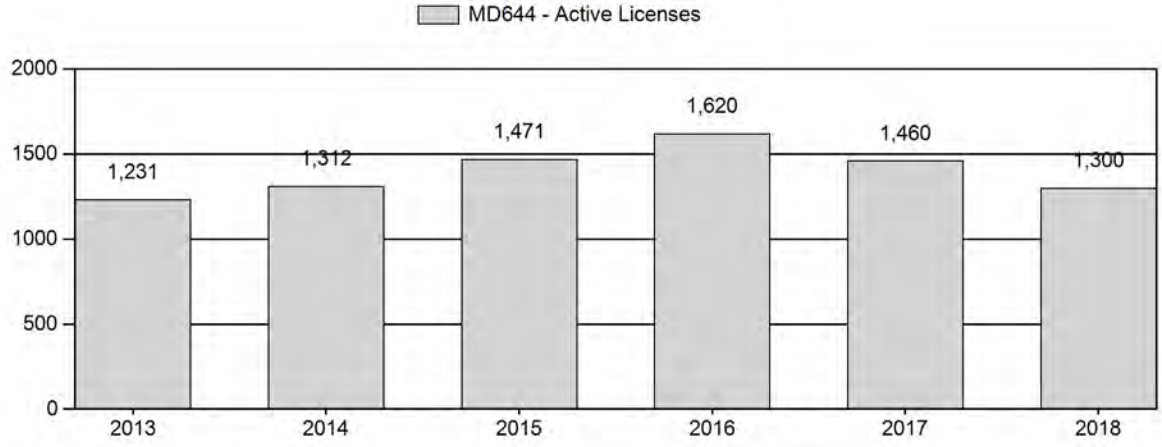
Number of Active Licenses



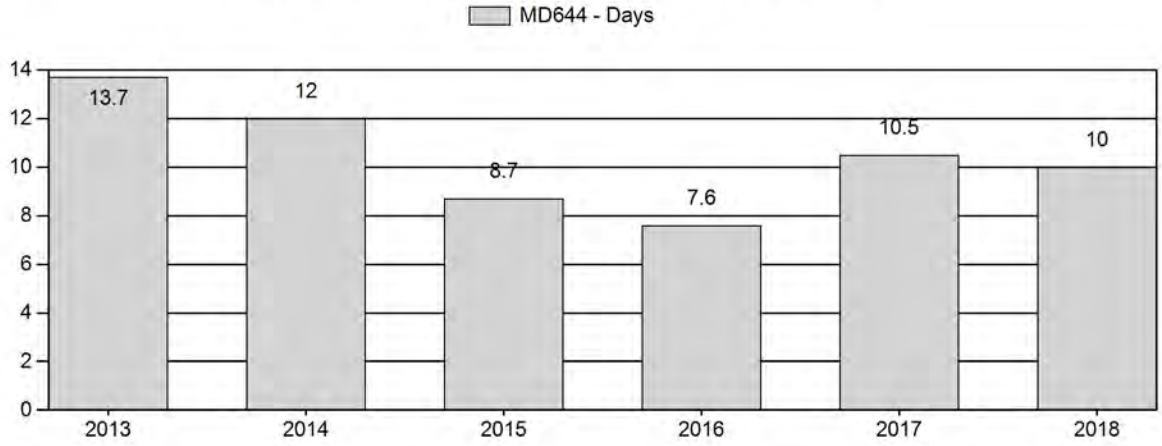
Harvest Success



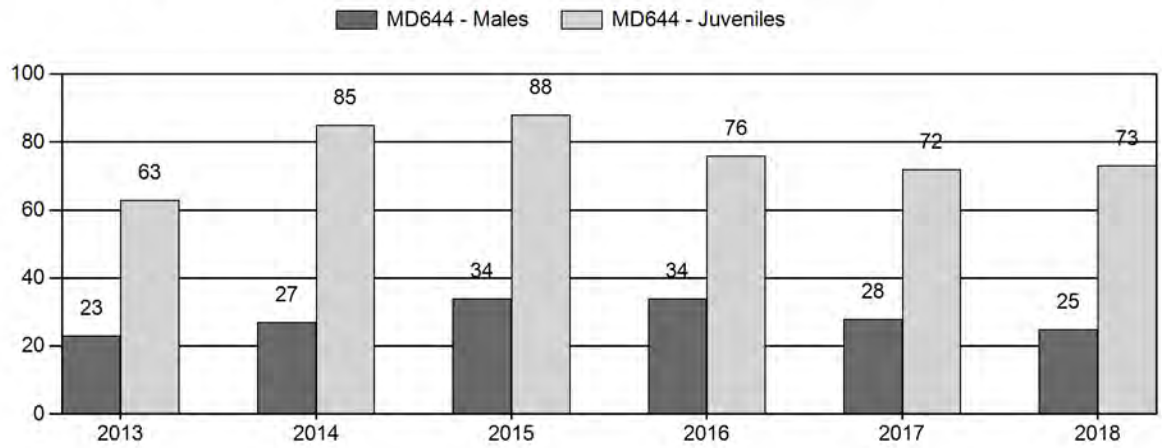
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 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	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	8,754	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	8,143	107	147	78	12	0	344	13%	1,366	51%	993	37%	2,703	1,368	8	17	25	± 2	73	± 3	58

2019 HUNTING SEASONS
South Wind River Mule Deer Herd Unit (MD 644)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
92		Oct. 12	Oct. 22		General Youth License	Any deer
92		Oct. 15	Oct. 22		General	Antlered mule deer or any white-tailed deer
92	6	Oct. 1	Oct. 22	25	Limited Quota	Doe or fawn valid on private land north of the Little Popo Agie River
92, 94, 160	3	Oct. 1	Nov. 30	100	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. 12	Oct. 22		General Youth License	Any deer
94		Oct. 15	Oct. 22		General	Antlered mule deer or any white-tailed deer
160		Oct. 12	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 L Non-Resident Quota: 300

Hunt Area	License Type	Quota Change from 2018
92, 94, 160	3	+25
92	6	+25
Herd Unit Total	**3**	**+25**
	6	**+25**
Region E		**-400**
New Region L		**+300**

MANAGEMENT EVALUATION

Current Post-Season Population Management Objective: 11,000
Management Strategy: Recreation (20-29 bucks/100 does)
2018 Post-season Population Estimate: ~8,150
2018 Post-season Population Estimate: ~8,900

Herd Unit Issues

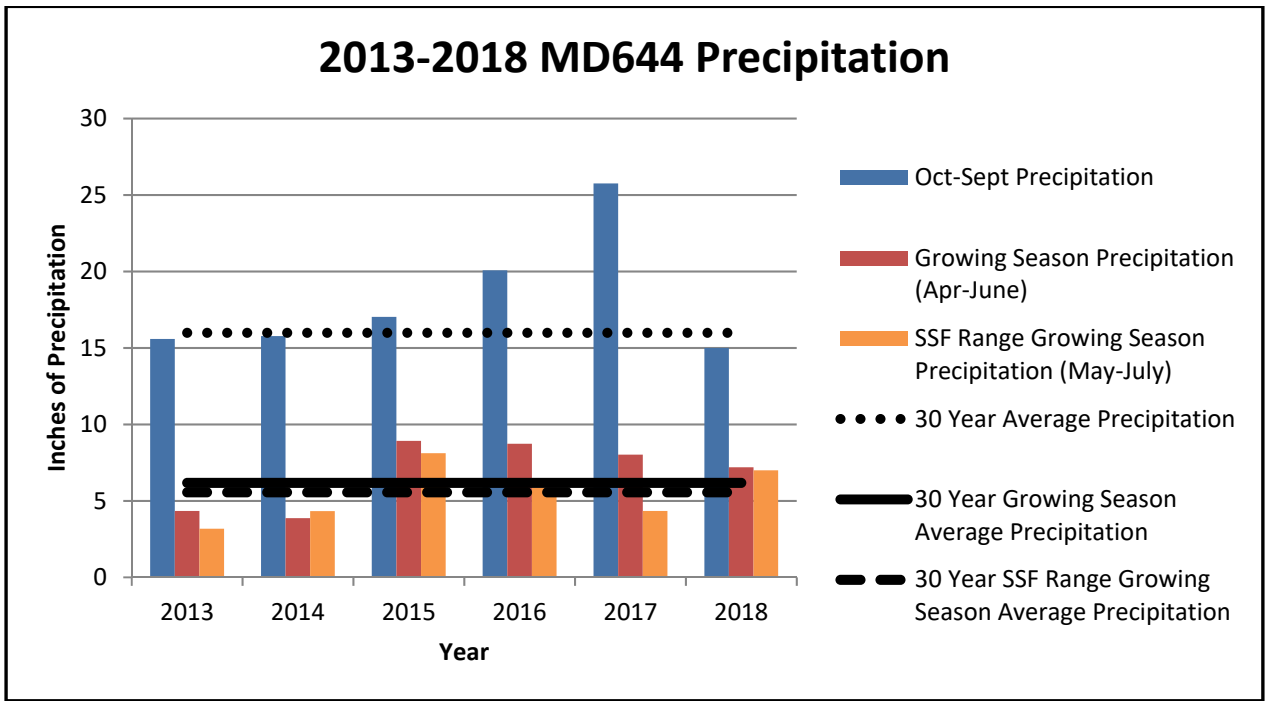
The management objective was reviewed in 2015, and the long-term post-season objective of 13,000 mule deer was reduced to 11,000. The secondary objective of Recreational Management Strategy (20-29 bucks/100 does) will continue. Population growth occurred from 2002 to 2009, but declined from 2010 to 2013, due to poor fawn recruitment as a result of intense drought. Fawn/doe ratios have been good the last three years, but were followed by reduced yearling buck/doe ratios, indicating reduced over-winter fawn survival. An unfortunate error was made in setting up the spreadsheet model in 2017 causing the solver equations to not accurately utilize all data through bio-year 2017. This led to an over-estimate of the 2017 post-season population by slightly more than 1,500 mule deer. The 2017 post-season estimate should have been 8,754 deer

instead of 10,273. In either case, the 2018 post-season population subsequently declined to about 8,150 mule deer, 26% below objective.

Weather

Precipitation

The precipitation from October 2017 through September 2018 was below than the 30 year average. The growing season precipitation (April-June 2018) was slightly higher than the 30 year average, as was the high elevation spring- summer -fall range growing season precipitation. Heavy winter snows contributed the majority of the annual precipitation. 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. The 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.



Winter Conditions

Winter 2018-19 saw below average snowfall in Lander and on most winter ranges, but higher elevations have reached or exceeded average snowpack since mid-January. Lander has had warmer than average temperatures, with November-February having only a few sub-zero temperature readings.

Habitat

Precipitation was average during the spring of 2018 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. Habitat conditions were still good overall, likely contributing to the fawn/doe ratio observed in the South Wind River Herd Unit (73 fawns/100 does).

Lander Region personnel conducted several rapid habitat assessments (RHA) in 2018, in shrub, riparian, and aspen habitats. We have more RHAs scheduled in 2019, for at least 10 each in shrub, aspen, and riparian habitats. We will pay particular attention to mule deer utilization of aspen in RHAs conducted in treatment areas, but also in untreated stands. Results of the RHAs completed in 2018 show good species diversity overall, but indicate most habitats are generally in mid to late-seral states, with moderate to severe herbivory. However, the state and condition of all habitat types 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 206-B3 Jet Ranger helicopter in late-November 2018, and we observed 2,703 mule deer. The sample size was 18% below the average since 2004, when helicopter type was switched to Jet Rangers, and was 950 fewer deer than in 2016. Some of the decline was due to light snow cover in almost all areas flown. This allowed mule deer to be scattered across transition ranges in many places, especially in Hunt Area 92 where deer were observed in higher elevations than normal. The 2018 post-season total buck/doe ratio of 25M/100F also was a decline from 2017, but remains at the middle of the recreational management range. The drop in the buck/doe ratio was partly due to lower fawn survival through winter 2017-18, leading to reduced recruitment of yearling bucks. The fawn/doe ratio increased slightly to 73J/100F in 2018, equaling the average since 2004 when we switched to helicopters that are more efficient for our surveys.

Antler width class data have been collected during post-season classification surveys the past 7 years (Figure 2). In 2018, nearly 74% 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 26% in the Class 2 or 3 widths.

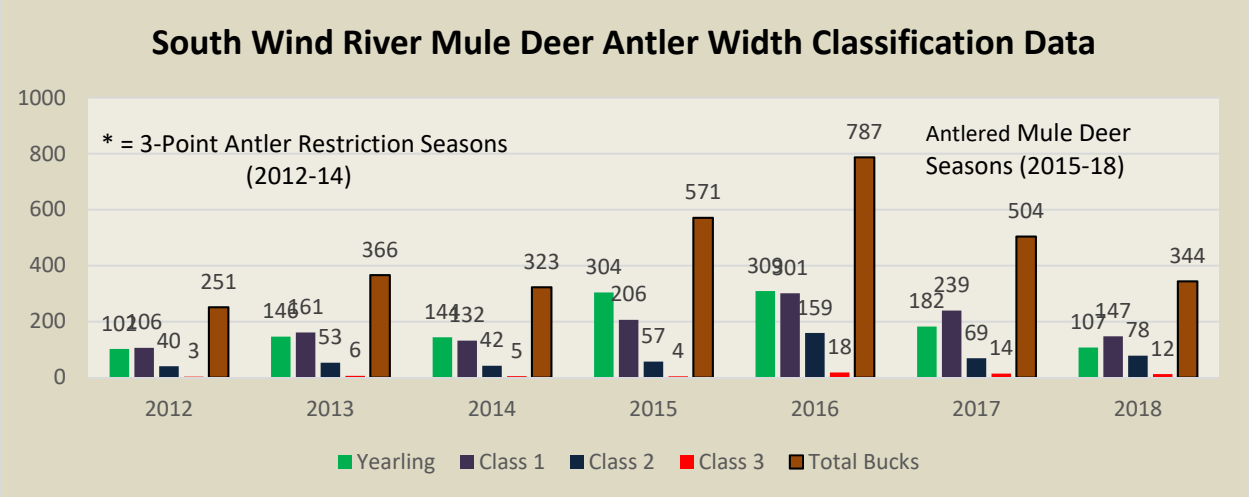


Figure 2. Antler width class data (number of bucks in sample) from classification surveys in the South Wind River Mule Deer Herd Unit, 2012 – 2018.

Harvest Data

Weather during the 2018 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 7% in 2018, with 537 mule deer taken, including 504 bucks, 29 does, and 4 fawns. This decline was not expected considering the good buck/doe ratios observed the previous 3 years. Hunters reported seeing good numbers of does and fawns, but were concerned about seeing fewer adult bucks than desired. Yet, the number of mule deer bucks checked in the field or at check stations increased slightly in 2018, and data collected indicates 23% were yearlings, 47% were Class 1 bucks, with an increase to 29% Class 2 bucks, showing a slight shift in harvest to older age adult bucks (Figure 3). Hunter success was 41%, 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, was 10 days/animal in 2018. Doe/fawn mule deer hunting by youth hunters allowed to hunt for "Any" deer, resulted in minimal harvest of 29 does and 4 fawns.

Antler width class data have been collected since 2012 during field checks and at check stations. Antler widths in field checks did not improve substantially over the previous 6 years, as the proportion of Class 1 bucks harvested increased compared with Class 2 and Class 3 bucks until 2018 when 29% of bucks checked were Class 2 bucks (Figure 2).

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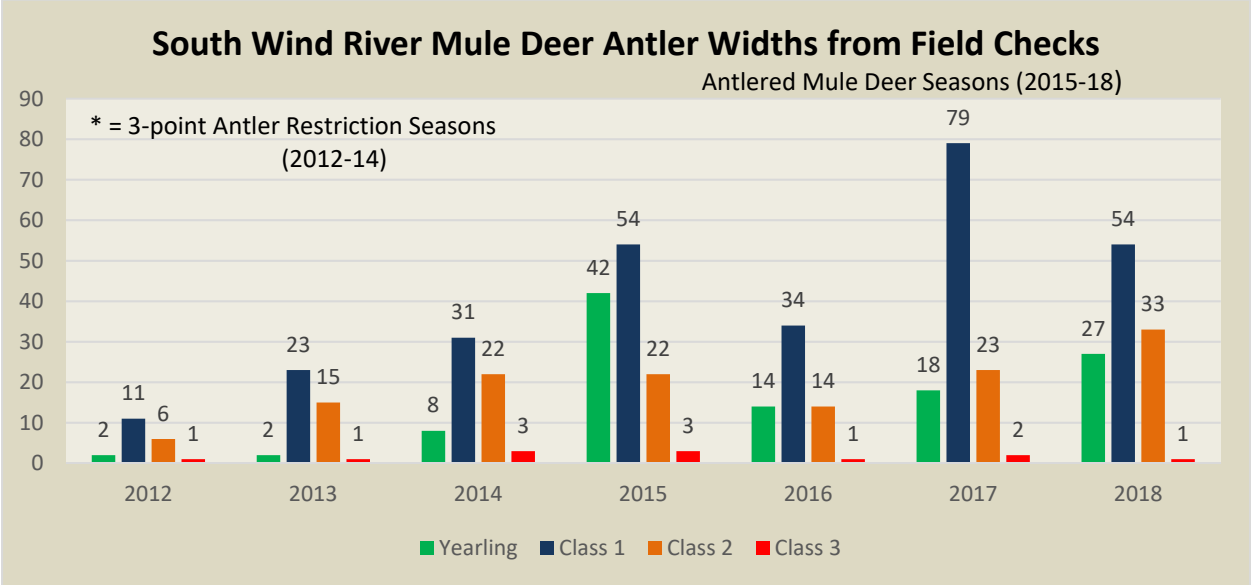


Figure 3. Antler width classes as measured during field checks and at check stations, 2012 – 2018.

Population

A spreadsheet model developed for this population in 2012 has been updated, utilizing 2018 post-season classification and harvest data. As mentioned above in the Herd Unit Issues section, an error was made in the model in 2017, which has now been corrected. The TSJ, CA model was selected as the best-fit model, with the lowest Relative AICc value 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. 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 2018 estimate of 8,143 mule deer. This spreadsheet model (TSJ, CA) is anchored to the sightability estimate and though lacking actual survival metrics is considered a GOOD model.

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, following increased fawn survival and yearling buck recruitment, but dropped slightly in 2017 and again in 2018, with the total buck/doe ratio of 25M/100F at the middle of the Recreational Management range.

Region E's quota had been steadily decreasing over the past several years, driven by hunter densities being greater than desired in Hunt Area 96. To alleviate that and allow us to provide more hunter opportunity elsewhere, Region E has been split into new Regions L and Q. We are setting the 2019 Region L quota at 300 and Region Q at 150. This is a net increase of 50 licenses for the hunt areas that comprised the old Region E. Drawing odds should improve in the new Region L given the bulk of the licenses allocated to "L" represent a disproportionate increase for non-residents desiring this new Region. However, we expect drawing odds for the new Region Q to be lower than in the old Region E due to higher interest from non-residents wanting to hunt in Area 96.

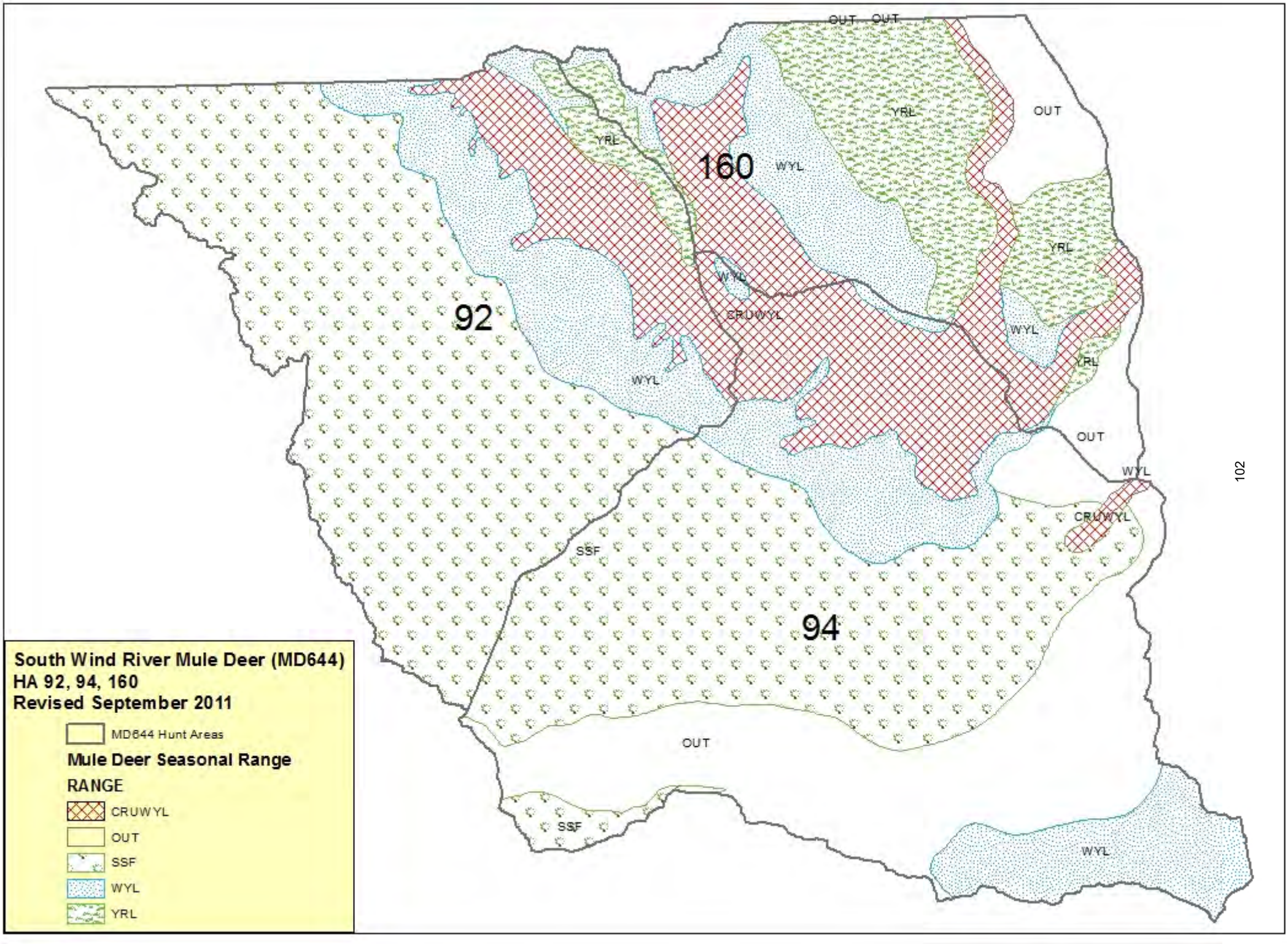
Youth hunters with General Licenses will continue to have extra opportunity in 2019. However, due to concerns about being the only herd unit with youth seasons open in early October and from landowners in areas where youth hunts have been more concentrated, combined with a lower population than desired with declining buck/doe ratios, we are reducing the youth only season to 3 days opening on October 12. Youth hunters may take any deer to continue 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 an increase to 100 Type 3 (Any white-tailed deer) with 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.

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. The last of these collars are schedule to drop off deer on March 15, 2019. 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 2019 season structure should result in a harvest of approximately 585 mule deer, including 550 bucks. Doe and fawn harvest, as allowed by youth hunters and with the new Area 92 Type 6 licenses valid on private land north of the Little Popo Agie River to address damage issues, should result in a harvest of about 35 does and fawns. With anticipated fawn survival, this should allow for population growth, with the 2019 post-season population increasing to 8,900 mule deer.


OUT
OUT
YRL
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160
WYL
YRL
WYL
CRUWYL
92
WYL
WYL
YRL
OUT
WYL
CRUWYL
SSF
94
OUT
SSF
WYL
102
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

2018 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2018 - 5/31/2019

HERD: MD646 - SWEETWATER

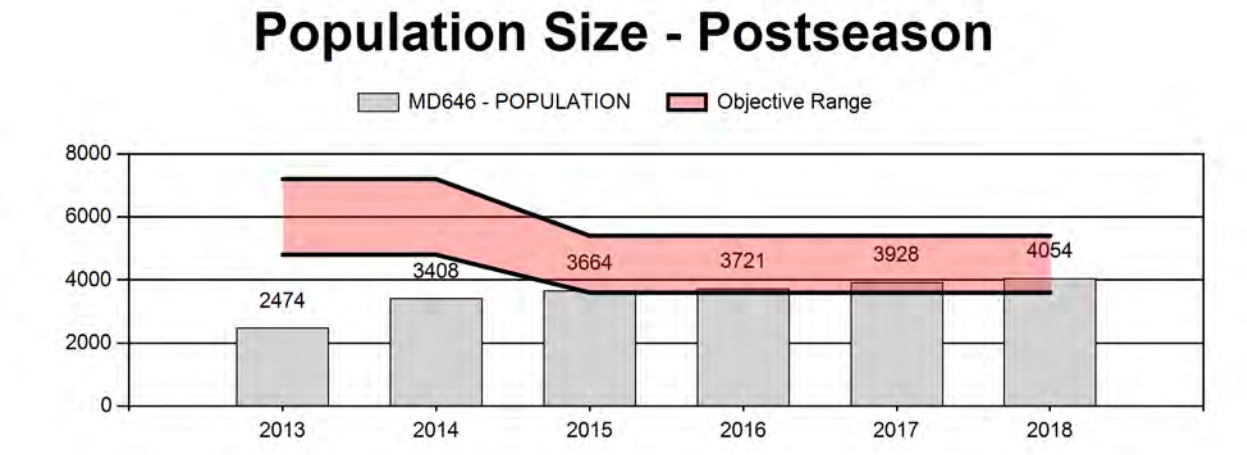
HUNT AREAS: 96-97
PREPARED BY: STAN HARTER

	2013 - 2017 Average	2018	2019 Proposed
Population:	3,439	4,054	4,300
Harvest:	362	409	365
Hunters:	838	780	750
Hunter Success:	43%	52%	49%
Active Licenses:	838	780	750
Active License Success:	43%	52%	49%
Recreation Days:	3,135	2,634	2,500
Days Per Animal:	8.7	6.4	6.8
Males per 100 Females	19	19	
Juveniles per 100 Females	79	76	

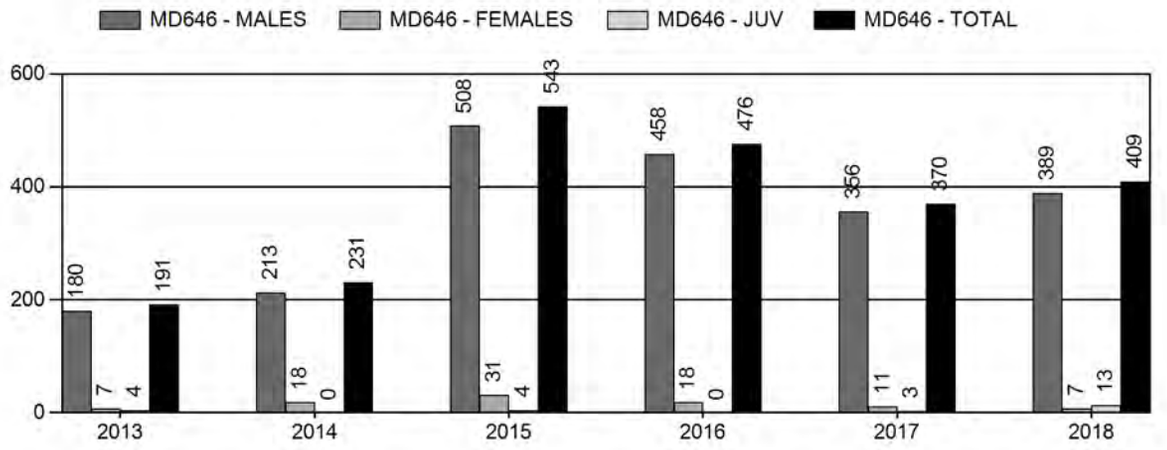
Population Objective (± 20%) :	4500 (3600 - 5400)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-9.9%
Number of years population has been + or - objective in recent trend:	4
Model Date:	02/27/2019

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

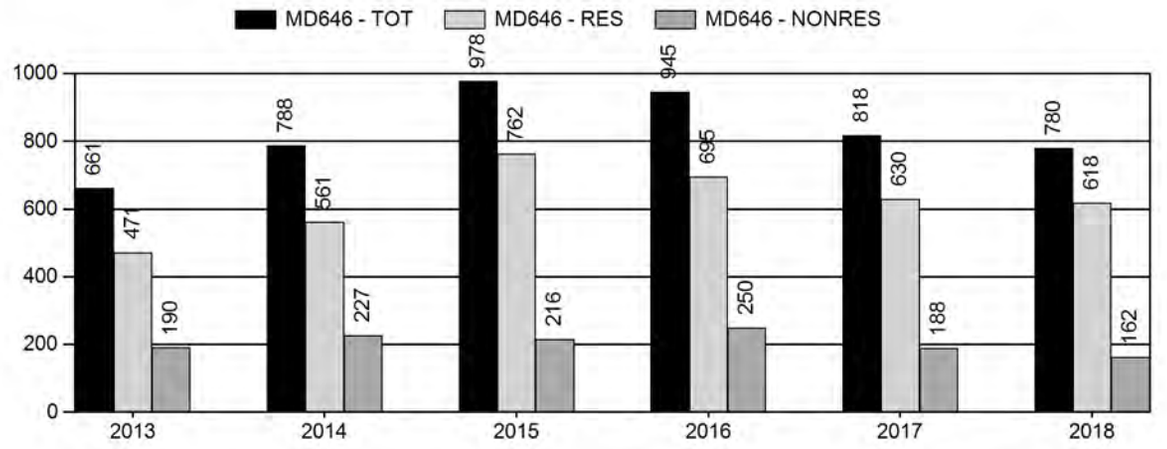
	JCR Year	Proposed
Females ≥ 1 year old:	0.4%	0.5%
Males ≥ 1 year old:	51.7%	46.9%
Total:	9.1%	7.8%
Proposed change in post-season population:	+3.3%	+6.1%



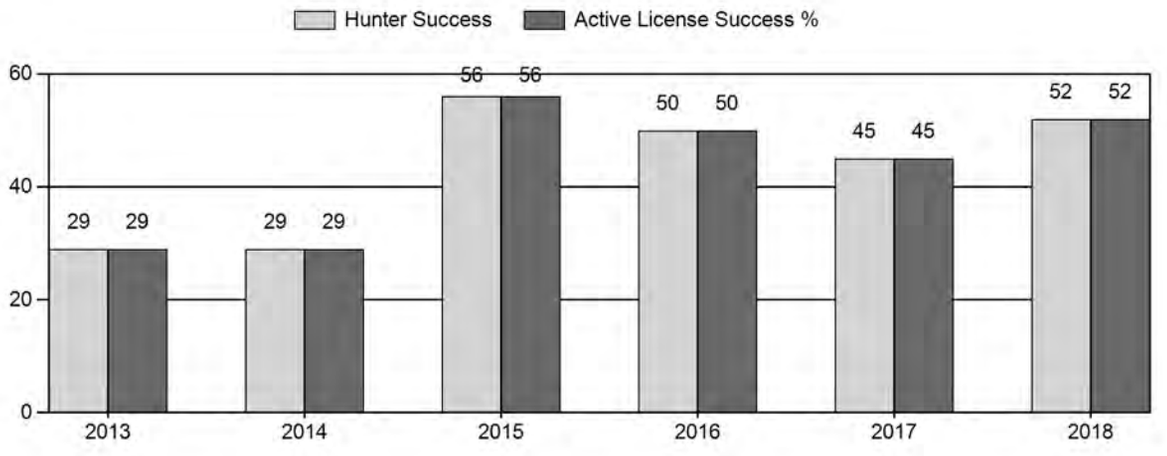
Harvest



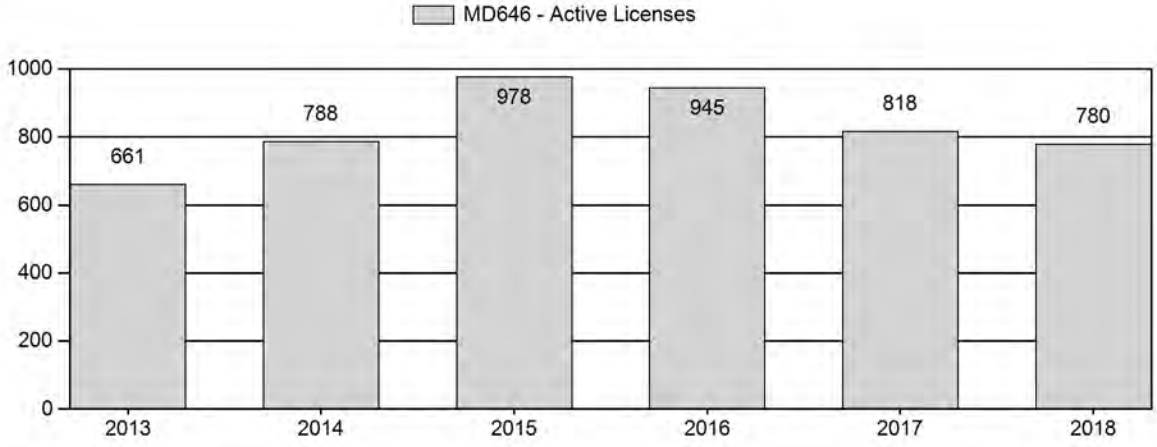
Number of Active Licenses



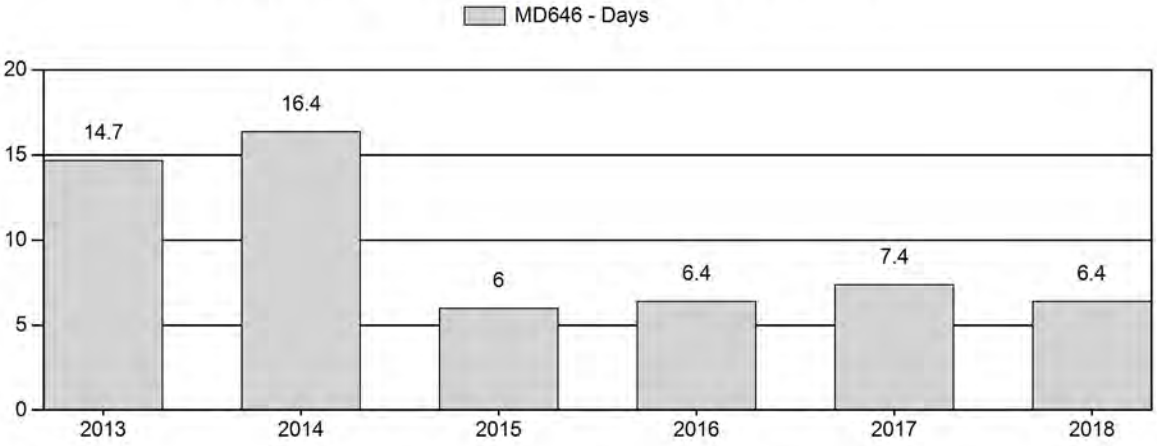
Harvest Success



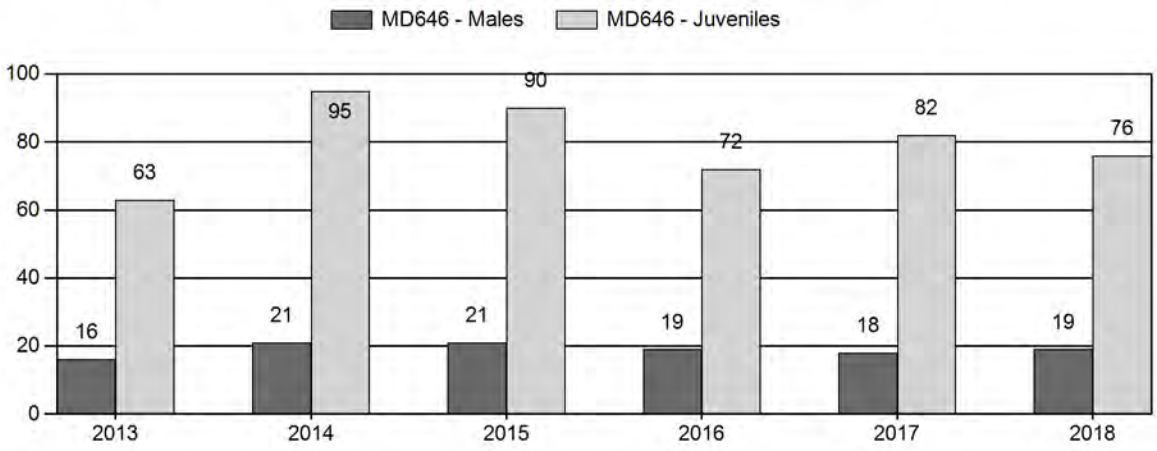
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 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
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	3,928	74	67	16	4	0	161	9%	891	50%	729	41%	1,781	1,308	8	10	18	± 1	82	± 4	69
2018	4,054	49	54	15	1	0	119	10%	616	51%	471	39%	1,206	1,211	8	11	19	± 2	76	± 5	64

2019 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
97		Oct. 15	Oct. 20		General	Antlered mule deer or any white-tailed deer
97	3	Oct. 15	Nov. 30	25	L.Q.	Any white-tailed deer
97	8	Oct. 15	Nov. 30	50	L.Q.	Doe or fawn white-tailed deer
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

Region Q Non-Resident Quota: 150

Hunt Area	Type	Quota Change from 2018
97	ALL	0
Herd Unit Total	**ALL**	**0**
Region E		**-400**
New Region Q		**+150**

MANAGEMENT EVALUATION

Current Post-Season Population Management Objective: 4,500
Management Strategy: Recreation (20-29 bucks/100 does)
2018 Post-season Population Estimate: ~4,050
2019 Post-season Population Estimate: ~4,300

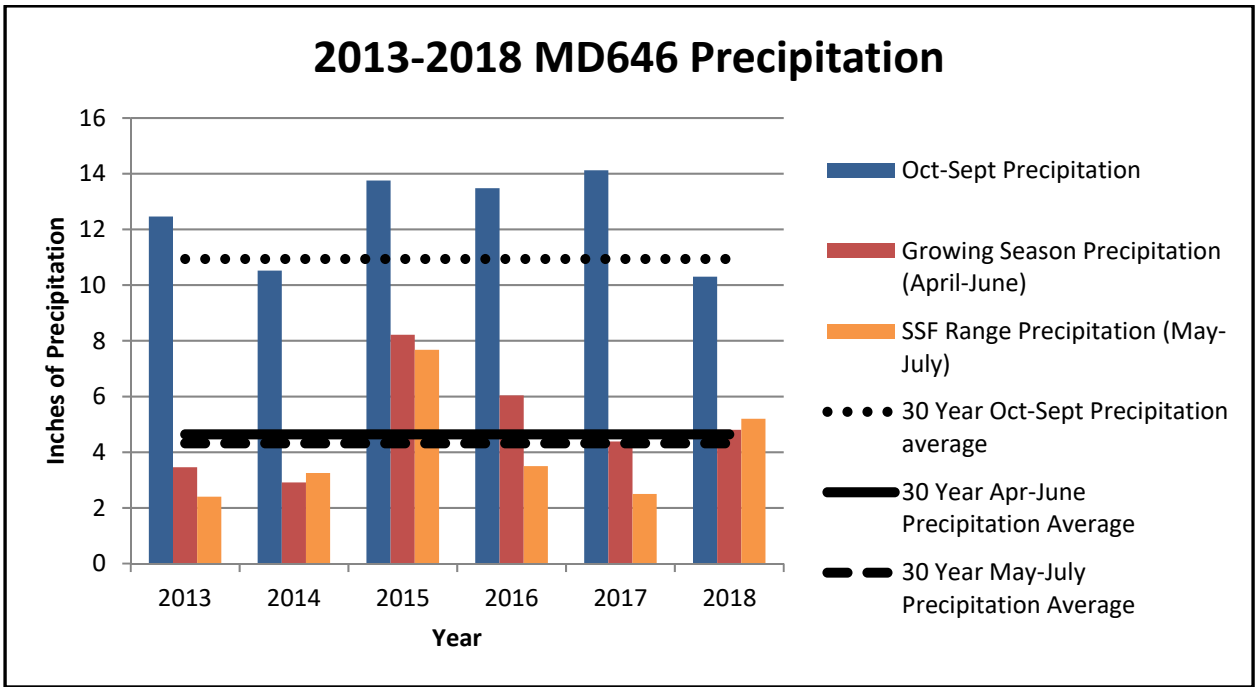
Herd Unit Issues

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 few years, demonstrating the population seems capable of some recovery with improved habitat conditions that follow increased precipitation. We are concerned over-winter fawn survival may be limited, since the observed high fawn/doe ratios do not coincide with subsequent yearling buck/doe ratios or expected population increases. The 2018 post-season population is a little over 4,050 mule deer, 10% below objective.

Weather

Precipitation

The precipitation from October 2017 through September 2018 was lower than the 30-year average. The growing season precipitation (April-June 2018) was at the 30-year average, while the high elevation SSF seasonal range average precipitation (May- July 2018) was slightly above 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. For the Sweetwater Herd Unit, precipitation information is based on 1 weather station located near Jeffrey City, WY.



Winter Conditions

Winter 2018-19 began with below average snowfall, but higher elevations have reached or exceeded average snowpack since mid-January, especially south of Green and Crooks Mountains where no mule deer were seen during the elk trend count in mid-February due to deep snow. Jeffrey City has had near average temperatures this winter, with November-February having fewer than average sub-zero temperature readings.

Habitat

Growing season precipitation was nearly average to slightly above average during the spring/early summer of 2018 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. Habitat conditions were still good overall, likely contributing to the fawn/doe ratio observed in the Sweetwater Herd Unit (76 fawns/100 does).

Lander Region personnel conducted several rapid habitat assessments (RHA) in 2018, in shrub, riparian, and aspen habitats. We have more RHAs scheduled in 2019, for at least 10 each in shrub, aspen, and riparian habitats. Results of the RHAs completed in 2018 show good species diversity overall, but indicate most habitats are generally in mid to late-seral states, with moderate to severe herbivory. However, the state and condition of all habitat types are concerning, and will likely limit population growth and stability, especially in periods of drought.

Field Data

Classification flights were conducted in mid-December 2018, using a Bell 206-B3 Jet Ranger helicopter. Light to moderate 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. As such, we observed 1,206 mule deer, a 32% decline from the number observed in 2017. The 2018 post-season fawn/doe ratio was 76J/100F, which is 4J/100F above the long-term average, but 2J/100F lower than the average since 2004. We observed 42 fewer bucks than in 2017, well below the average since 2004. As such, the overall buck/doe ratio was once again below the recreation management range at 19M/100F. With few yearling bucks observed, the yearling buck/doe ratio stayed at 8YM/100F in 2018, but the adult buck ratio rose slightly to 11AM/100F. Antler width class data have been collected during classification surveys the past 7 years (Figure 1). In 2018, nearly 87% of the mule deer bucks classified in the Sweetwater Herd Unit either were 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.

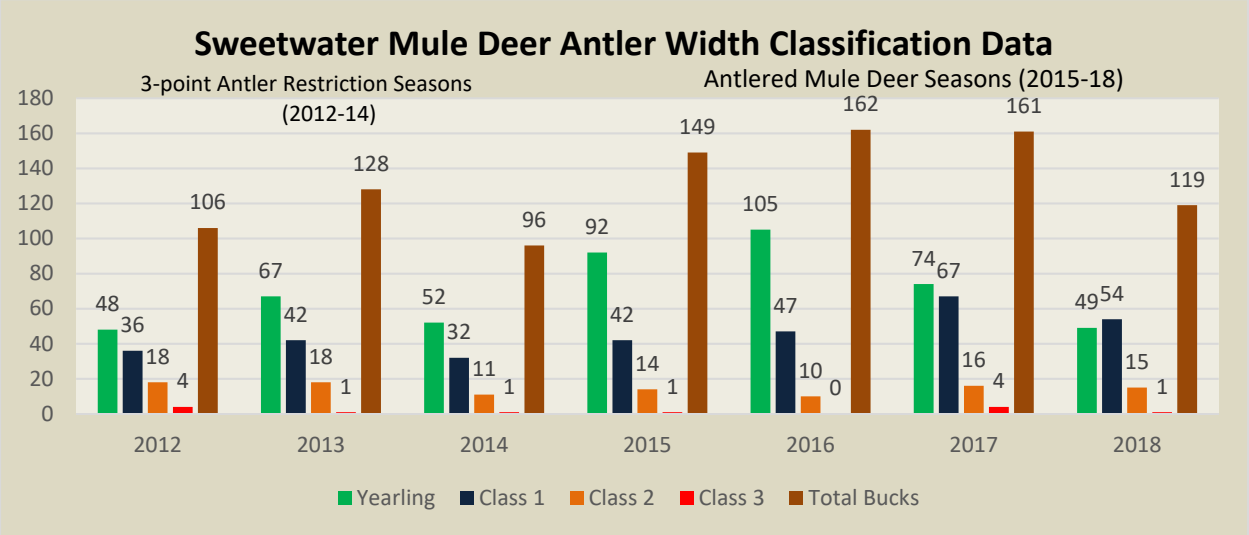


Figure 1. Antler class data from classification surveys in the Sweetwater Mule Deer Herd Unit, 2012 – 2018.

Harvest Data

Weather during the 2018 deer season was once again rather mild in the Sweetwater Herd Unit. Mostly dry conditions allowed hunters to go wherever they pleased. Hunters reported seeing good numbers of does and fawns, but were again concerned about seeing fewer adult bucks than desired. However, the harvest of 389 mule deer bucks was an increase from 2017, and equates to taking 52% of the pre-season bucks from this population, which is unlikely to be sustainable. The adult buck/doe ratio increased slightly to 11AM/100F while the yearling buck/doe ratio stayed at 8YM/100F, increasing the total buck/doe ratio to 19M/100F, extending our concern about continued harvest at such a high level. Overall hunter success increased to 52%, 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 6.4 days/animal in 2018. Antlerless mule deer harvest as allowed by youth and archery hunters, resulted in minimal take of 7 does and 13 fawns.

Antler width class data have been collected since 2012 during field checks and at check stations. Antler widths in field checks did not improve substantially over the previous 6 years, as the proportion of Class 1 bucks harvested increased compared with Class 2 and Class 3 bucks until 2018 when a higher percentage of Class 2 bucks were checked (Figure 2).

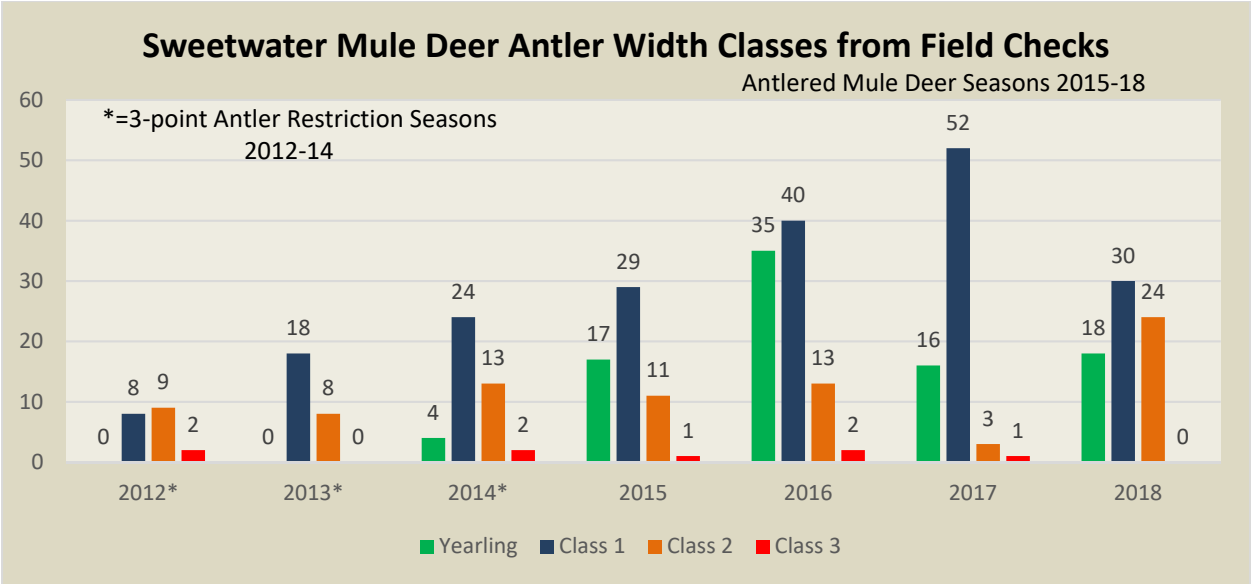


Figure 2. Antler class data as measured during field checks and at check stations, 2012 –2018.

Population

A spreadsheet model developed for this population in 2012 has been updated, utilizing 2018 post-season classification and harvest data. The TSJ/CA model was selected as the best-fit model with the lowest Relative AICc value, 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. Utilizing traditional classification and harvest data, along with this post-season estimate, the spreadsheet model (TSJ/CA) produces a post-season 2018 estimate of 4,054 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 were low again in 2018, and the total buck/doe ratio of 19M/100F is below the low end of the Recreational Management range.

Habitat use mapping will be a key component of a movement study which was initiated in March 2018 with deployment of 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.

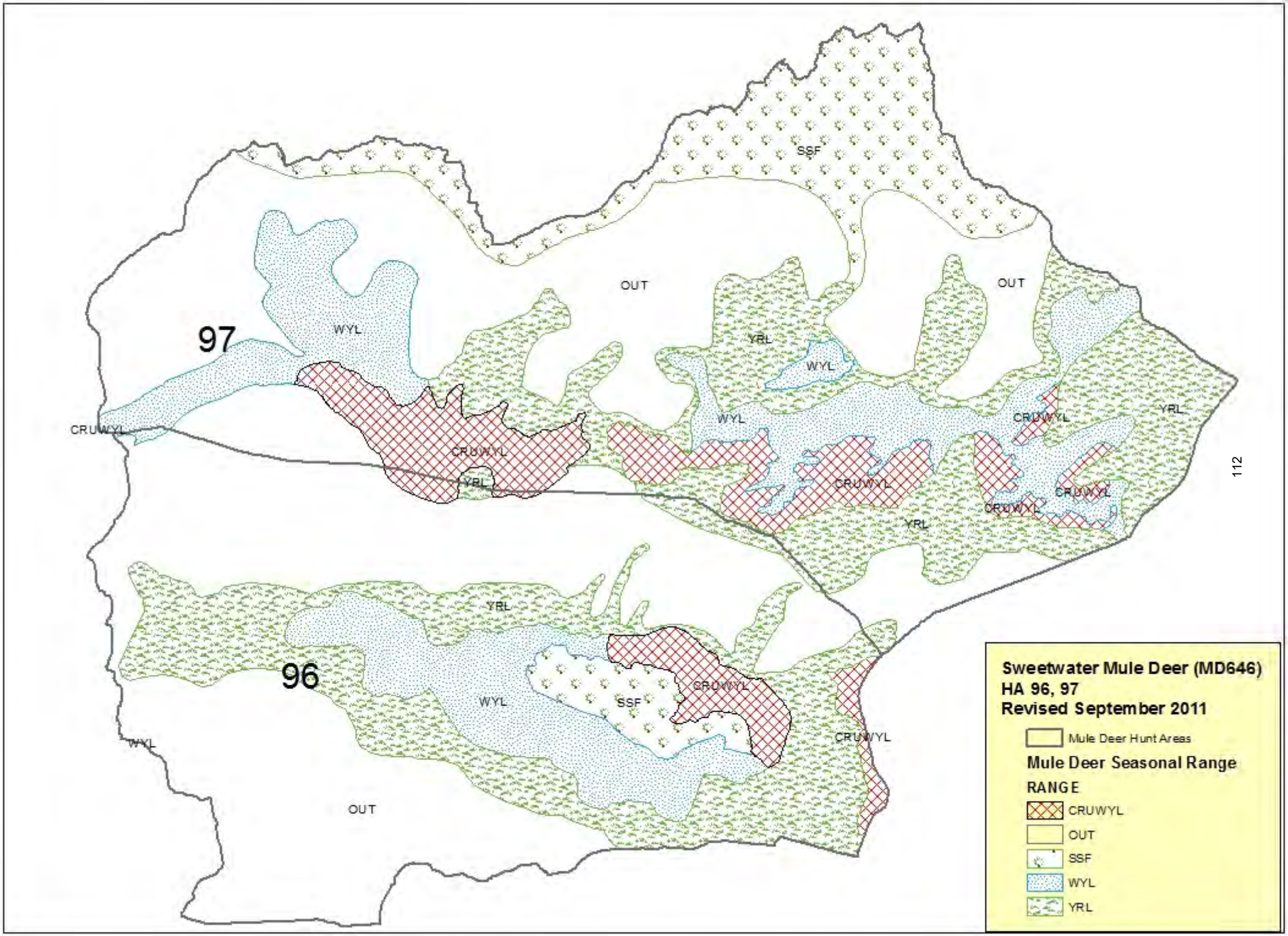
Region E's quota had been steadily decreasing over the past several years, driven by hunter densities being greater than desired in Hunt Area 96. To alleviate that and allow us to provide more hunter opportunity elsewhere, Region E has been split into new Regions L and Q. We are setting the 2019 Region L quota at 300 and Region Q at 150. This is a net increase of 50 licenses for the hunt areas that comprised the old Region E. Drawing odds should improve in the new Region L given the bulk of the licenses allocated to "L" represent a disproportionate increase for non-residents desiring this new Region. However, we expect drawing odds for the new Region Q to be lower than in the old Region E due to higher interest from non-residents wanting to hunt in Area 96.

In addition to changing the non-resident Region, and in response to concern about low buck/doe ratios, we are maintaining the General License season as a 6-day season – beginning on Tuesday and ending on Sunday, to minimize buck harvest to the extent possible. Also, we are not offering a special youth only option in 2019.

If buck/doe ratios remain low even with the change in non-resident general license regions and a shortened season, we will likely need to consider other options to further reduce buck harvest in order to increase buck/doe ratios to desired levels.

Specific hunts for white-tailed deer are again being offered with 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 increase harvest pressure on white-tailed deer where appropriate.

The 2019 season structure should result in a harvest of up to 350 buck mule deer and about 15 does and fawns. With anticipated fawn survival, this should allow for population growth to about 4,300 mule deer following the 2019 hunting season, moving toward objective.


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

2018 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2018 - 5/31/2019

HERD: MD647 - FERRIS

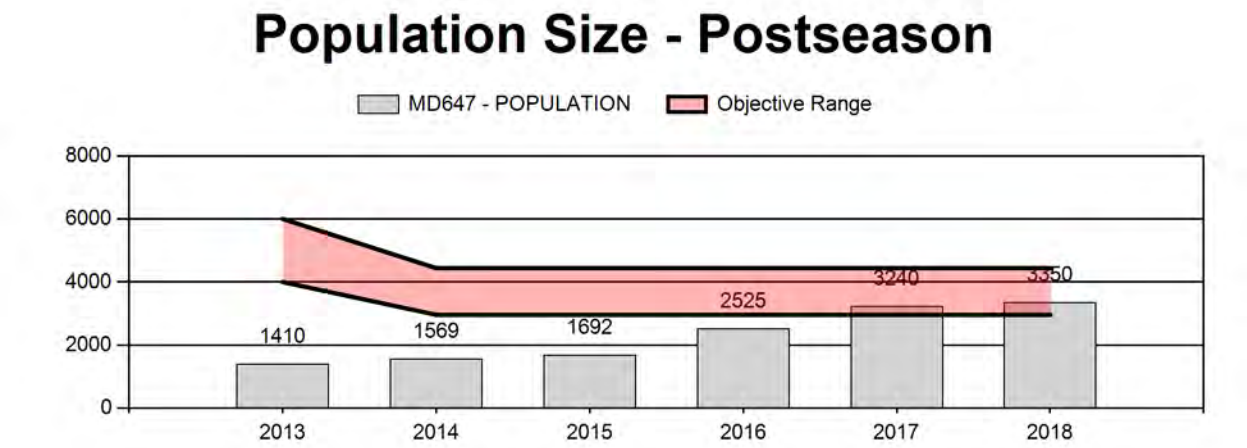
HUNT AREAS: 87
PREPARED BY: GREG HIATT

	2013 - 2017 Average	2018	2019 Proposed
Population:	2,087	3,350	3,831
Harvest:	52	130	115
Hunters:	62	164	140
Hunter Success:	84%	79%	82%
Active Licenses:	62	164	140
Active License Success:	84%	79%	82%
Recreation Days:	288	933	830
Days Per Animal:	5.5	7.2	7.2
Males per 100 Females	51	55	
Juveniles per 100 Females	77	76	

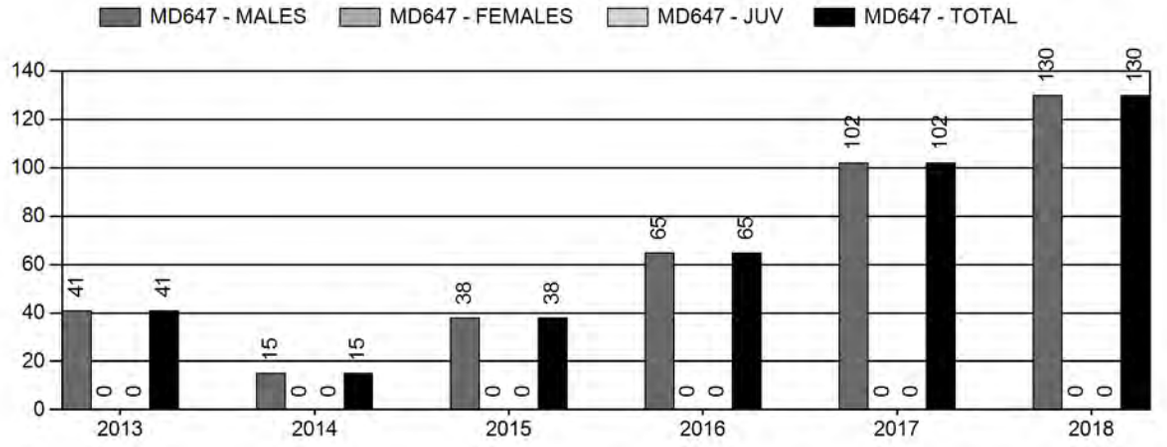
Population Objective (± 20%) :	3700 (2960 - 4440)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-9.5%
Number of years population has been + or - objective in recent trend:	11
Model Date:	2/15/2019

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

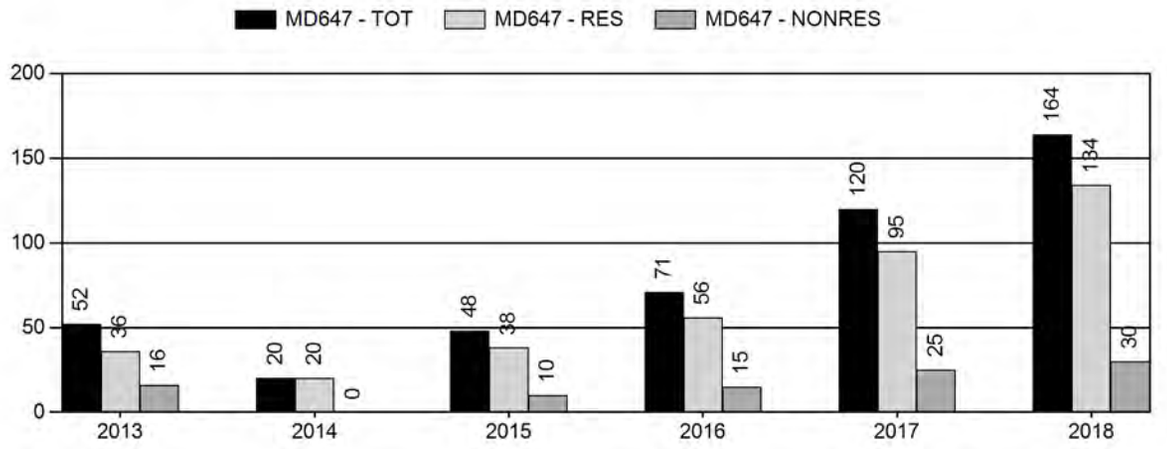
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	13.4%	10.5%
Total:	3.7%	2.9%
Proposed change in post-season population:	-2.6%	14.2%



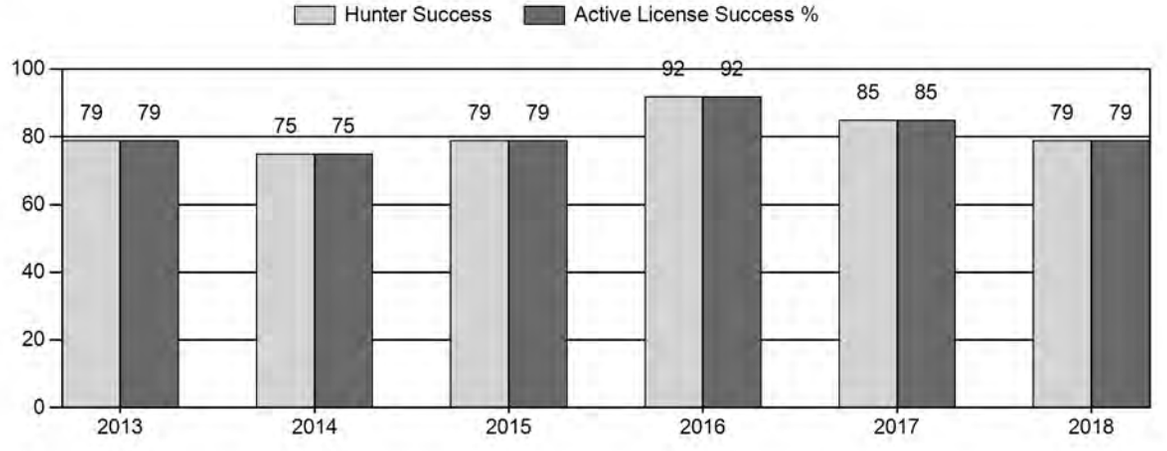
Harvest



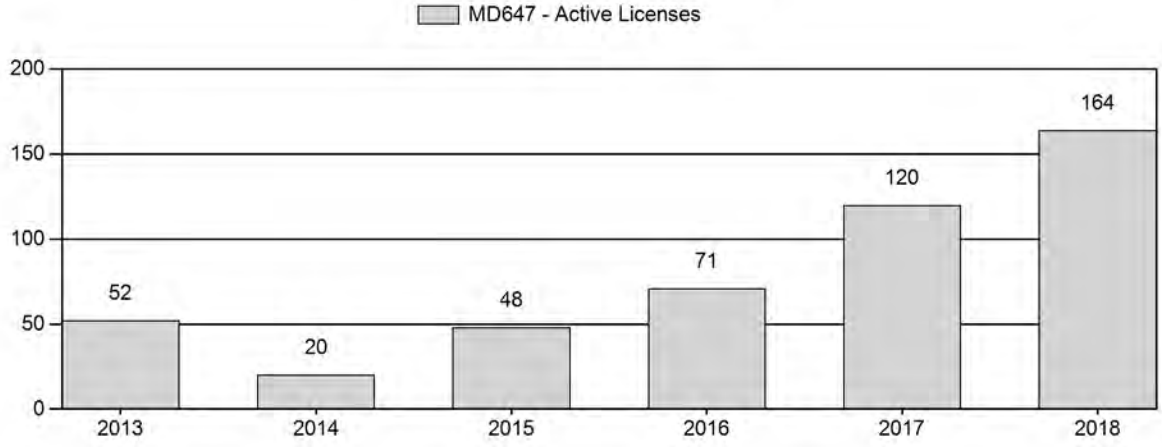
Number of Active Licenses



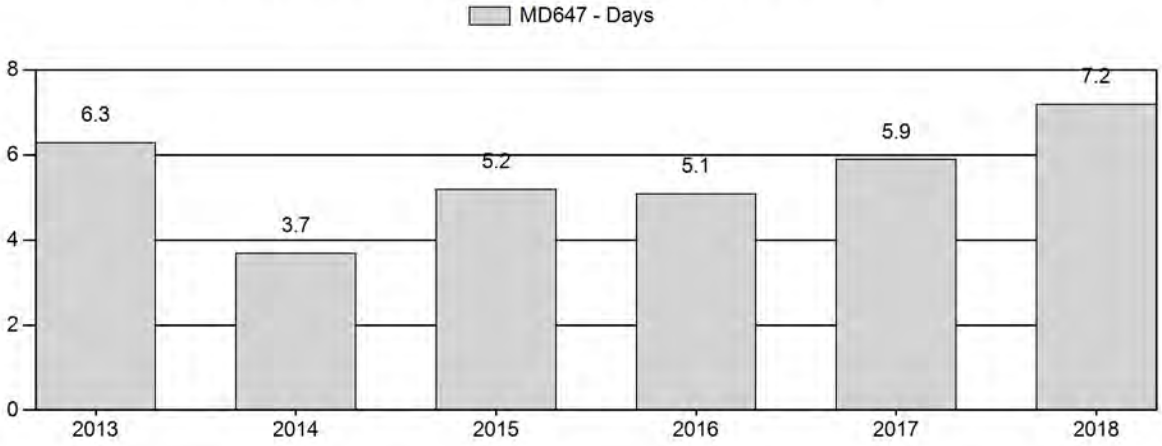
Harvest Success



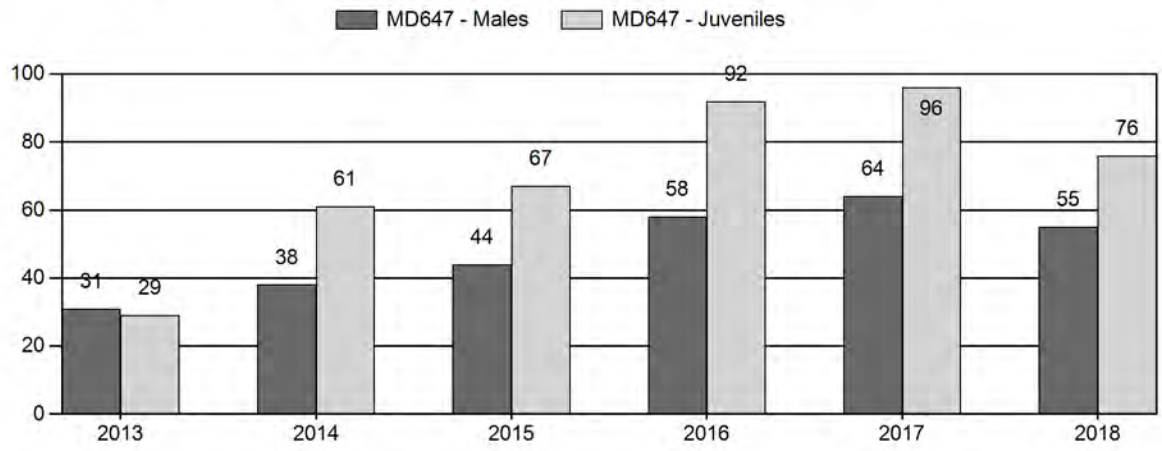
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 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
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	3,350	51	71	102	15	0	239	24%	438	43%	335	33%	1,012	1,265	12	43	55	± 5	76	± 6	49

2019 HUNTING SEASONS
FERRIS MULE DEER HERD (MD647)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	License	Limitations
87	1	Oct. 15	Oct. 31	**150**	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 2018
87	1	-25
Herd Unit Total	**1**	**-25**

Management Evaluation
Current Postseason Population Management Objective: 3,700
Management Strategy: Special
2018 Postseason Population Estimate: 3,350
2019 Proposed Postseason Population Estimate: 3,830

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.

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 2014 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. A Department review in early 2019 found no compelling reason to change the 3,700 posthunt population objective. Landowner and hunter complaints about low deer numbers have abated as the herd approached the new objective. Hunter demand for licenses in this herd remains high, generally requiring maximum preference points for nonresidents. If fawn production and survival allows this herd to exceed the 3,700 objective size, a higher objective should be considered prior to implementing significant doe harvests to control herd size.

The herd was last near objective size in 2007, with the previous peak being prior to the 1992-93 winter. A combination of severe winter, record drought and an outbreak of EHD reduced the herd to a record low of about 1,400 deer in 2013. The herd grew rapidly due to record fawn crops in 2015 and 2016, and is estimated to have been within 10 percent of objective in 2018. 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

Record precipitation in 2015 produced exceptional vegetative growth, improving fawn survival, and was followed by another wet spring in 2016 and good moisture in early 2017. High fawn production was seen in all three years as a result. The summer of 2018 was hot and dry, lowering quantity and quality of forage production and reducing fawn production.

Condition of mule deer going into the 2018-19 winter is expected to have been less than ideal as a result of the hot, dry summer, and condition of winter browse was probably also below average. The 2018-19 winter had numerous extended periods of bitter cold, continuing through March. Much of the winter range was open and available until heavier snowfalls in February and March. Winter losses are expected to be slightly above average.

Habitat

Lack of fire has resulted in decadent shrub stands encroached by conifer in large portions of this herd unit. Prolonged, severe drought has reduced the quantity and quality of forage for mule deer. Two browse transects have been established in this herd unit, but one was burned by fire in 2012 and the other was not read in 2018.

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, but are complicated by other resource concerns.

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, vegetative response from both prescribed and wild fires, and supplemental predator control targeted at deer parturition habitats, fawn production improved to 92:100 in 2016 and a record 96:100 in 2017.

Classification sample size declined in 2018, yielding the smallest sample in four years and failing to meet the statistically desired number for the first time in five years. The drop in sample size is attributed to the survey being conducted 1-2 weeks earlier than normal due to scheduling conflicts, rather than a decline in deer numbers. Deer were found more dispersed than normal, reducing the number found per hour of flight. Fawn production dropped to 76:100 from the record high 96:100 seen in 2017, but was still well above fawn:doe ratios recorded during the past 15 years. The past three years have seen the highest fawn production of the past 15 years. Lowered fawn production was presumably a response to low precipitation during the hot 2018 spring and summer.

License quotas were increased by 40 percent in 2018, and with the increased harvest the buck:doe ratio dropped from 64:100 in 2017 to 55:100. Most of the decrease was in the adult buck:doe ratio, with the yearling buck ratio declining only slightly. While this ratio exceeds the maximum desired for special management, hunter access is greatly restricted to large portions of this herd, yielding segments of the population that are essentially unhunted. The sample includes an unquantifiable but significant proportion of bucks from areas with limited or no public access, inflating the adult buck:doe ratio. This herd is in special management, but only 8 percent of the adult bucks in the sample were Class 3, compared to 5 percent in 2017, 7 percent in 2016 and 9 percent in 2015. Roughly 50 percent were yearlings or Class 1. Given the record high fawn production seen in 2017, the moderate yearling buck ratio suggests fawn survival was reduced during the 2017-18 winter.

Harvest Data

Hunter success dropped to 79 percent from the 85 percent reported in 2017 and the record high 92 percent reported in 2016, but was still near the 5-year average. Hunter effort increased to 7.2 days, above the 5-year average of 5.2 days. 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 130 bucks. This was the largest harvest in nine years.

Antler measurements were collected on 19 percent of the reported harvest. Average spread of field checked adult mule deer bucks from this herd was only 21.5 inches in 2018, with a maximum of 27 inches. Of the 25 adult bucks checked in the field, all had at least one antler with at least 4 points, but only one buck carried an antler with 6 points or more. Despite this herd being in special management, only 12 percent of the 25 bucks were Class 3 bucks, with 28

percent being Class 1. Average number of points per antler was 4.24, and the average maximum antler was 4.52.

With only moderate quality bucks available for harvest, hunter satisfaction for this herd declined to its lowest level since these data were first compiled in 2009 (Figure 1.). The 64 percent satisfaction rating barely meets the minimum that would be expected in a herd with recreational management, much less special management. Hunter dissatisfaction rose to its highest level in the 10 years these data have been collected, at 20 percent. Seven percent of the hunters were strongly dissatisfied with their hunting experience in this special management herd, also a record high. The most common complaint in hunter comments was a lack of mature, trophy bucks.

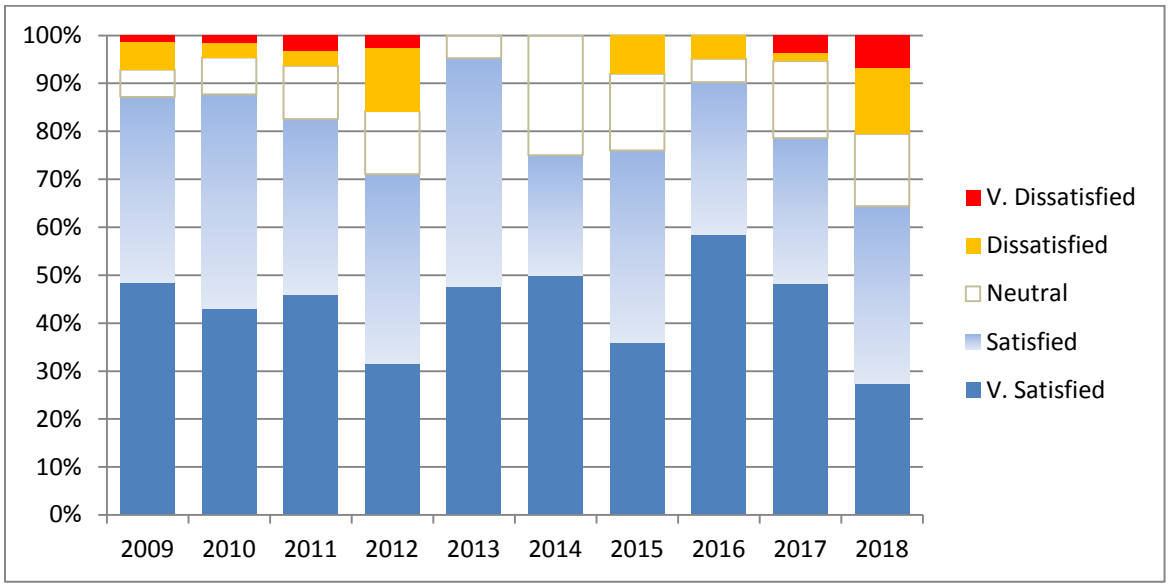


Figure 1. Hunter satisfaction and dissatisfaction for the Ferris Mule Deer Herd.

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 2018 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 midrange between the simpler SCJ,SCA model and 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 2019 was projected at an average rate. The model predicts a slight increase in herd size in 2019, reaching the 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 precipitation returns to levels seen between 2015 and 2017, the large

acreages of treated habitat may improve fawn production and survival and provide for more significant herd growth in the future.

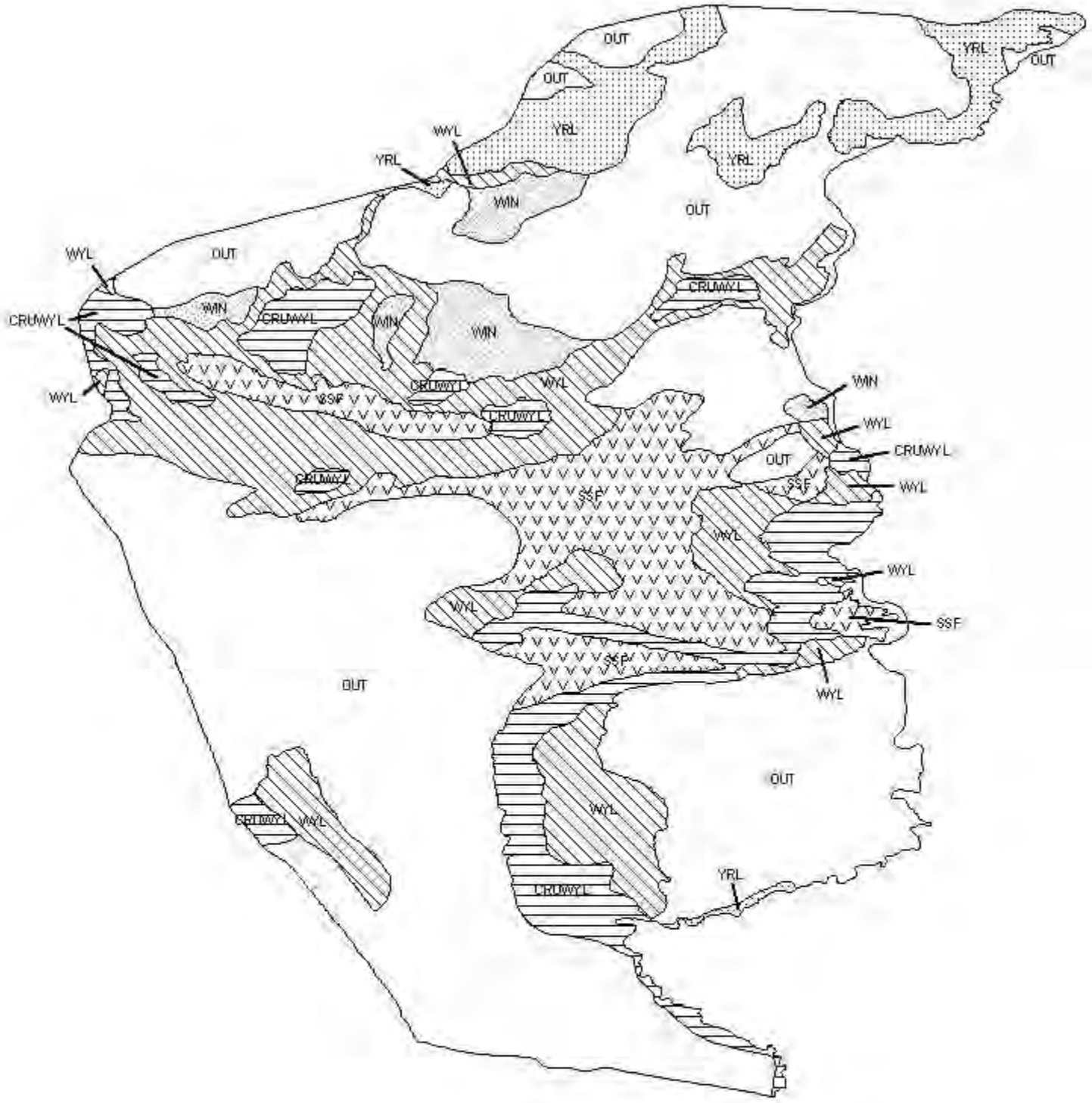
Management Summary

With the low numbers of permits allowed in this herd in recent years, 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. The high quota in 2018 effectively reduced the buck:doe ratio, but generated record dissatisfaction and complaints about low buck quality. Major portions of this herd unit are unavailable to most hunters, skewing classification buck:doe ratios obtained on shared winter ranges with bucks from blocks with minimal harvest. The recommended license quota is reduced by 25 licenses in 2019 to maintain buck ratios on the publicly available portion of this herd and increase the proportion of bucks in the Class 3 category.

Expected harvest would be roughly 115 buck deer. As in the previous 23 years, these licenses are valid only for antlered mule deer during the regular season. As in the previous four years, hunters will also be allowed to harvest any white-tailed deer. The quota is decreased by 14 percent from that available in 2018 but double the 2016 quota and triple the quota in 2015. With the herd still below objective, doe harvest is not yet 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 Q, and is consistent with the application booklets. Closing date is the same as in the previous 19 years. Archery season dates are standard and the same as used in previous years.

If the recent trend in fawn production and survival continues, the 3,700 objective may soon be reached. If so, consideration should be given to publicly considering a higher objective prior to introducing doe harvests to control deer numbers.



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

2018 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2018 - 5/31/2019

HERD: MD648 - BEAVER RIM

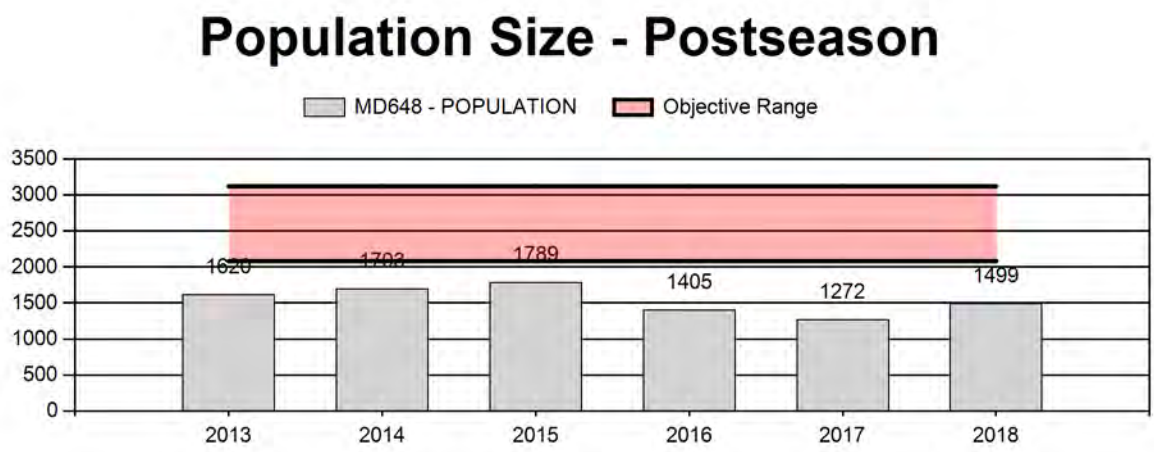
HUNT AREAS: 90
PREPARED BY: GREG ANDERSON

	2013 - 2017 Average	2018	2019 Proposed
Population:	1,558	1,499	1,635
Harvest:	43	61	60
Hunters:	55	68	70
Hunter Success:	78%	90%	86 %
Active Licenses:	55	68	70
Active License Success:	78%	90%	86 %
Recreation Days:	369	382	370
Days Per Animal:	8.6	6.3	6.2
Males per 100 Females	35	57	
Juveniles per 100 Females	52	33	

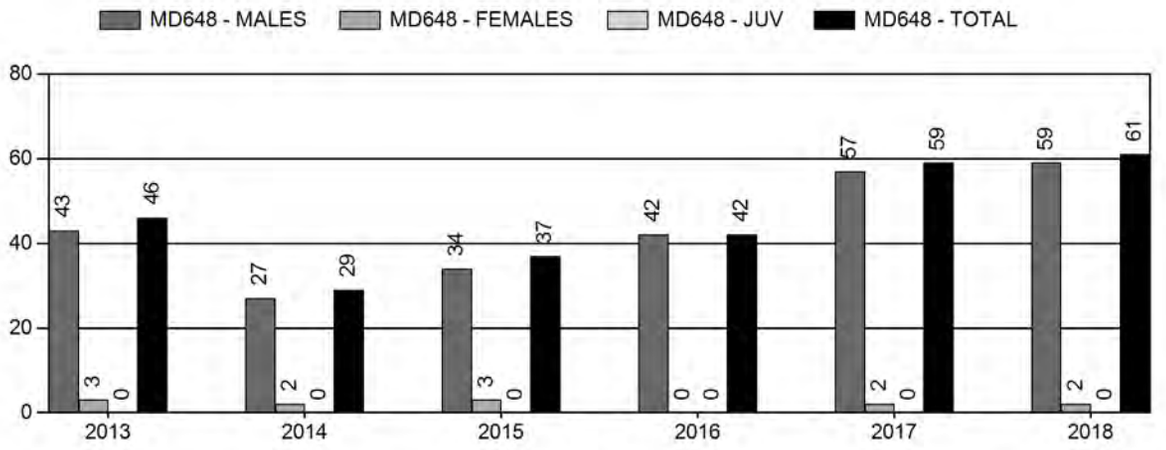
Population Objective (± 20%) :	2600 (2080 - 3120)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-42.3%
Number of years population has been + or - objective in recent trend:	10
Model Date:	02/22/2019

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

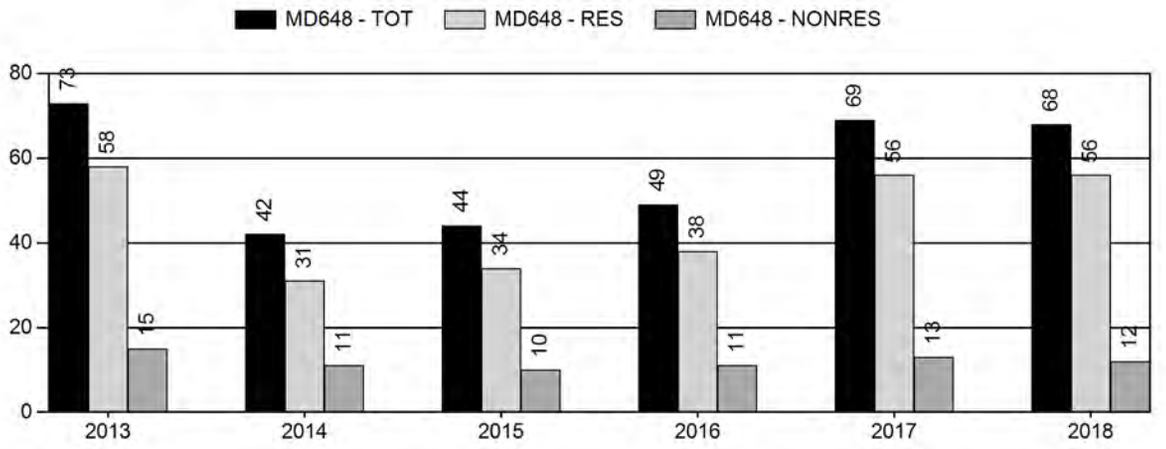
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	15%	16%
Total:	4%	4%
Proposed change in post-season population:	+3%	+9%



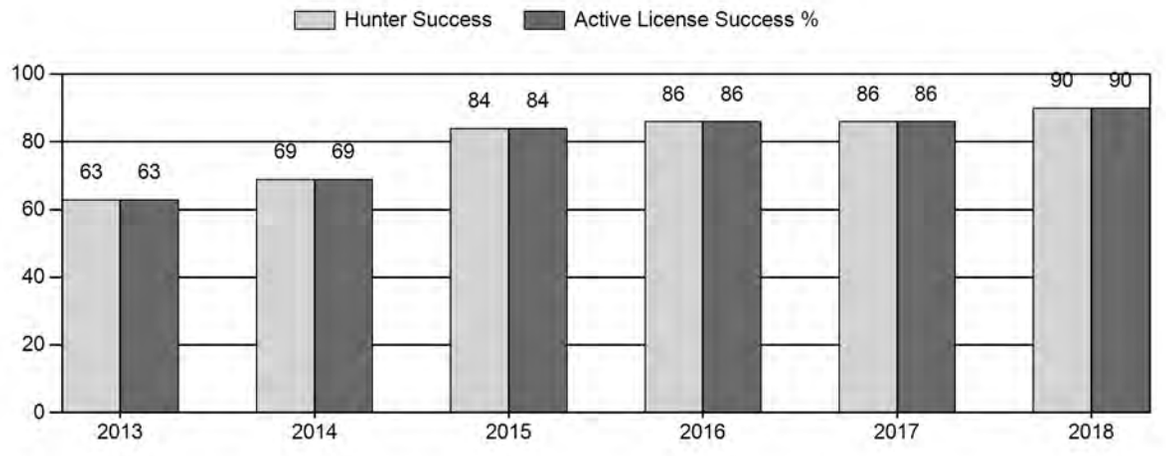
Harvest



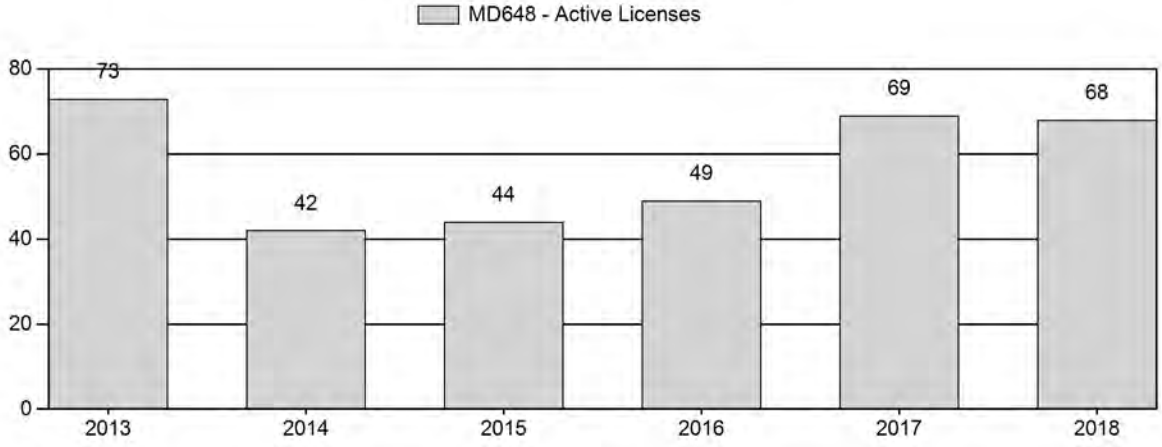
Number of Active Licenses



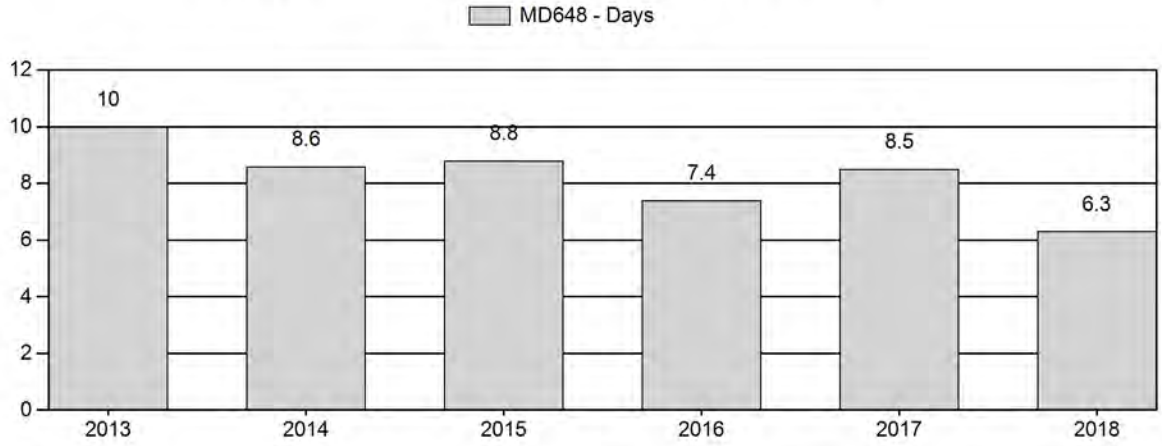
Harvest Success



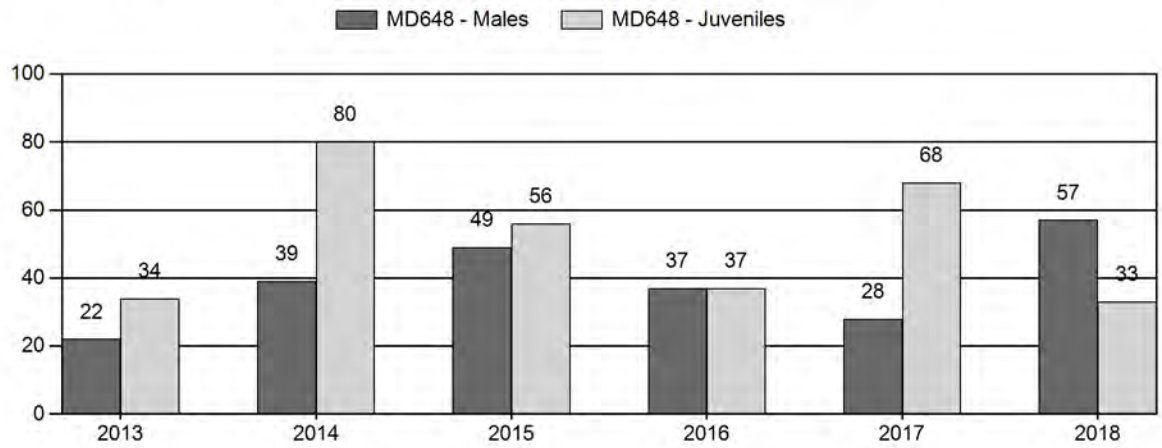
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 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	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	1,499	6	10	28	5	0	49	30%	86	53%	28	17%	163	0	7	50	57	± 12	33	± 9	21

2019 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 2018
90		
Total		

Management Evaluation

Current Postseason Population Management Objective: 2,600
Management Strategy: Special
2018 Postseason Population Estimate: ~1,500
2019 Proposed Postseason Population Estimate: ~1,600

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 2018 appeared to be good in June. For the remainder of summer, there was virtually no precipitation through the area and temperatures were high resulting in early vegetation curing. Casual observations as well as the current population model suggest the population is well below objective but has been fairly stable over the past 4 years.

Habitat/Weather

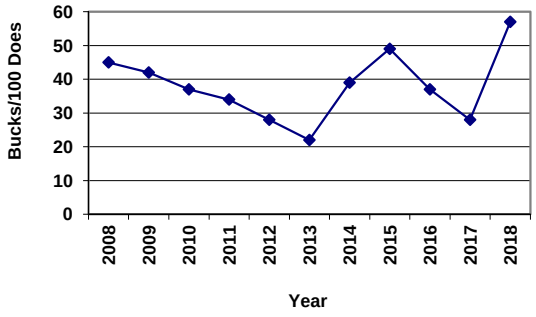
This area has been impacted by extreme drought for much of the last decade. Virtually no vegetation grew throughout the herd unit in 2012 and 2013. In 2018 weather conditions resulted in fair herbaceous production throughout central Wyoming during the early growing season. In

June, 2018 precipitation declined below average in the area. That combined with warm temperatures resulted in early curing of vegetation in the area. The arid conditions throughout mid- to late summer appear to have impacted fawn production as the fawn/doe ratio was significantly lower than the 2017 ratio.

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. This was particularly true in 2018 when personnel only classified 163 deer. The desired sample for calculating age/sex ratios was 640. Conditions were particularly mild in November, 2018 with little snow cover resulting in above average deer dispersal across the landscape making them 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 2018 yielded a fawn/doe ratio of 33/100. This was much lower than the 2017 ratio of 68/100 as well as the five year average of 55/100. Since winter was not particularly harsh it is suspected the low fawn/doe ratio is the result of early vegetation curing in the area and poor mid-summer nutrition. The buck/doe ratio in 2018 was 57/100. This was a 29/100 jump from the 2017 ratio of 28/100. This is not biologically realistic and is undoubtedly an artifact of the low sample size. As such, the buck/doe ratio in 2018 should be considered unknown. That said, there have been other years where the buck/doe ratio fluctuated significantly compared to adjacent years. Again, this is 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 and in 2018 5 of 43 (12%) 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 2018, hunter success was 90%. While this was higher than the five year average of 78% it was very similar to the success rates of the past 3 years (Fig. 2). During the same time period the days/animal statistic varied from 8.8 in 2015 to 6.3 in 2018 (Fig. 3). Taken in combination, harvest statistics and classification data indicate hunt quality has been fairly stable over the past 3 years with a slight improvement in 2018.

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

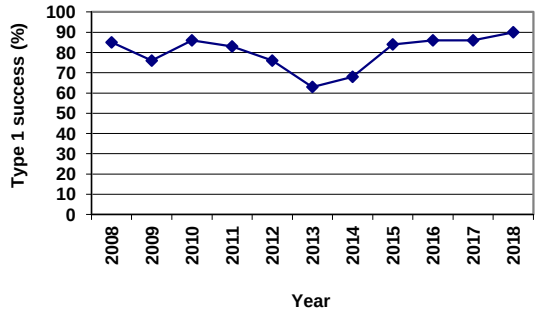
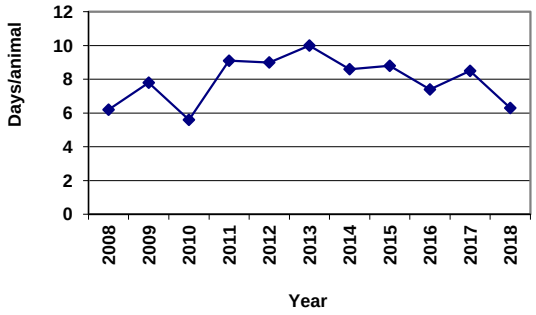


Figure 3. Type 1 license days/animal statistic

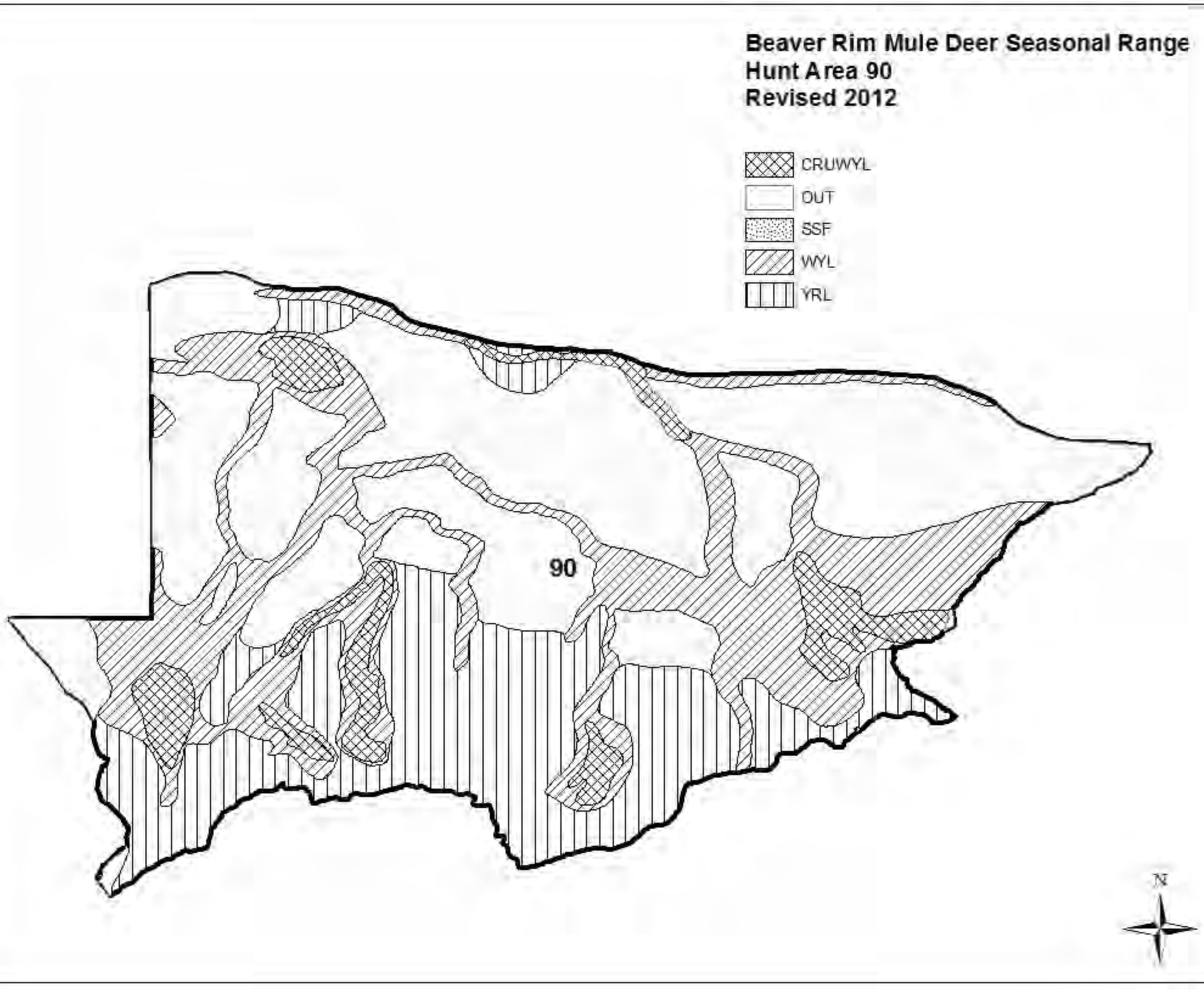


A spreadsheet model was developed for this population in 2012. The addition of 2013 and 2014 data did not dramatically change the estimates produced by the model. The SCJ/SCA model appeared to provide the best fit in both 2013 and 2014, however, with the addition of data in 2015, the model inexplicably 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 and 2018 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 4 years. Again, addition of 2018 data did not change any population trends produced by the model and had minimal effect on the overall estimates (2018 model estimates were generally within 15% of the previous year's model). The 2018 population estimate is approximately 1,500 deer and is 43% below objective. Given average reproduction and survival, the population is expected to grow slightly to 1,600 deer in 2019. 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 5 years. The population is still well below objective but hunt quality has been similar for several years. In response, Type 1 licenses will remain unchanged for 2019 to provide the same hunting opportunity as the

last several years in the area. Given average winter conditions, it is expected this population will grow slightly to 1,600 deer in 2019.


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

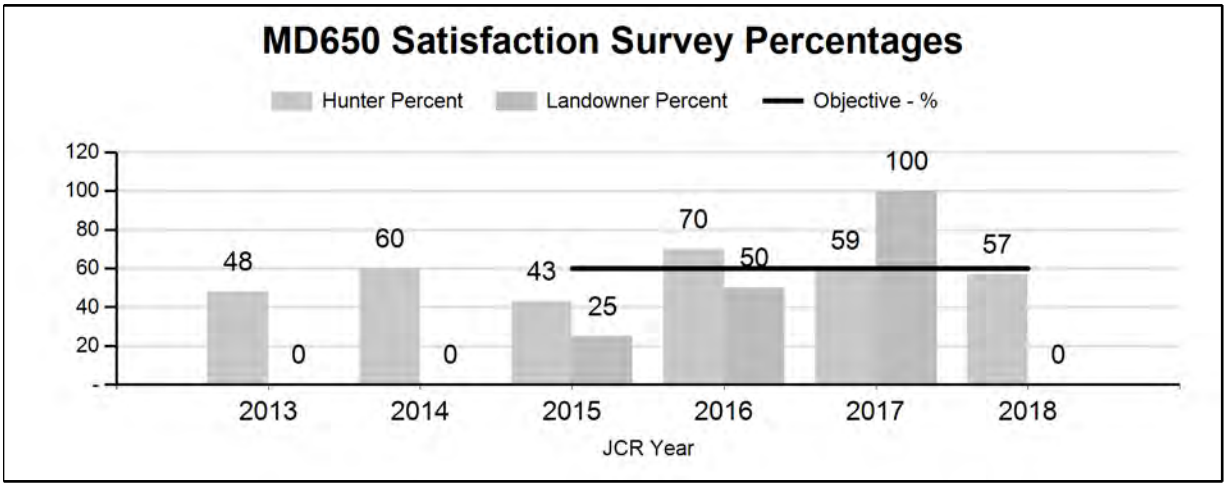
2018 - JCR Evaluation Form

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

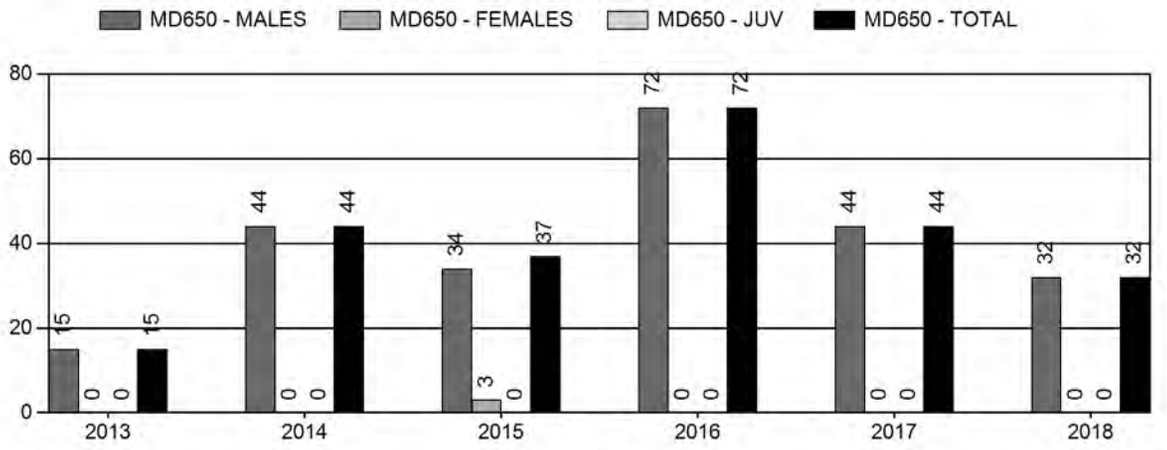
PERIOD: 6/1/2018 - 5/31/2019
PREPARED BY: GREG HIATT

	2013 - 2017 Average	2018	2019 Proposed
Hunter Satisfaction Percent	59%	57%	60%
Landowner Satisfaction Percent	58%	0%	60%
Harvest:	42	32	40
Hunters:	107	83	105
Hunter Success:	39%	39%	38 %
Active Licenses:	107	83	105
Active License Success:	39%	39%	38 %
Recreation Days:	381	271	350
Days Per Animal:	9.1	8.5	8.8
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	

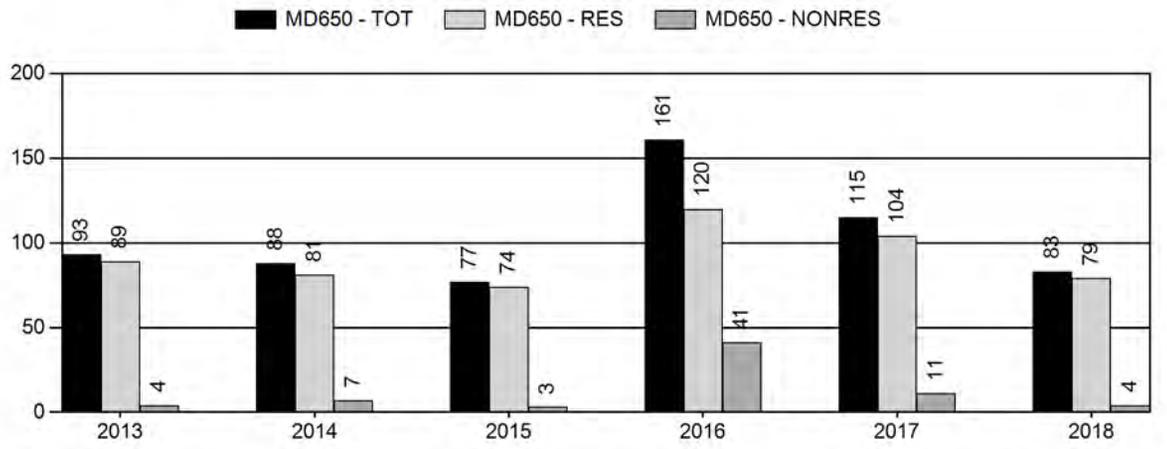
Satisfaction Based Objective	60%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	2



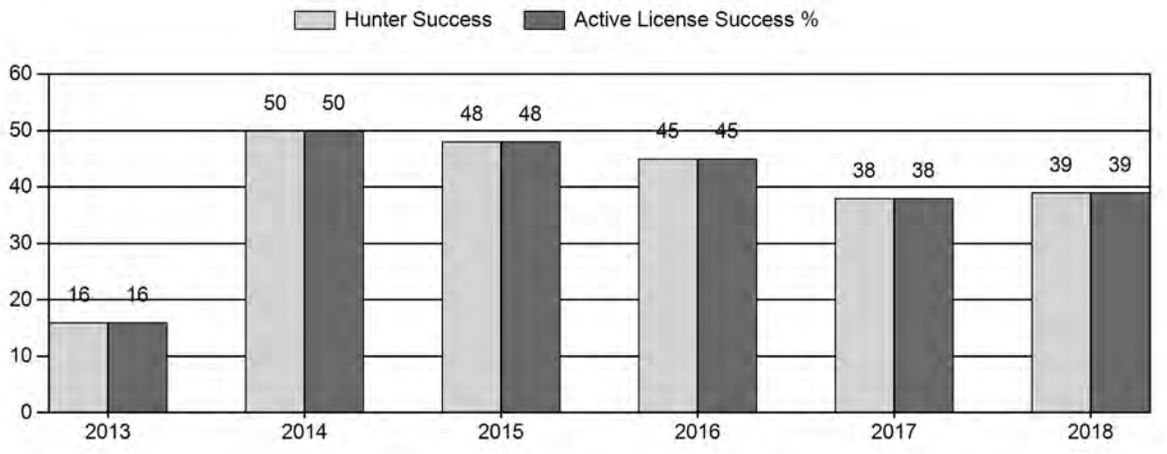
Harvest



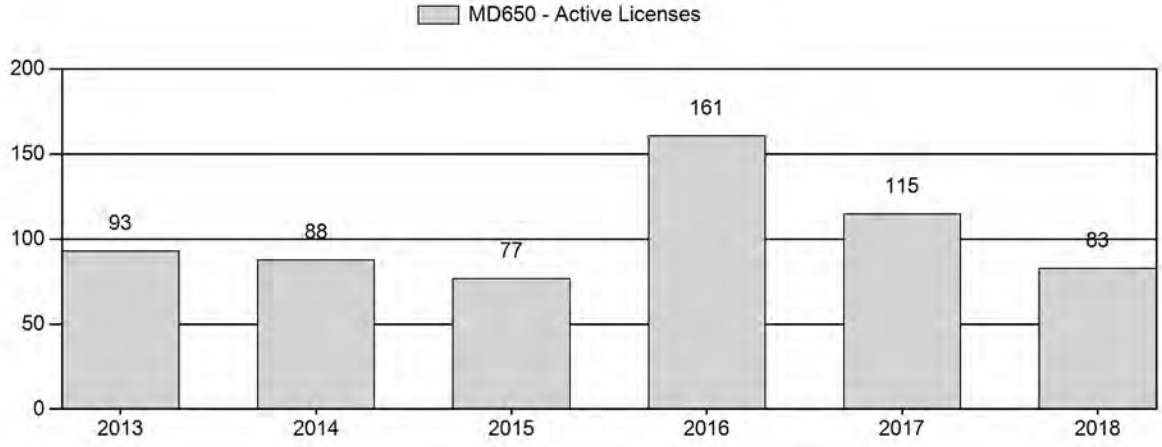
Number of Active Licenses



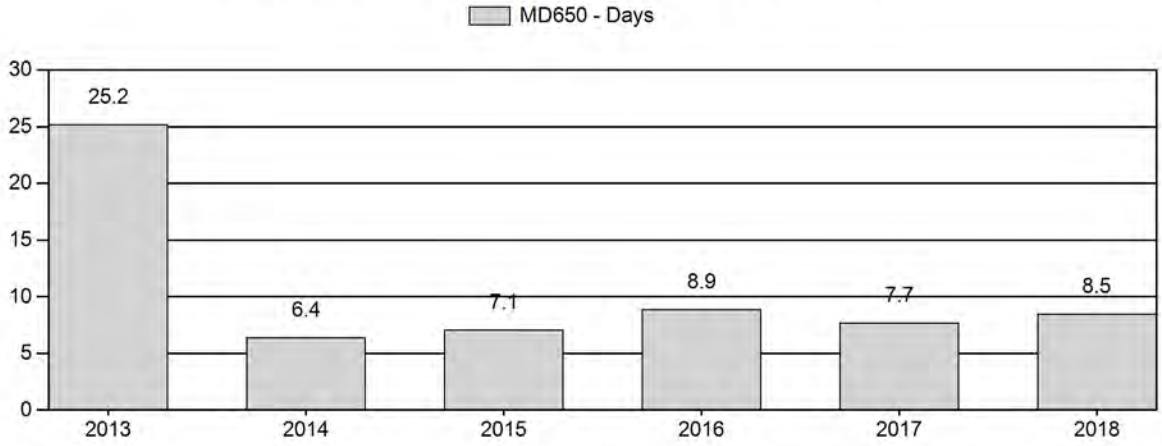
Harvest Success



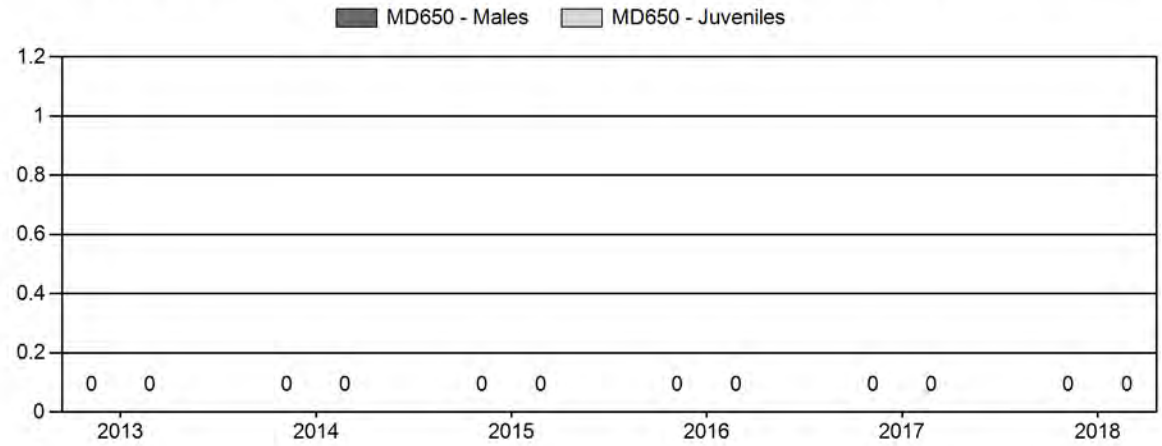
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Mule Deer Herd MD650 - CHAIN LAKES

		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
2013	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2014	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2015	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2016	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2017	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2018	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

2019 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 2018
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

2018 Hunter Satisfaction Estimate: 57%

2018 Landowner Satisfaction Estimate: 0%

2018 Hunter Success: 39%

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.

This herd unit encompasses most of the city of Rawlins, where issues with urban deer have been increasing. Along with the typical problems associated with damage to landscaping and vehicle collisions, chronic wasting disease has been documented within town deer, increasing demands from some public for management of deer within the town.

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. The summer of 2018 was hot and dry, lowering quantity and quality of forage production and presumably reducing fawn production. Condition of mule deer going into the 2018-19 winter is expected to have been average or less than average. The 2018-19 winter had numerous extended periods of bitter cold, continuing through February. Much of the winter range was open and available until heavier snowfalls in February and March, which blanketed the western and northern portions of the herd unit with deep snow. Winter losses are expected to have been above average.

Habitat

Only one shrub transect has been established in this herd unit, on the Chain Lakes WHMA, but was not read in 2018. Shrub production presumably declined with the low moisture and high temperatures of the 2018 spring and summer. Many sagebrush plants that had appeared dead from drought in 2013 produced small but viable sprouts of green growth beginning in 2015, but this recovery may have been held back by this year's drought. While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to low in 2018.

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 2019. These combined muzzleloader and archery seasons, used for the past 36 years, have been popular with both resident and nonresident hunters. Hunter numbers declined to 83 in 2018, below the 5-year average of 107 for this herd.

Hunter success remained stable in 2018, below the levels enjoyed during 2014-2016, but comparable to success enjoyed prior to losses in 2012 and 2013. The average number of days hunted for each harvested deer increased slightly, to 8.5 days. As in 2016 and 2017, no antlerless deer were reported in the 2018 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. Only one of the 32 bucks reported in the harvest was checked in the field, a 5-point with 25 inch spread.

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. 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, efforts were made to personally query major landowners queried on their satisfaction with deer numbers in 2018. The single respondent was “somewhat” dissatisfied with deer numbers and buck quality.

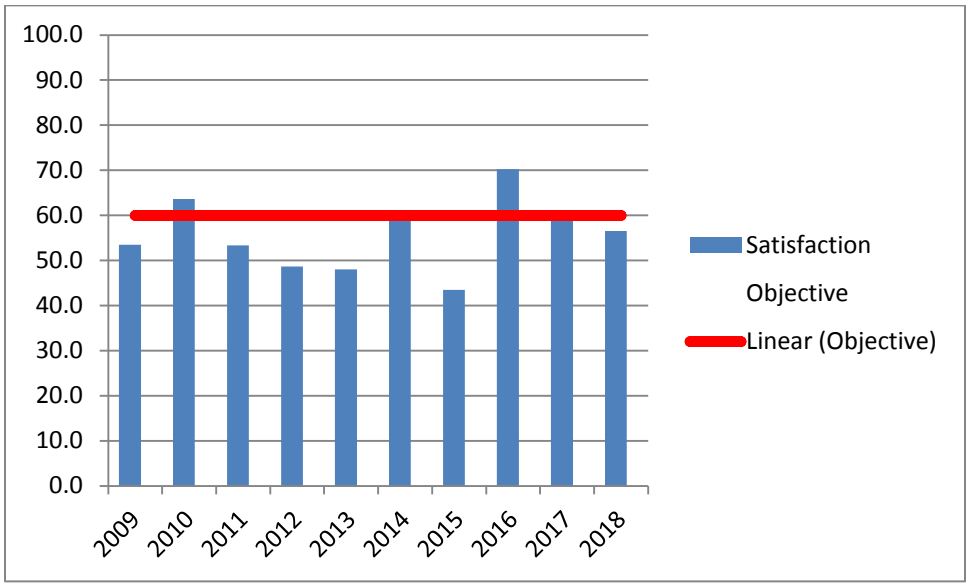


Figure 1. Hunter satisfaction for the Chain Lakes Mule deer Herd.

Hunter satisfaction exceeded the objective of 60 percent in 2016 for the first time since losses in the 2011 winter (Figure 1.), but fell slightly below objective again in 2017 and more significantly below in 2018. Hunter dissatisfaction with the number of deer they see in this herd in 2018 approached that seen prior to 2014 and 2015 (Figure 2.), with a increased proportion reportedly “strongly dissatisfied” over deer numbers. With landowner and hunter satisfaction failing the 60 percent criterion, hunting seasons and harvests should remain conservative.

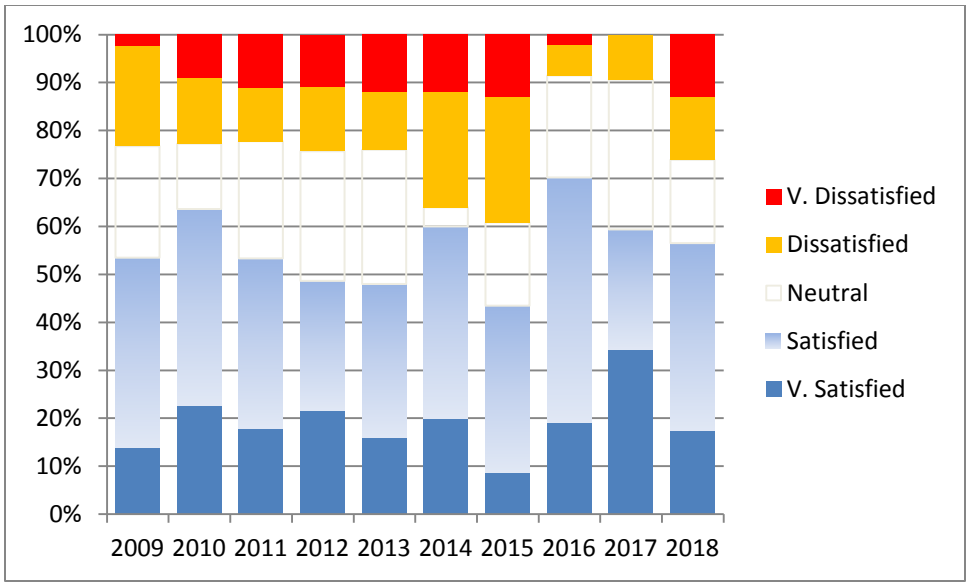


Figure 2. Hunter satisfaction and dissatisfaction for the Chain Lakes Mule Deer Herd.

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.

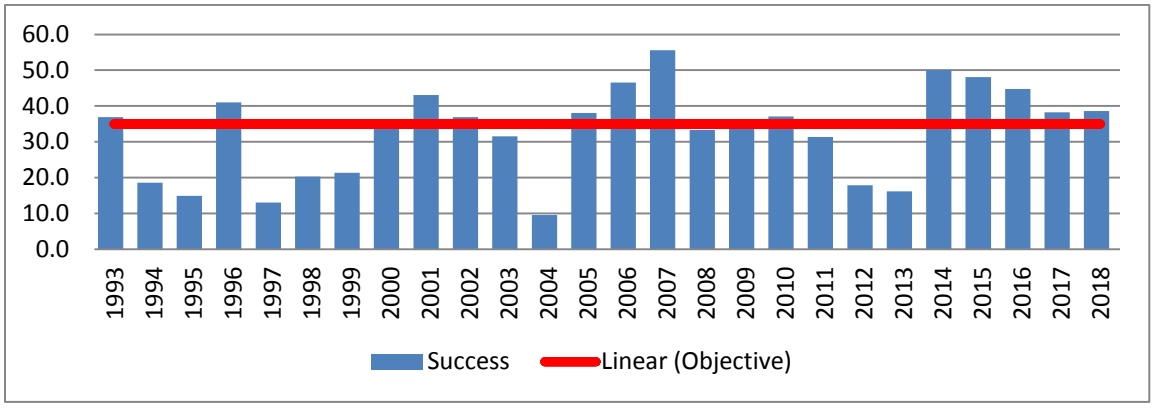


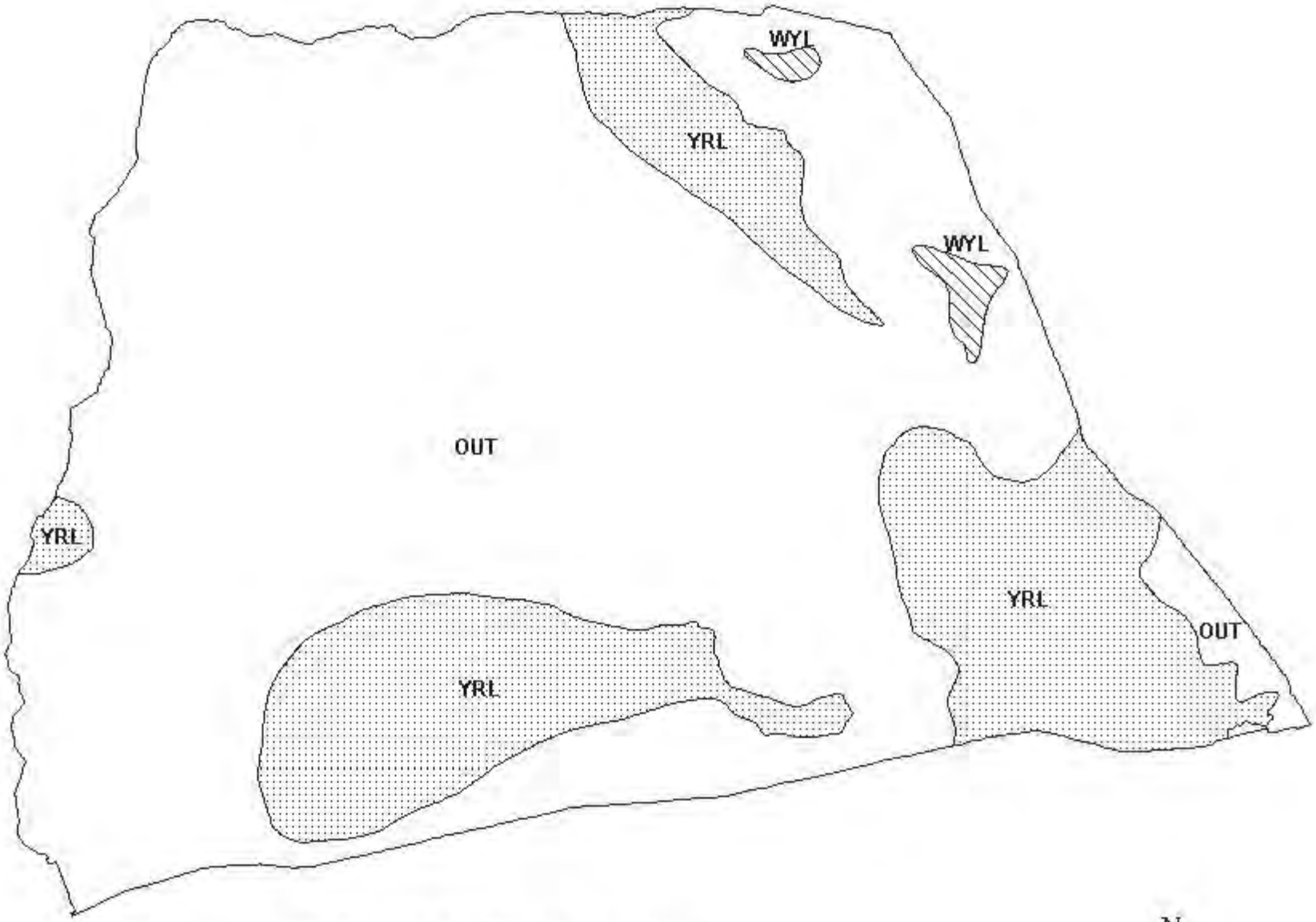
Figure 3. Hunter success for the Chain Lakes Mule deer Herd.

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 2018-19 winter is expected to have been below average because of low precipitation, and survival through the 2018-19 winter is expected to be near or below average.

Expected harvest from the 2019 season would be about 40 antlered deer by roughly 100 hunters. With the split of the old Region E into two smaller nonresident Regions, L and Q, the available pool of nonresident hunters will be smaller and may reduce the number of nonresidents who participate in this limited weapons hunt. The opening date is the same used in the past 23 years

and opens simultaneously with neighboring areas in Region Q. The closing date is the same as in 2018 and aligns with general license hunts in neighboring areas in Region Q. As in 23 of the previous 24 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