

2018 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2018 - 5/31/2019

HERD: MD423 - UINTA

HUNT AREAS: 132-133, 168

PREPARED BY: JEFF SHORT

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	14,939	13,260	11,901
Harvest:	1,100	926	800
Hunters:	2,446	2,188	2,000
Hunter Success:	45%	42%	40 %
Active Licenses:	2,465	2,198	1,990
Active License Success:	45%	42%	40 %
Recreation Days:	12,288	10,525	10,000
Days Per Animal:	11.2	11.4	12.5
Males per 100 Females	28	28	
Juveniles per 100 Females	58	54	

Population Objective (± 20%) : 20000 (16000 - 24000)

Management Strategy: Recreational

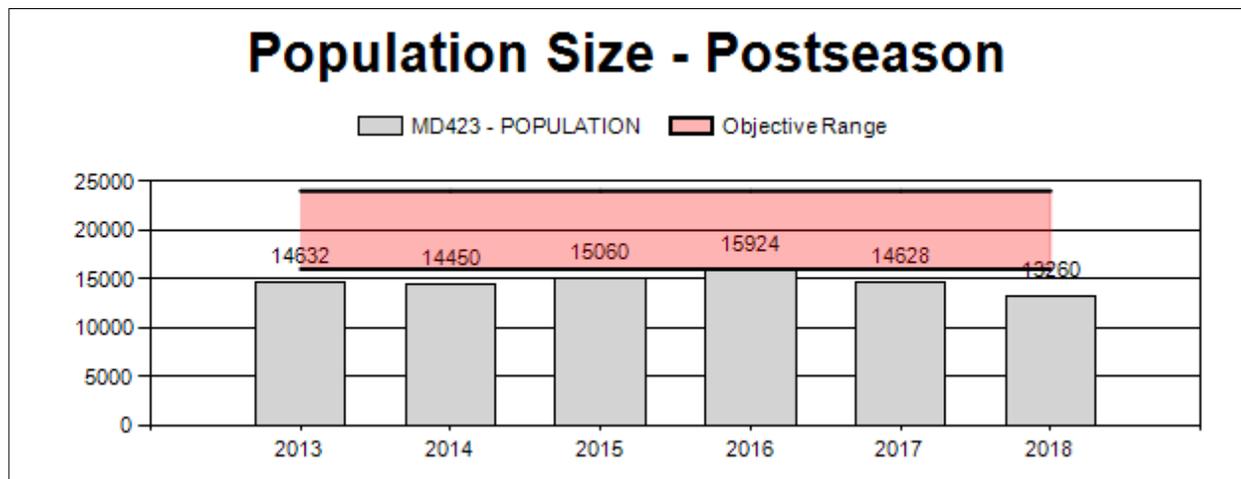
Percent population is above (+) or below (-) objective: -33.7%

Number of years population has been + or - objective in recent trend: 21

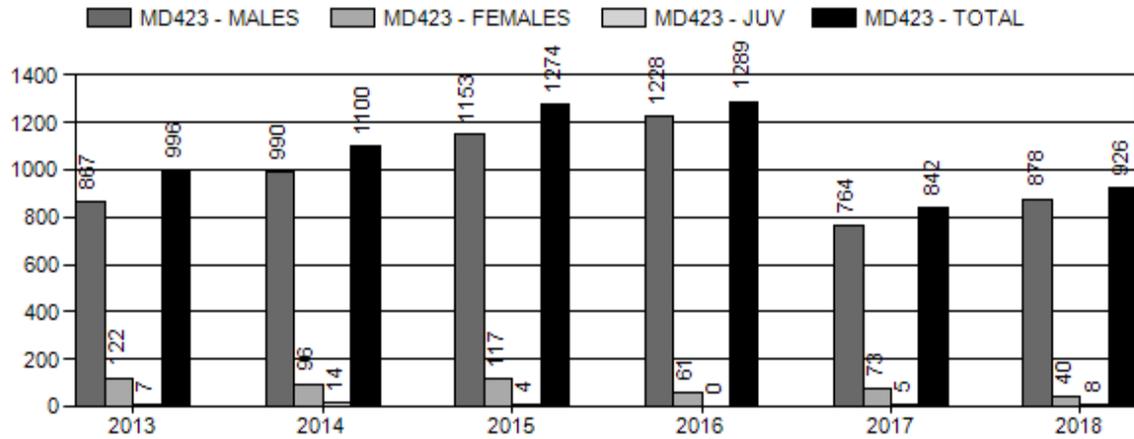
Model Date: 02/18/2019

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

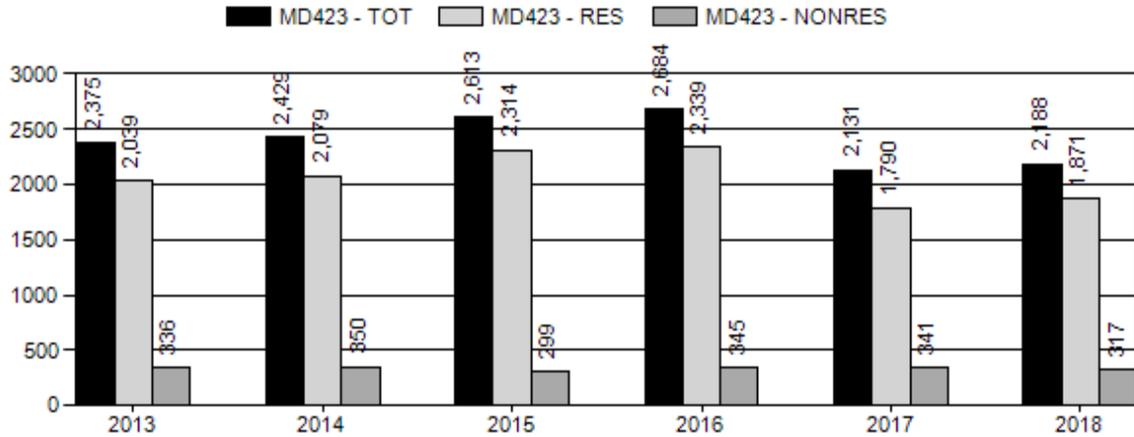
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	.01%	.01%
Males ≥ 1 year old:	31%	38%
Total:	6.5%	6.6%
Proposed change in post-season population:	-6.5%	-10.2%



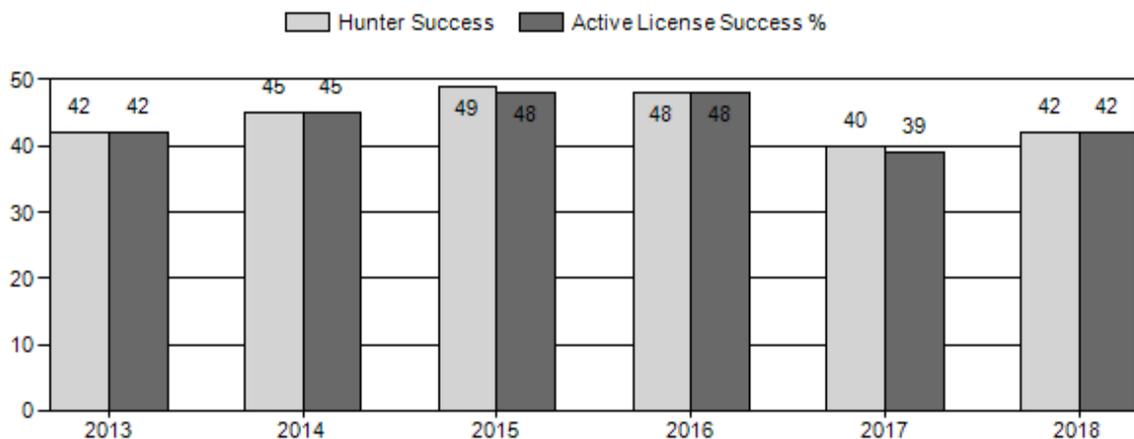
Harvest



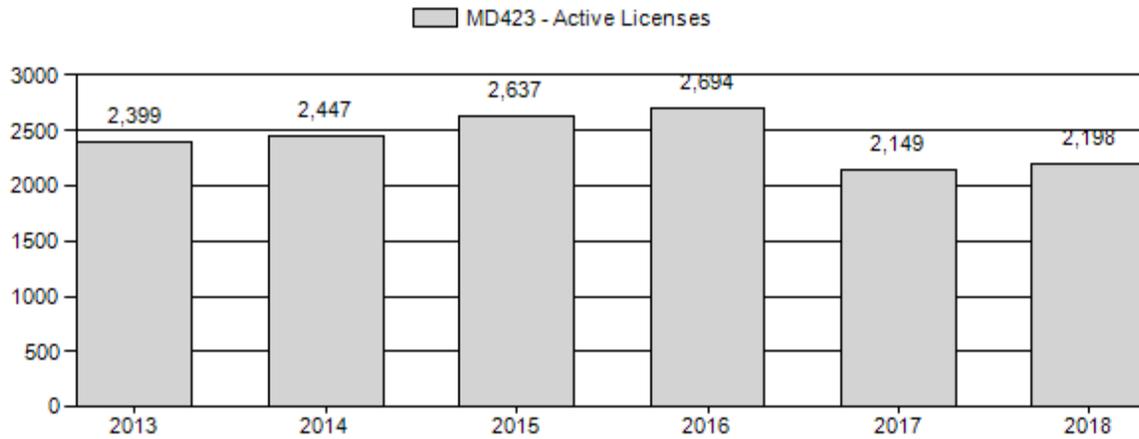
Number of Active Licenses



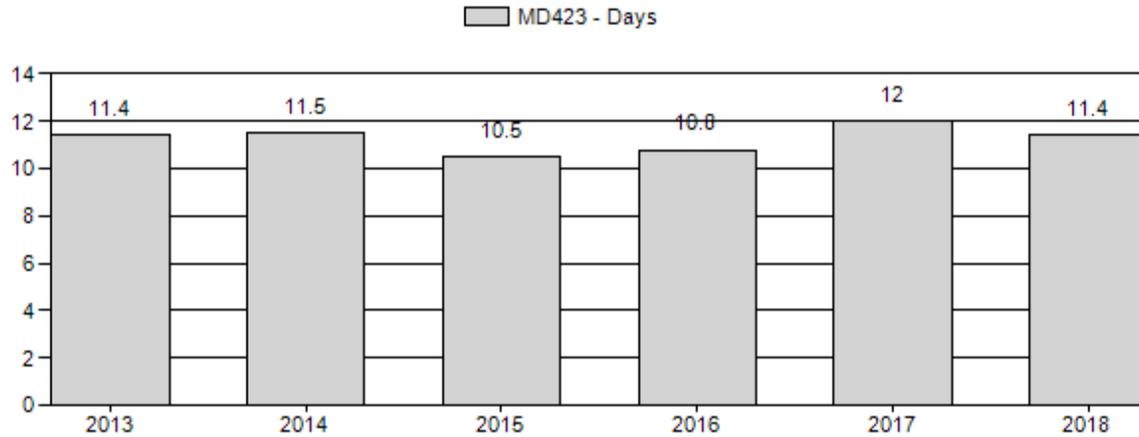
Harvest Success



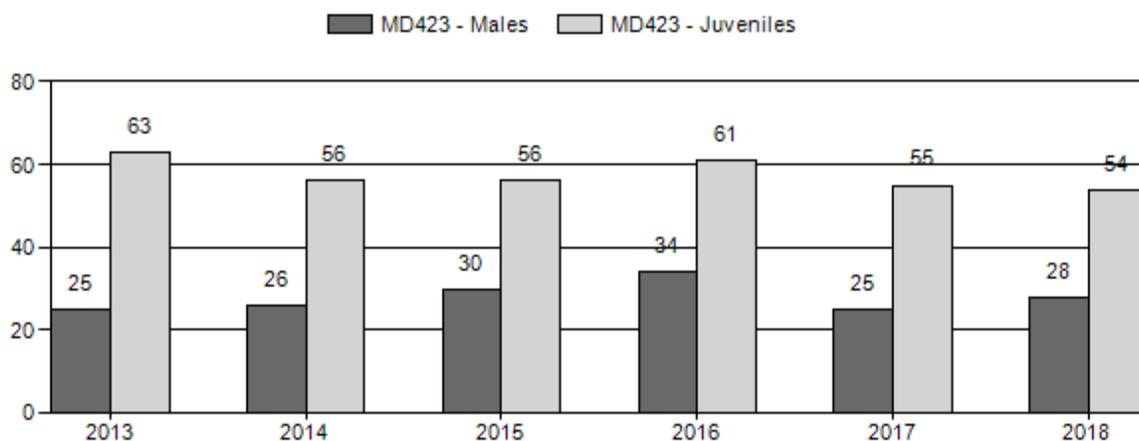
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Mule Deer Herd MD423 - UINTA

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	14,632	151	0	0	0	235	386	13%	1,551	53%	974	33%	2,911	0	10	15	25	± 2	63	± 3	50
2014	14,450	224	298	222	50	0	520	14%	1,982	55%	1,112	31%	3,614	0	11	15	26	± 1	56	± 2	44
2015	15,060	176	95	74	12	0	357	16%	1,204	54%	675	30%	2,236	0	15	15	30	± 2	56	± 3	43
2016	15,924	228	229	120	30	0	607	17%	1,798	51%	1,104	31%	3,509	0	13	21	34	± 2	61	± 3	46
2017	14,628	88	170	143	35	0	436	14%	1,750	56%	967	31%	3,153	0	5	20	25	± 2	55	± 3	44
2018	0	264	167	140	39	0	610	15%	2,201	55%	1,195	30%	4,006	0	12	16	28	± 0	54	± 0	43

2019 HUNTING SEASONS

SPECIES : Mule Deer

HERD UNIT : Uinta (423)

HUNT AREAS: 132, 133, 168

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
132		Oct. 1	Oct. 14		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
132, 133, 168	7	Oct. 1	Oct. 14	25	Limited quota	Doe or fawn valid on irrigated land
133		Oct. 1	Oct. 14		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
168		Oct. 1	Oct. 14		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer

132, 133, Archery Sep. 1 Sep. 30 General Refer to Section 2 of this chapter 168

Region K Nonresident Quota: 500

Hunt Area	License Type	Quota change from 2018
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: 20,000

Management Strategy: Recreational

2018 Postseason Population Estimate: ~13,260

2019 Proposed Postseason Population Estimate: ~11,901

Herd Unit Issues

Xeric environments and limited high quality fawning habitats greatly affect deer productivity in several areas in this herd. This limited quality fawning habitat affects the ability of neonate fawns to survive and gain weight in the first 6 months. This is imperative for recruitment and population growth. Winter severity every three to five years is a major limiting factor for this deer herd. This is especially true in the western part of the herd around Evanston, Fort Bridger and Leroy. The eastern portion of the herd around Cedar Mountain experiences a rain shadow effect and does not tend to get the severe winters as often. Energy development of all types on crucial deer habitat is a looming issue for this herd. Extensive development has occurred over their range.

Highway mortality and impediment of migration is a significant issue in this herd unit. Mule deer have to cross highways to migrate to crucial winter ranges in several locations. In the Leroy area mule deer are crossing Interstate 80 to get to and from important winter ranges. Deer fencing is present in most of this area but deer crossing structures are limited and the fence is ageing and showing signs of wear. Deer must cross Highway 414 in several areas between Mountain View and McKinnon to migrate to summer and winter ranges. Mortalities are common in those areas. The most significant area of issue is Wyoming Highway 189 between I-80 and Kemmerer. A large segment of the herd must cross this highway to get to winter ranges. Mortalities are very common due to heavy traffic on the roadway. This issue is likely to become much larger due to increasing traffic on this section of the road.

Weather

Weather during 2018 and into 2019 has been highly variable. The early part of 2018 was very mild with low snow loads and moderate temperatures. Spring brought some moisture but in late summer and fall the weather was very warm and dry. Summer range conditions were very poor and animals were in low body condition due to low habitat productivity. From December 2018 to May 2019 the winter has been harsh with high snow loads and cold temperatures. Snow is persisting and the spring has been very cold and wet. This winter turned out to be very severe and had significant impact to fawn and adult survival.

Habitat

Habitat data collection has been inconsistently collected in this herd unit and has been absent in the recent past.

Field Data

Prior to the 2016/17 winter, conditions were mild for six straight years in this herd unit creating a situation where fawn and adult survival was relatively high and populations were able to grow even with low fawn production. The winter of 2016/17 was severe in some areas and the population in the western part of the herd unit declined due to it. Mortality surveys at the LeRoy winter range complex in 2017 showed significant fawn and adult doe mortality. A mild winter followed in 2017/18. This helped the herd rebound slightly but we are currently experiencing very difficult winter conditions in 2018/19 that again negatively affected the deer population. This is very harmful to the population since the last bad winter was only two years ago. Losing two fawn recruitment classes in the span of 3 years would be very bad for the deer population.

Classification data is collected yearly by helicopter in Hunt Areas 168, 132 and 133. Sample sizes are very good with around 3,000 deer classified yearly. Post season buck:doe ratios are consistently good. They run from the middle to the high end of the range for the objective in the herd unit. The objective range is 20-30:100. Yearling buck:doe ratios fluctuate with fawn recruitment from the previous year which is usually driven by winter severity. Adult buck:doe ratios tend to be more stable and are driven by, long term buck recruitment, survival and some by hunting harvest.

The 2018 postseason fawn:doe ratios as a whole were below average for this herd at 54:100. This is below where we would like to see fawn:doe ratios. Chronic low fawn recruitment in this population is of concern. It may be due to several factors including winter range habitat condition, summer range habitat condition, neonate predation on summer ranges, aspen stand condition on summer habitats, limited areas of effective parturition habitats and doe age structure. We would like to continue to improve future fawn:doe ratios through habitat improvement and predator manipulation to promote growth of this herd but project opportunities are difficult and costly to implement.

Hunt Area 132 is very dry and low productivity habitat compared to the rest of the herd unit. It also has patchy fawning habitat and newborn fawns may be easier prey for coyotes due to the limited fawning sites. Since 2012 we have procured funding and implemented targeted predator control on mule deer fawning sites in HA132. Control is conducted during the fawning period. In the last few years few have expanded this work to include areas around Evanston.

Harvest Data

The hunter harvest from seasons recently offered for mule deer do not impact overall population size, recruitment or productivity. They only influence buck:doe ratios and we have been able to maintain buck:doe ratios within the objective. Doe harvest is only allowed by youth hunters and in a very limited type 7 hunt on irrigated lands. The overall doe harvest is negligible and insignificant. Buck harvest has fluctuated greatly over the past five years due to changes in populations from winter severity and fluctuations in weather conditions during the hunting season.

Population

We feel somewhat confident in this model since it reflects field information and seems reasonable. However, caution should be used since this an interstate population with interchange across state boundaries. Recent radio collar data documents over 12% interchange. This is far lower than we once expected though. More radio collar studies would help determine the extent of these movements. The TSJ,CA model was selected due to the low Relative AICc score and its good fit with the data. The TSJ,CA model fits very well with mule deer population dynamics in this type of system. Unfortunately, model estimates do not seem to track as well as we would like with known significant winter mortality events in bad winters. This is somewhat inherent in this type of model as the model is focusing on current year estimate instead of previous trend. An independent population estimate would be helpful in aligning the model but is not very feasible for this herd.

In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

The model predicts a post-season population of around 13,260 mule deer in 2018. This is a decrease in the modeled population from prior levels. This reduction is substantiated by Hunter comments, winter mortality surveys and field observations. This supporting information gives us some confidence in model results. However, the reduction modeled from pre-2016 levels is not totally realistic considering the severity of winter mortality observed on the western winter ranges where the vast majority of the deer herd winters. The reduction should have been greater than what is modeled.

Management Summary

The 2019 season proposal in hunt areas 132, 133 and 168 will allow for 14 days of general deer hunting opportunity. In this part of the state, we strive to offer a season that includes 2 weekends of hunting opportunity. This type of season is very conservative and the population is not limited by hunting. Point restrictions have been in use for several years in this deer herd to reduce harvest of young deer. A 3-point or more antler restriction is in place in the entire Herd Unit. Members of the public brought on this restriction. The use of this type of restriction for limited periods can be warranted in parts of the herd unit where buck security cover and fawn productivity is lacking but many parts of the Herd Unit do not require this type of management. Antler point restrictions may be detrimental to genetics in the long term. A 3-point or better season is used to protect yearling 2-point deer. However, there is growing concern that this season structure is selecting for inferior genetics for antler growth. There are 3-point yearling deer being harvested, which eliminates the best genetics from the herd. We also see that most 3-points harvested are 2 or 3 year olds and there are also ample 2-points that are 2 or 3 years old that are protected from harvest. The use of this regulation needs to be reevaluated to make sure we are not causing harm.

In this Herd Unit we have a type 7 doe/fawn hunt good for all hunt areas in the herd unit on irrigated land. This is to address the number of deer that are living year round on irrigated fields and give landowners an opportunity to have some harvested. This hunt will be continued in 2019 but license numbers remain very low at 25.

The Herd unit objective and management strategy were last revised in 2014. We went through an internal review of the objective and harvest strategy in early 2019. The recommendation for the Uinta Mule Deer Herd is to maintain a post-season population objective of 20,000 and to continue with recreational management. Relative to current population estimates 20,000 appears to be about the number of mule deer the area could support with favorable weather conditions. It would also satisfy the public and should not create significant damage concerns.

2018 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2018 - 5/31/2019

HERD: MD424 - SOUTH ROCK SPRINGS

HUNT AREAS: 101-102

PREPARED BY: PATRICK BURKE

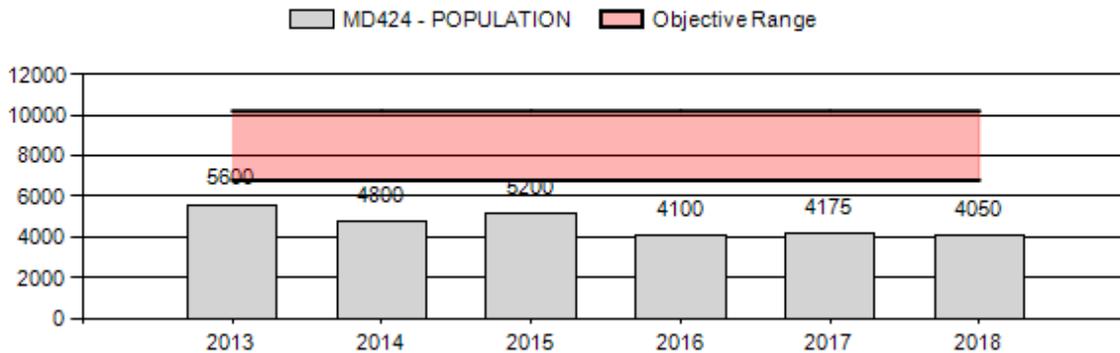
	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	4,775	4,050	3,950
Harvest:	207	229	230
Hunters:	274	281	275
Hunter Success:	76%	81%	84 %
Active Licenses:	274	281	275
Active License Success:	76%	81%	84 %
Recreation Days:	1,776	1,604	1,700
Days Per Animal:	8.6	7.0	7.4
Males per 100 Females	32	38	
Juveniles per 100 Females	59	31	

Population Objective (± 20%) :	8500 (6800 - 10200)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-52.4%
Number of years population has been + or - objective in recent trend:	20
Model Date:	2/19/2019

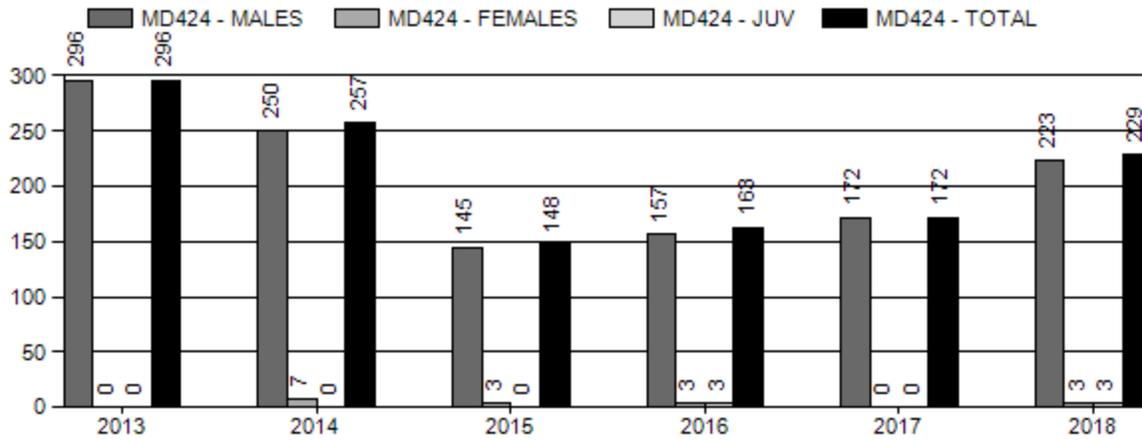
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	20%	25%
Total:	5%	5%
Proposed change in post-season population:	-4%	-3%

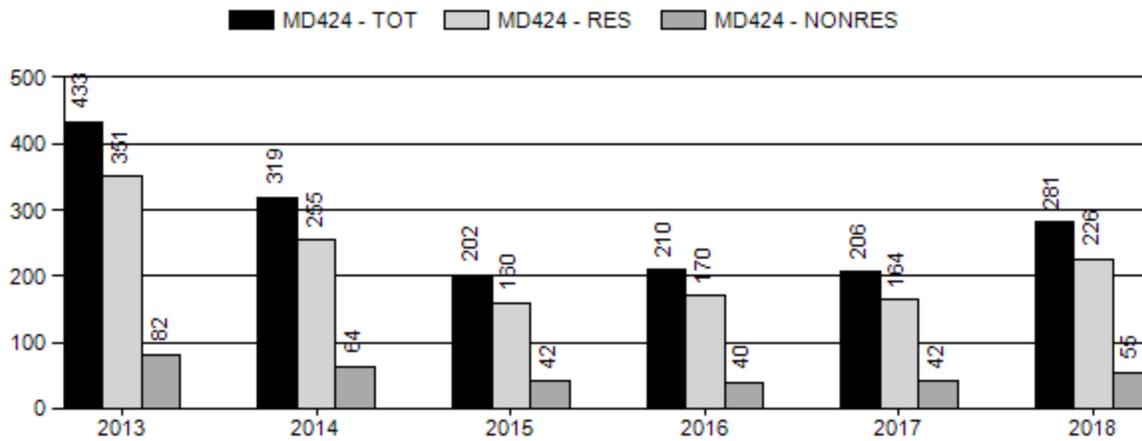
Population Size - Postseason



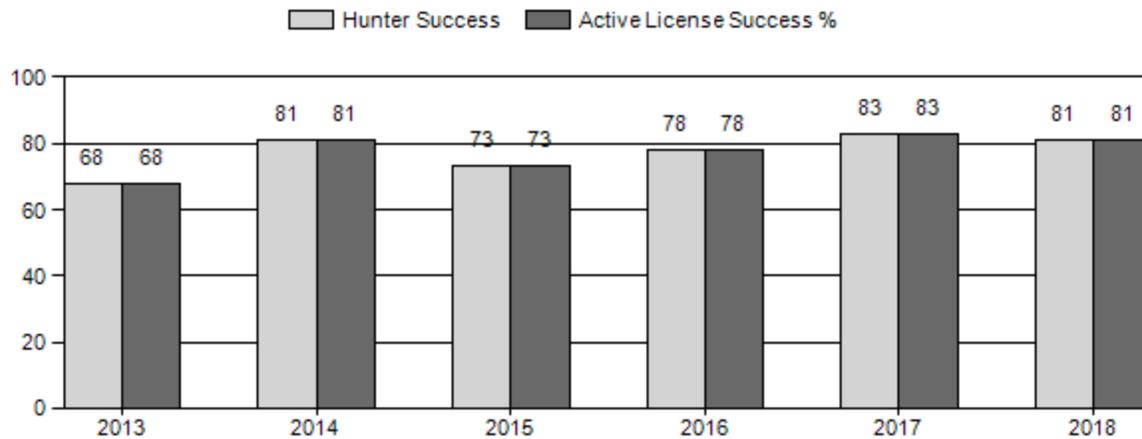
Harvest



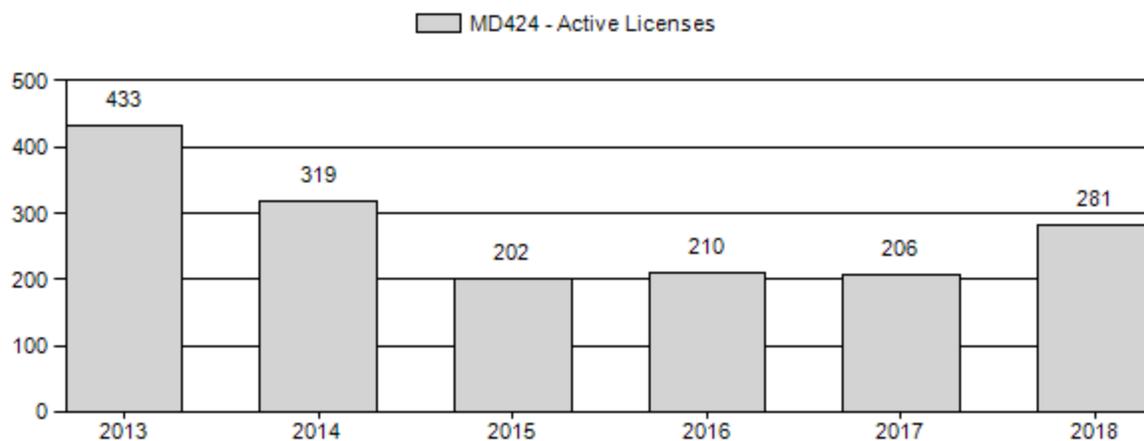
Number of Active Licenses



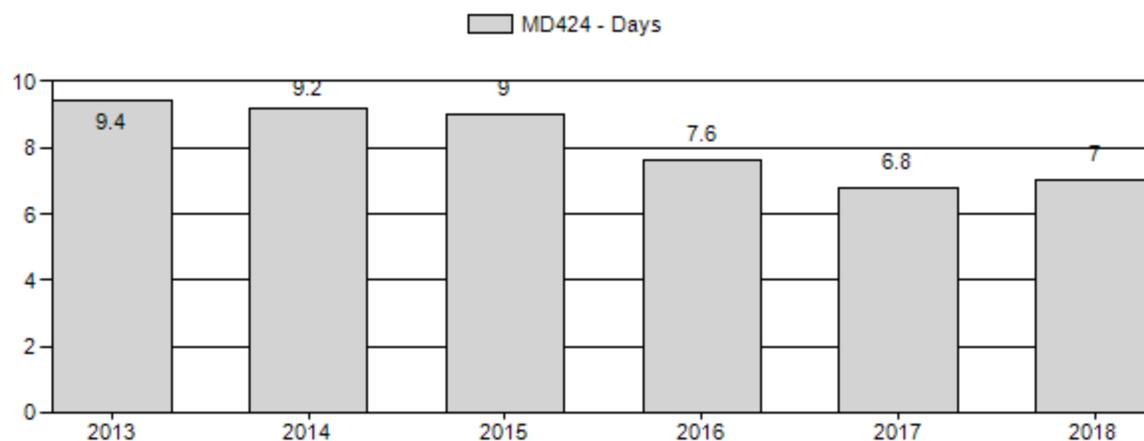
Harvest Success



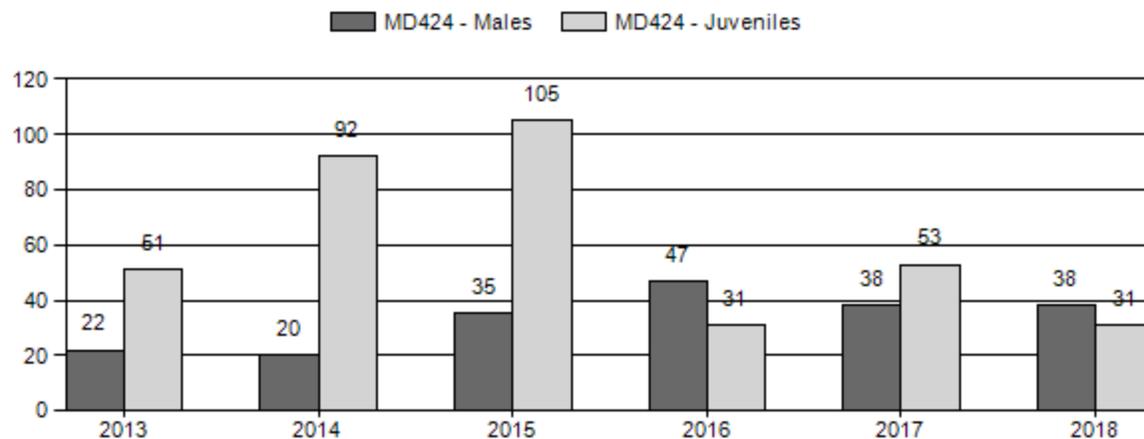
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Mule Deer Herd MD424 - SOUTH ROCK SPRINGS

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females			Young to			
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	UnCls	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	5,600	40	0	0	0	89	129	13%	593	58%	305	30%	1,027	767	7	15	22	±2	51	±4	42
2014	4,800	30	0	0	0	55	85	10%	417	47%	383	43%	885	1,242	7	13	20	±3	92	±8	76
2015	5,200	22	0	0	0	23	45	15%	129	42%	135	44%	309	1,124	17	18	35	±8	105	±16	78
2016	4,100	72	0	0	0	129	201	27%	426	56%	130	17%	757	943	17	30	47	±5	31	±4	21
2017	4,175	45	87	70	10	0	212	20%	565	52%	301	28%	1,078	655	8	30	38	±3	53	±4	39
2018	4,050	59	97	58	0	0	214	22%	566	59%	175	18%	955	508	10	27	38	±3	31	±3	22

**2019 HUNTING SEASONS
SOUTH ROCK SPRINGS MULE DEER HERD (MD424)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
101	1	Oct. 15	Oct. 31	50	Limited quota	Antlered deer
102	1	Oct. 15	Oct. 31	250	Limited quota	Any deer

Special Archery Season Hunt Areas	Season Dates	
	Opens	Closes
101,102	Sep. 1	Sep. 30

Hunt Area	Type	Quota change from 2018
Herd Unit Total		No Changes

Management Evaluation

Current Management Objective: 8,500

Management Strategy: Special

2018 Postseason Population Estimate: ~4,050

2019 Proposed Postseason Population Estimate: ~3,950

The post-season population objective for the South Rock Springs mule deer herd is 8,500 deer under special management. The objective for this herd was changed to its current level in 2013, when it was lowered from 11,750.

Herd Unit Issues

The largest issue facing this herd has been, and continues to be, its consistent underperformance, both in relation to its population objective and in the quality of bucks it produces compared to what is expected by the public. This herd has been well below its objective since the South Rock Springs and Black Butte herds were combined in the 1980's, and most likely will continue to remain substantially below objective for the foreseeable future. Current population estimates suggest this herd may be somewhere around 4,000 deer after the 2018 hunting season, which is only 48% of its population objective.

The lack of growth in this herd despite very conservative hunting seasons can largely be attributed to consistent poor fawn recruitment year after year. Observed fawn to doe ratios for this herd have averaged just under 50 fawns per 100 does for the last decade. The fawn ratios observed in 2016 and 2018 were both substantially below that 10 year average, coming in at only 31 fawns per 100 does. A general rule of thumb is that roughly 66 fawns per 100 does is required to maintain a deer population; and while this lower evaluation herd that usually experiences less severe winter conditions than many other herds may be able to sustain itself with lower fawn recruitment rates, the last that a fawn ratio of greater than 66 fawns per 100 does was observed in this herd was 2005. Until fawn recruitment improves, this herd will continue to decline.

In addition to the poor fawn numbers, survival rates for collared does in the herd unit has been poor, especially during the 2018 summer and 2018-2019 winter. The collared does are part of a research project that employs an extremely invasive data collection regime of helicopter net-gunning and transporting those animal to a central processing area twice a year, which undoubtedly imposes significant additional stress to those individuals; but many of those does died this summer from some yet unidentified disease. While the stress of being captured twice a year would have made those animals more susceptible to disease, it is still very concerning that a new disease burden has been added on top of all the other issues this herd is facing.

Another major issue for this herd is that despite consistently conservative buck harvest, this herd has been unable to live up to the expectations that the public has for it in regards to the quality of bucks available for harvest. Probably in large part due to the low drawing odds for hunt areas in this herd unit, hunters that draw licenses in the South Rock Springs herd unit have extremely high expectations concerning the antler size of the bucks they will be hunting. Whether these expectations are realistic or not, the antler quality of the bucks in this herd unit is not what most hunters hunting in the herd unit are envisioning.

Weather

While the spring of 2018 saw decent moisture, which allowed for good forb production in many areas of the South Rock Springs herd unit; the summer months saw very little precipitation in the herd unit. This lack of moisture during a significant portion of the growing season unfortunately resulted in early plant senescence and decreased forage value for deer. Regrettably, this condition has been present in the herd unit for many of the recent years, which is probably the major driving factor behind the low fawn numbers observed in the last decade.

In addition to the dry summer observed in 2018, the 2018-2019 winter was above average in terms of snowfall levels and to a lesser extent, winter temperatures. These severe winter conditions following a year of poor forage production and poor animal condition probably resulted in a decrease in over winter survival for deer in the area.

Habitat

The Green River aquatic habitat biologist has established six aspen regeneration monitoring transects throughout Hunt Area 102. These transects are designed to evaluate browsing impacts from ungulates on young aspen suckers. Two transects were established on Little Mountain in 2007, as well as four additional transects that were established in 2009, one each on Aspen and Miller Mountains and two in the Pine Mountain area. These transects have been read each summer since their establishment, except that one of the Pine Mountain transects was not read in 2013 due to difficulty in accessing that site caused by the amount of rain and snow received that fall, and the South Pine Mountain site was not read in 2014 due to the aspen stand that it was located in dying off resulting in an insufficient number of aspen suckers left alive to measure. Because of the loss of the South Pine Mountain site, a new transect was established near the Tri-State marker in 2014.

A detailed accounting of the technique and results from these monitoring efforts can be found in the aquatic habitat annual report. In general, this method compares the height of the initial growth point for the current year's terminal leader to the height of the tallest previous terminal leader branch that was killed as a result of browsing. A positive Live-Dead (LD) value suggests growth of young trees, while a negative value or value near zero suggests that browsing may be suppressing tree growth. Results of monitoring efforts are presented in the following table (Table 1) taken from the aquatic habitat annual progress report, but in general, four of the five monitored sites showed positive LD values for 2018, while one of the sites had LD values at or below zero.

The Little Mt. /Dipping Springs LD transect that had been previously reported was not read in 2017 or 2018, because that aspen stand was fenced with an ungulate excluding modified steel jack fence in 2016. The erection of that fence makes the LD values for that site not comparable to the other sites in the herd unit. There, that site was excluded from the sample.

Table 1. Trends in aspen regeneration LD Index values (vertical inches) 2015-2018

Monitoring site	2015	2016	2017	2018
Pine Mt/Red Ck.	-1.8	0	-4.1	-5.8
Tri-State /Red Ck.	+7.2	+13.2	+10.7	+6.8
Miller Mt.	+3.6	+18.6	+3.9	+3.0
Aspen Mt.	+1.2	+4.6	+8.3	+8.9
Little Mt./West Currant Ck.	0	+5.5	+10.6	+3.8

While not a habitat data point, fat levels of collared deer measured in November 2018 indicate that many of the collared deer were entering winter with fat levels that were not much above what is commonly seen in deer exiting winter. This indicates that habitat conditions for deer during the summer of 2018 were very poor, and that it is apparent that habitat conditions, either in quantity or quality, appear to be a limiting factor for this deer population. Unfortunately, the current research project being conducted in the herd unit has not addressed the issue of habitat condition, which is a badly needed component to understanding the population dynamics of this herd.

Field Data

This herd was classified from a helicopter during December 2018 in conjunction with the South Rock Springs elk herd. A total of 955 deer were observed during that flight, with resulting observed ratios of 31 fawns per 100 does, and 38 total bucks per 100 does which included 10 yearling bucks per 100 does. All of the deer classified were from HA102, as deer densities in HA101 preclude obtaining an adequate sample from that portion of the herd unit.

In contrast to the lower than desired fawn ratios of recent years, the buck ratios that have been observed during the last several classification flights, have seen significant improvements recently. The total buck to doe ratio observed during both the 2017 and 2018 classification flights were 38 bucks per 100 does, despite the low yearling buck to doe ratios observed during both years.

Harvest Data

The 2018 hunting season saw harvest rates in both hunt areas in this herd unit that were generally in line with what is normally reported for this herd. A total of 229 bucks were reported harvested, with 35 being reported being harvested in HA101 and 194 coming from HA102. Three does and three fawns were also reported to have been harvested from HA102 in 2018. Success rates for the 2018 season for the two hunt areas that make up this herd unit were 71% for HA101 and 84% for HA102, this compares to 96% for HA101 and 82% for HA102 in 2017. The overall success rate for the herd unit was 82%, which is generally in line with average success rates for this herd.

Because the South Rock Springs mule deer herd is a special management herd, and because of its significant local status, successful hunters are asked to voluntarily submit tooth samples for

cementum annuli aging analysis. Successful hunters submitted 99 samples for analysis from the 2018 hunting season. One of those samples were unable to be aged by the tooth aging laboratory. So based on the 98 useable samples from buck deer, the average age of harvested bucks was just under 5.2 years old in 2018. This compares to an average age of 4.1 in 2017, 4.7 in 2016, and 5.3 in 2015. Based on hunter submitted tooth samples, the oldest deer harvested during the 2018 season was a 10.5-year-old buck, harvested from HA101.

Population

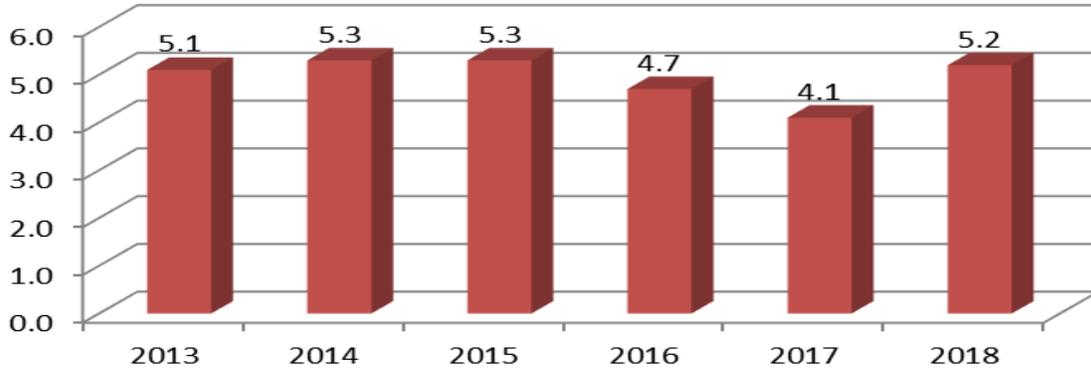
Currently, the model estimates the population size to be just over 4,000 deer with a declining trend. The model selected for this herd is the time-specific juvenile survival model based it producing the most realistic estimate for this population and based on the biology of mule deer. However, the model does a poor job of simultaneously predicting the current year's population size and producing an accurate trend of historical population sizes. While the model will change the current years population estimate to what is probably a believable number each year, it shows that the herd has been fairly steady over the past 20 years instead of showing that the population was at higher levels in the past. The model also bounces fawn survival rates back and forth from the maximum allowed to the minimum allowed by the model constraints from one year to the next, which is an indication that the model is not functioning very well. Part of this can probably be explained by the inconsistency in classification data from year to year in the past, as classifications in this herd have historically alternated between ground classifications and aerial classifications every other year. Because of differences in the areas that can be accessed and the amount of ground that can be covered between years when a helicopter is available and years when classifications are conducted from the ground, those data may not be comparable to each other, and may lead to some of the inconsistency seen in the model.

In addition to herd composition surveys, information from the harvest survey, and age data from lab-aged teeth from hunter-harvested deer, as well as field observations by field managers combined with the model help in management of this locally high profile herd.

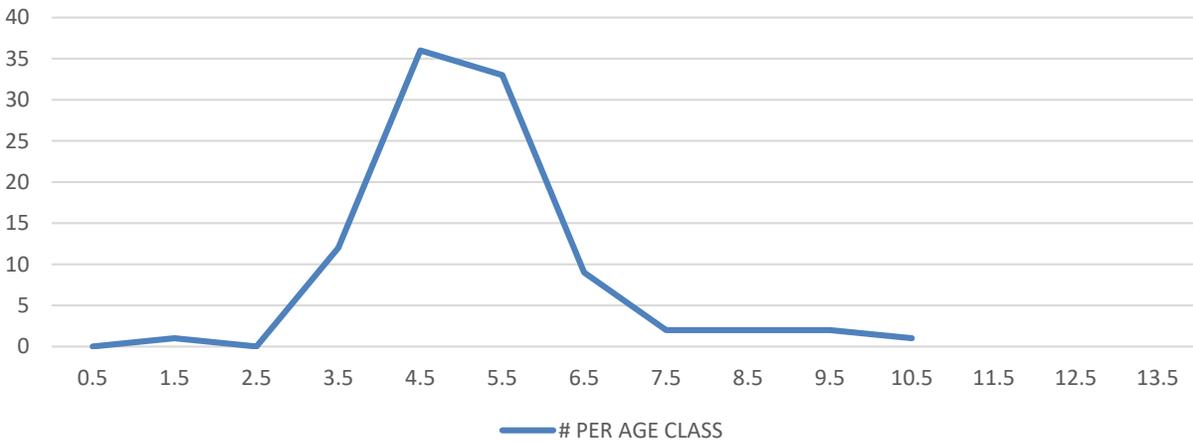
Management Summary

The 2019 hunting season is identical in season structure and license numbers to the 2018 season in both hunt areas in the herd unit. This recommendation was made despite the low observed fawn ratios and habitat issues that have been seen in this herd recently. While the herd as a whole is not doing as well as desired, the observed buck ratios are still good in the herd unit. The observed buck ratio of 38 bucks per 100 does is well above the minimum of 30 bucks per 100 does for special management herds. Therefore, since the majority of hunting pressure is directed to the male segment of the herd, the current level of license issuance looks to be appropriate. Additionally, tooth age data indicates that the age structure of bucks in the herd should be sufficient to support the current level of harvest, as the average age of harvested bucks is still above 5 years old.

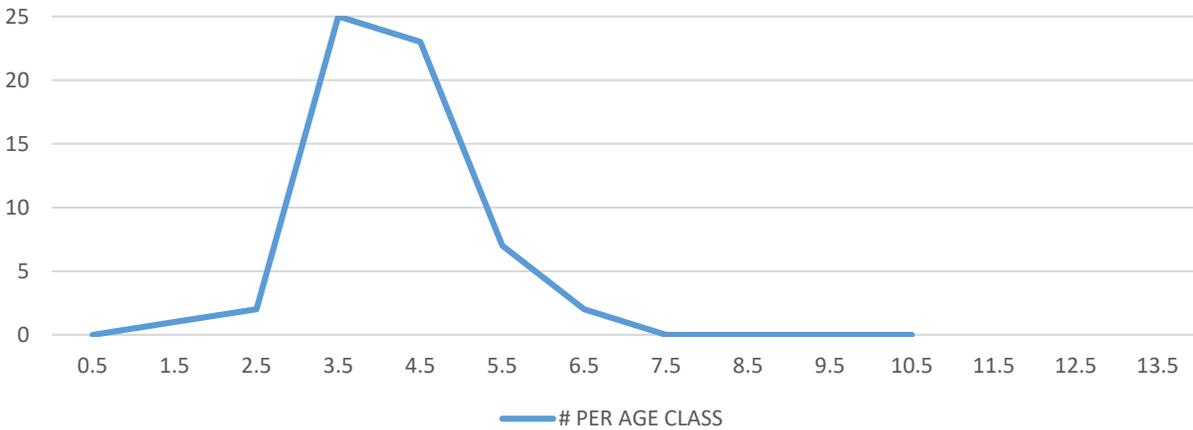
SRS Deer Average Age of Harvested Bucks

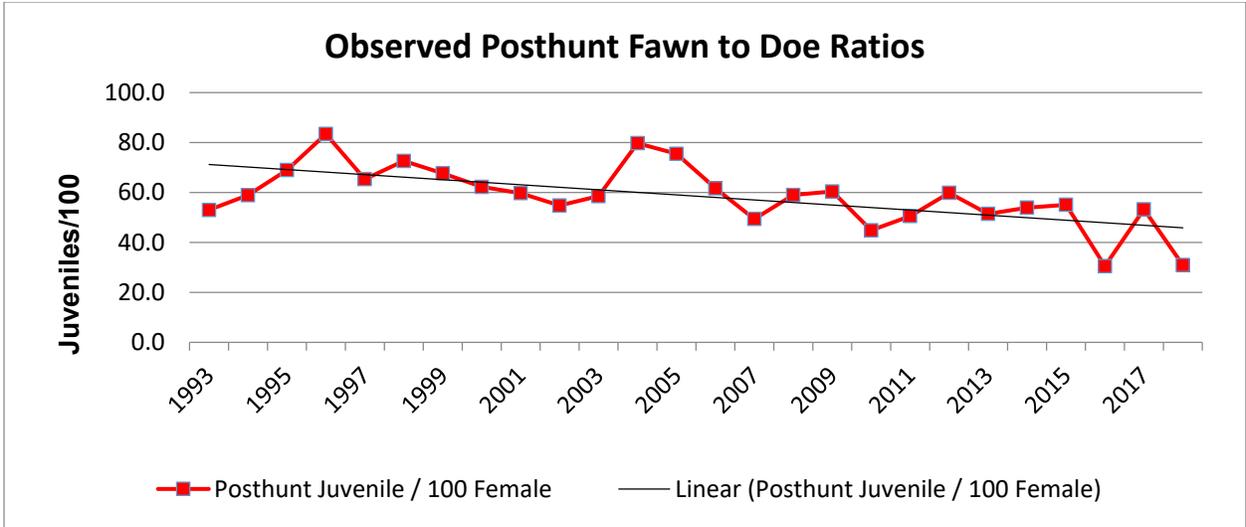


2018 SRS DEER # HARVESTED PER AGE CLASS



2017 SRS DEER # HARVESTED PER AGE CLASS





2018 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2018 - 5/31/2019

HERD: MD427 - BAGGS

HUNT AREAS: 82, 84, 100

PREPARED BY: PHIL DAMM

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	20,298	20,722	20,000
Harvest:	1,463	1,926	2,000
Hunters:	2,680	3,128	3,150
Hunter Success:	55%	62%	63 %
Active Licenses:	2,723	3,235	3,250
Active License Success:	54%	60%	62 %
Recreation Days:	12,710	14,578	14,500
Days Per Animal:	8.7	7.6	7.2
Males per 100 Females	31	29	
Juveniles per 100 Females	57	62	

Population Objective (\pm 20%) : 19000 (15200 - 22800)

Management Strategy: Recreational

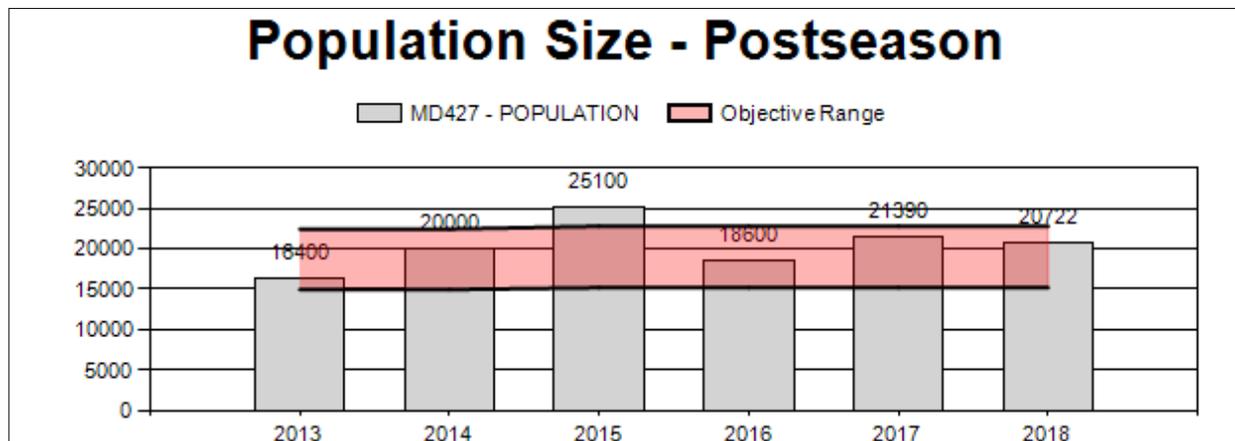
Percent population is above (+) or below (-) objective: 9%

Number of years population has been + or - objective in recent trend: 4

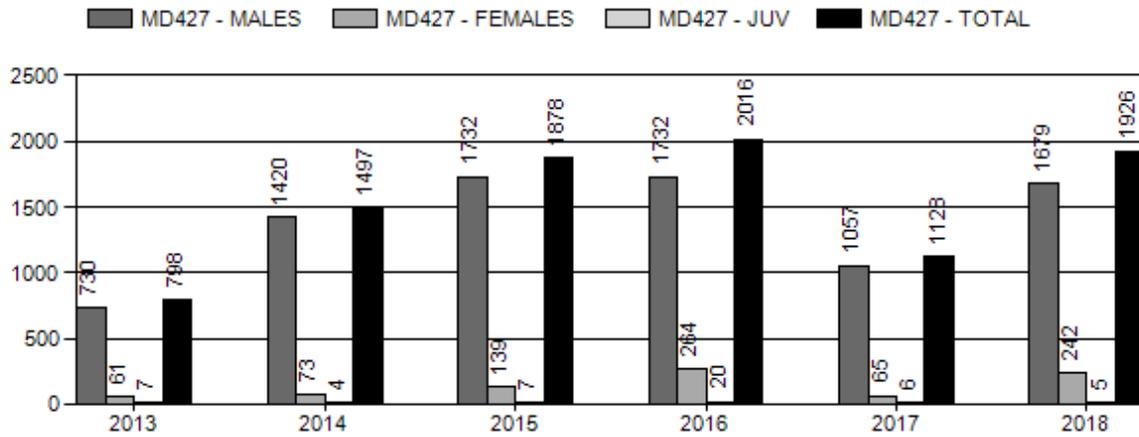
Model Date: 03/05/2019

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

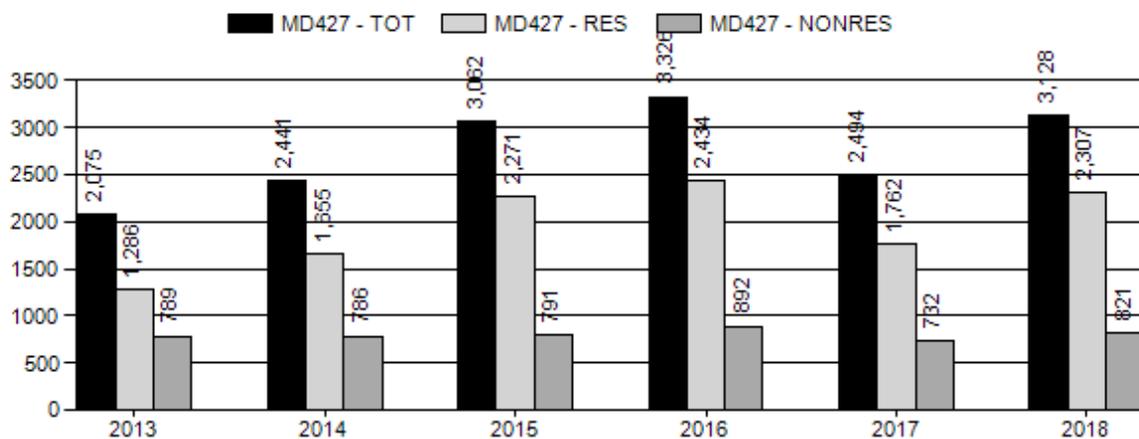
	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	2%	2%
Males \geq 1 year old:	28%	30%
Total:	8%	9%
Proposed change in post-season population:	1%	0%



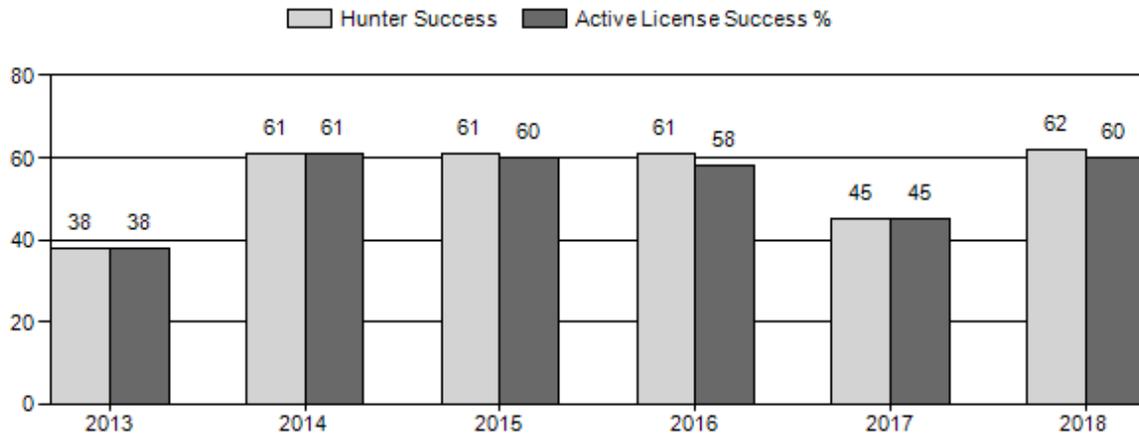
Harvest



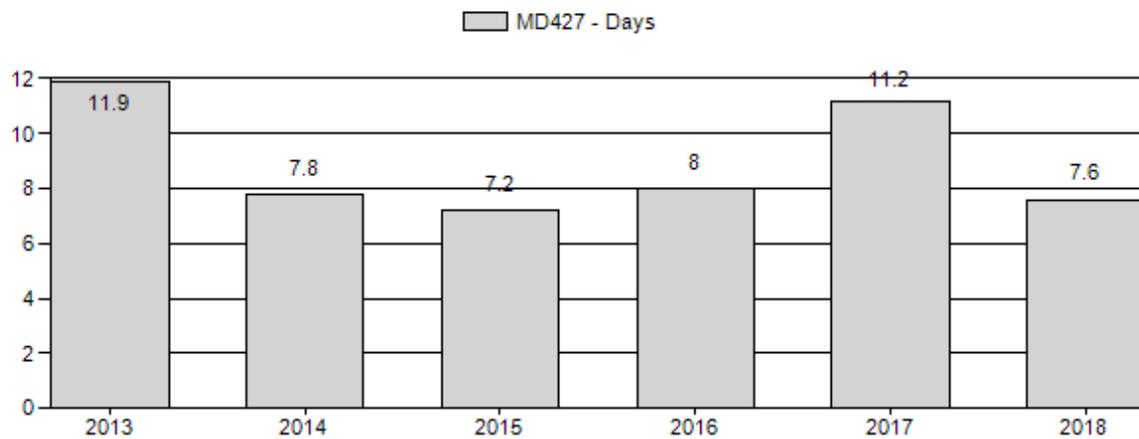
Number of Active Licenses



Harvest Success



Days Per Animal Harvested



**2019 PROPOSED HUNTING SEASONS
MD427 BAGGS DEER**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
82		Oct. 1	Oct. 14		General	Antlered mule deer or any white-tailed deer
82		Oct. 1	Oct. 16		General youth license	Any deer
82	6	Oct. 1	Oct. 20	200	Limited quota	Doe or fawn
82	7	Oct. 1	Oct. 20	50	Limited quota	Doe or fawn <u>south of Wyoming Highway 70, or east of Carbon County Road 503, and south of Carbon County Roads 752 and 754 (Savery Stock Drive).</u>
82, 100	8	Nov. 1	Jan. 15	50	Limited quota	Doe or fawn white-tailed deer valid on private land
84	1	Oct. 1	Oct. 14	75	Limited quota	Any deer
100		Oct. 1	Oct. 6		General	Antlered mule deer or any white-tailed deer
100		Oct. 1	Oct. 8		General youth license	Any deer

Proposed Region W Quota of 900 (no change)

Special Archery Season Hunt Areas	Season Dates	
	Opens	Closes
82	Sep. 1	Sep. 30
84	Sep. 1	Sep. 30
100	Sep. 1	Sep. 30

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2018</i>
Region W	Gen	0
82	6	-50
	7	+50
	8	0
Herd Unit Total	6	-50
	7	+50
	8	0
	Region W	0

Management Evaluation

Current Management Objective: 19,000 (2015)

Management Strategy: Special (2015)

2018 Postseason Population Estimate: 20,722

2019 Proposed Postseason Population Estimate: 20,000

The 2018 population estimate for the Baggs mule deer herd is above the range of 19,000, set in 2015. Additionally, the buck:doe ratio is increasing, though it has not yet met the objective of 30 bucks per 100 does (29:100 in 2018). However, the 5-year average is 31. Due to a stable to possibly growing population (5-year average of 20,298 and current estimate of 20,722), our management strategy is to maintain a fairly liberal season for bucks and allocate similar doe/fawn licenses as last year.

Herd Unit Issues

The primary issues for the Baggs deer herd continue to be habitat quality, drought, and fragmentation of transition and crucial winter range. Energy exploration seems to be slowing within identified mule deer transition range in the Atlantic Rim Project Area, but with a new operator comes an unknown development strategy for the field. The level of current development has the potential to alter mule deer migration as well as decrease habitat suitability through fragmentation. Additionally, road development will continue along Miller Hill as part of the Chokecherry/Sierra Madre Wind Project which could significantly impact habitat selection of mule deer on summer range. After a vigorous effort sampling 243 hunter harvested deer, chronic wasting disease (CWD) prevalence increased slightly from 7.3 to 9.0% in hunt area 82. Further caution is warranted as mandatory testing of all hunter harvested deer in Colorado's neighboring Bears Ears Herd Unit (n~1600 samples) resulted in a more concerning prevalence rate of 18%. Within this herd unit, Colorado Parks and Wildlife (CPW) hunt areas 4 and 5 border WGFD hunt area 82 along the state line and resulted in prevalence rates of nearly 24%. Recent buck collaring efforts with the University of Wyoming Cooperative Unit has highlighted a significant amount of interstate deer movement between the Bears Ears and Baggs Herd Units (figure 1.) where 21.7% of the collared bucks spend time in both states. Additionally collaring efforts from CPW field staff has shown similar movement patterns where deer wintering in the Bears Ears Herd Unit migrate and summer in the Baggs Herd Unit.

Weather

The summer of 2018 was unseasonably hot and dry which resulted in a stunted growing season. Though seasonally beneficial, the lack of winter and spring precipitation in recent years has led to decreased shrub growth throughout the herd unit. This poses a significant issue in dryer and more xeric areas. In conjunction with a growing deer herd, this will continue to be a long-term concern if mixed mountain shrub species and big sagebrush are unable to recover from over-browsing and lack of productivity. Snow began to re-accumulate in the higher elevations in the latter parts of the hunting seasons, and the winter of 2018-2019 was substantial in terms of snow through to spring and lower temperatures well into February, which is atypical.

Habitat

Growing season precipitation continued to be below normal across the herd unit in 2018, resulting in slower growth and less abundance of cool season grasses, forbs, and shrubs, particularly in lower elevation seasonal ranges. In 2016, the Snake Fire burned approximately 2,565 acres located within the BMDHU. This was a high elevation wildfire that improved mule deer habitat on summer range by increasing aspen production, diversifying forest species age class, and increasing herbaceous forage production within the burn area.

Rapid Habitat Assessments conducted throughout the herd unit from 2015-2018 suggest that shrub habitats throughout winter and transition range continue to underperform due to maturity and decadence caused by a lack of natural disturbance. Drought conditions have persisted in concert with a high abundance of deer which has created a net-loss situation where important shrub species are unable to keep up with the browsing pressure of deer. Cheatgrass and other invasive plant species continue to degrade important mule deer habitats throughout winter and transitional ranges.

Field Data

The Baggs mule deer herd was classified from a helicopter in early December. Though the population is not monitored using an official trend count survey design, it's worth noting that the highest number of deer (6,643) were classified in 2018.

From our 2018 classification we can surmise the dynamics of this deer herd indicate a growing population. Between 2016 and 17 the fawn ratio increased from 52 to 60 fawns per 100 does. This sets the 20 year average at 56:100. This is below the prescribed 65:100, however higher juvenile survival estimates gathered across the state line by Colorado Parks and Wildlife biologists indicate that this deer herd can grow despite the lower ratios.

Overall buck ratios remained mostly unchanged from a 2017 ratio of 28:100 to 29:100 in 2018. However a significant shift occurred in our adult and yearling ratios where we saw a respective decrease and increase from 20:100 to 15:100 (2018) and an increase from 7:100 to 14:100(2018). This shift in age class composition is probably the result of multiple variables although two

consecutive years where hunters were restricted to harvesting older age class bucks is likely a contributing factor.

Post-winter ground classification was performed in three areas to estimate over-winter fawn loss, including areas along Muddy Creek just north of Baggs, Poison Basin, and around Powder Rim. The total mule deer counted was 1,279 with 985 adults and 294 fawns. Using the post-season buck ratio to assume 23% of adults are bucks, 758 were does, for a fawn:doe ratio of 39:100. This approaches a minimum of 40% over-winter fawn loss, which is significant but not nearly as substantial as some other migratory herds west of the Continental Divide. Winter ranges were surveyed for mortalities, with some ranges, like Weber Mesa, displaying significant mortality. The majority of the mortalities observed were fawns and very old does, though some yearling and older adult bucks were also observed.

Harvest Data

The 2018 hunting season saw a little over 3,100 hunters harvest 1,926 mule deer in 2019 for an overall success rate of 62%, the highest in the last 5 year period. Just over 90% of that harvest came from Area 82 (which is typical since it has more deer and great access). A significant weather event allowed hunters better access to mule deer bucks that began migrating as a result.

Population

The current post-hunt population model estimates for 2018 indicate we are within the objective range at around 20,722 animals and comparable to the most recent 5 year average of 20,298. Despite the SCJ, SCA model having the lowest relative AICc value (161), we chose the TSJ, CA model (186) based on what we believe to be a better representation of the actual population trend, buck ratio comparison, and size based on hunter satisfaction, plausibility and field observations. The SCJ, SCA model was rejected since it shows unrealistic population estimates. Within the TSJ, CA model we constrained adult survival to lower levels (0.3 to 0.82) during the 2007-08 and 2010-11 winters to match the difficult winter conditions. Additionally adult survival was constrained for the 2014-2017 years to incorporate survival estimates gathered from collared does as part of ongoing research to monitor development impacts within the Atlantic Rim and Chokecherry/Sierra Madre Wind Project areas.

The spreadsheet model seems to be a useful tool for this herd; however, without an independent estimate of the population size and the indication from studies from WGFD and Colorado Parks and Wildlife showing high interchange between the two states, we must be cautious in the use of this model as our only source of information.

Management

Given population status, our 2019 hunting season proposal will see a harvest strategy aimed at maintaining a liberal buck harvest and targeted doe harvest for herd stabilization and disease monitoring purposes. To target more of the does migrating into Wyoming from Colorado at the southern end of area 82, 50 of those Type 6 licenses will be shifted to that specific area as a Type 7 license. With some winter mortality and a possibly stable population, we are holding off on any

increases to doe harvest at this time. The antler point restriction was removed for the 2019, so buck ratios will be telling in the 2019 post-season classification flights. Removal of the APR in 2019 is on track with past APR cycles in this herd unit, and data has shown leaving APRs in place for too long can depress antler size in the harvest.

Past years of estimating abundance exhibit population oscillations where a high annual estimate of 22-25,000 animals is followed by subsequent low estimates of 13-18,000. This is likely due to a combination of variables closely related to winter severity and habitat quality. Due to these models lacking any kind of a robust estimate (i.e. sightability) to constrain the population trend, a certain amount of skepticism is warranted when reviewing the annual abundance. However the trend is indicative of the natural fluctuations in this herd. In both the 2017 and 2018 seasons we saw implementation of a desired antler point restriction (APR) where general license harvest was restricted in both hunt areas 82 and 100 to older age class bucks. This was a conscious effort by managers to preemptively set up temporary (two year) protections for juvenile deer which would have been impacted by the 2016-17 winter. As we can now see from the classification data, this restriction had a significant impact on our yearling buck ratio which doubled from 2017 to 2018. While it was popular with some, we also received numerous comments from others which suggested it was no longer desired and should be removed in 2019. Additionally the significant decrease in our adult buck ratio between 2017 and 2018 supports the theory that this restriction has only concentrated harvest pressure on older age class bucks. Removing the APR in 2019 should have a positive impact on the herd's buck ratio composition by allowing hunters to harvest younger bucks.

Doe licenses allocated in 2019 will remain unchanged although we propose a shift in licenses from 82-6 to the new 82-7 for disease monitoring purposes. The 82 type 7 license is designed to target individuals migrating and wintering in high concentrations along the border and in CWD positive hot-spots within the southern third of the hunt area. Recent disease monitoring conducted by Colorado Parks and Wildlife shows high CWD prevalence rates for mule deer in CPW hunt units 4 and 5. Testing roughly 1600 harvested deer within the Bears Ears Herd Unit resulted in a prevalence rate of 18% within the herd unit and roughly 24% within the hunt areas bordering WGFD hunt area 82. The 82 type 7 license is an effort by managers to monitor prevalence rates in deer which are largely unaccounted for with the general season. For the "desert" portion of the herd, hunt area 100 has historically been more conservative because the deer typically harvested are low in abundance and resident to the area. We recommend the general season length remain short unchanged to allow a weekend opportunity to remain within the season structure. For special youth general seasons in these units, we propose no changes in both hunt areas 82 and 100. Within the limited quota portion of the Bags herd unit: hunt area 84 will see no changes to the quota or season length.