2018 - JCR Evaluation Form

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

HERD: MD104 - SUBLETTE

HUNT AREAS: 130-131, 138-142, 146, 150-156, 162
PREPARED BY: DEAN CLAUSE

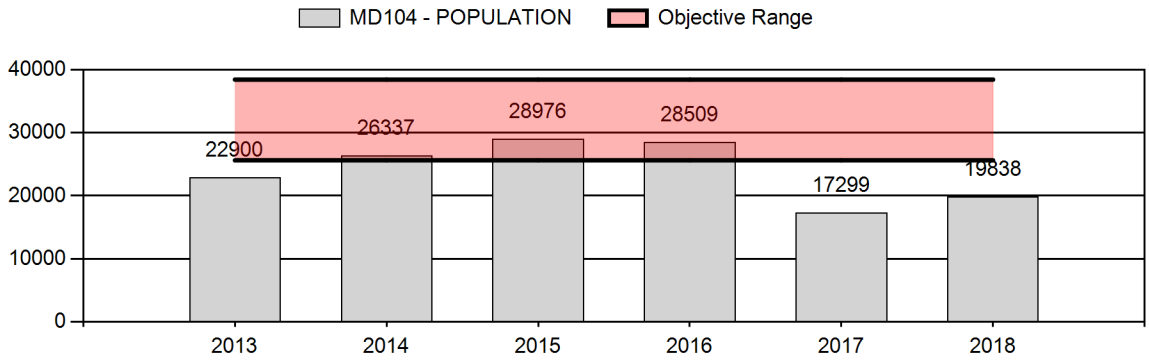
	2013 - 2017 Average	2018	2019 Proposed
Population:	24,804	19,838	20,507
Harvest:	1,678	1,174	1,355
Hunters:	4,421	3,857	4,100
Hunter Success:	38%	30%	33 %
Active Licenses:	4,441	3,860	4,100
Active License Success:	38%	30%	33 %
Recreation Days:	24,505	20,026	22,000
Days Per Animal:	14.6	17.1	16.2
Males per 100 Females	39	36	
Juveniles per 100 Females	62	68	

Population Objective (± 20%) :	32000 (25600 - 38400)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-38.0%
Number of years population has been + or - objective in recent trend:	2
Model Date:	2/16/2019

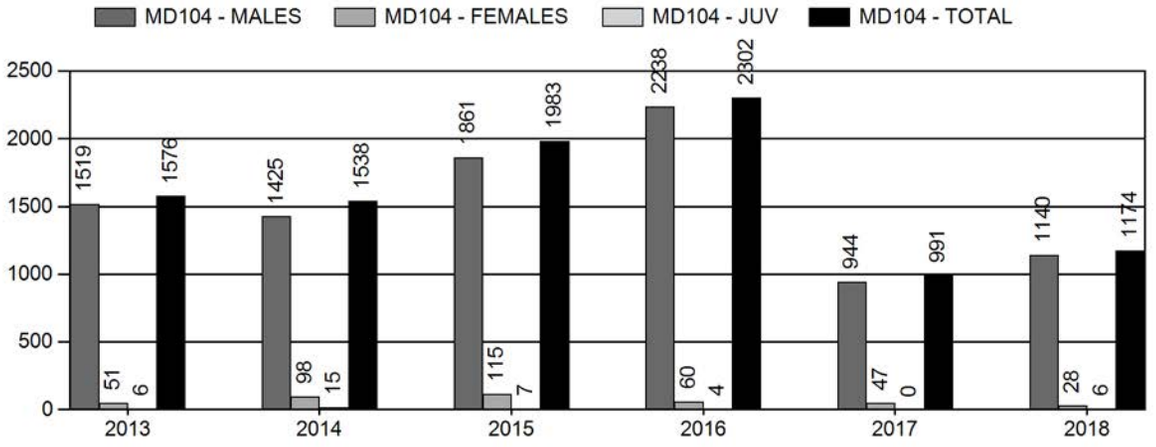
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	JCR Year	Proposed
Females ≥ 1 year old:	0.3%	0.6%
Males ≥ 1 year old:	27%	29%
Total:	6%	6%
Proposed change in post-season population:	+13%	+4%

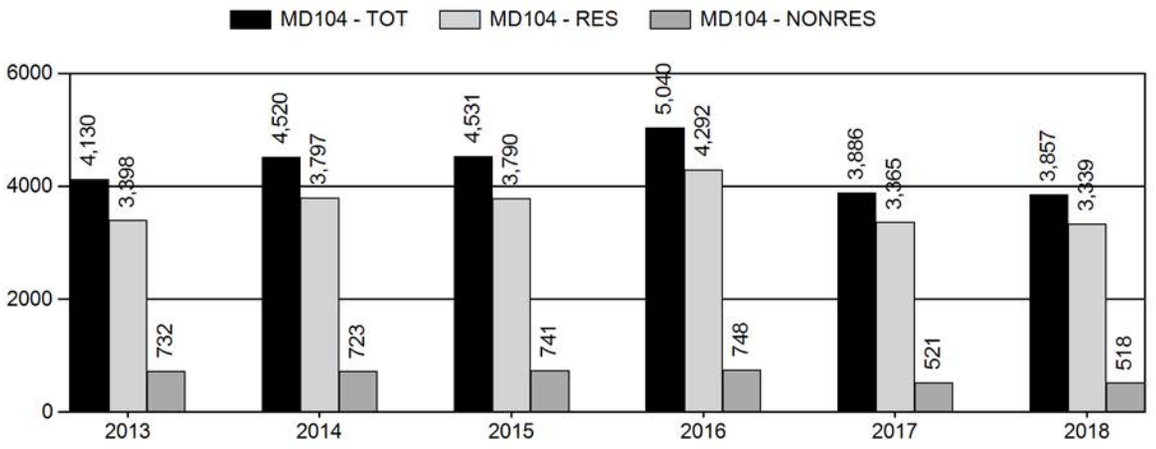
Population Size - Postseason



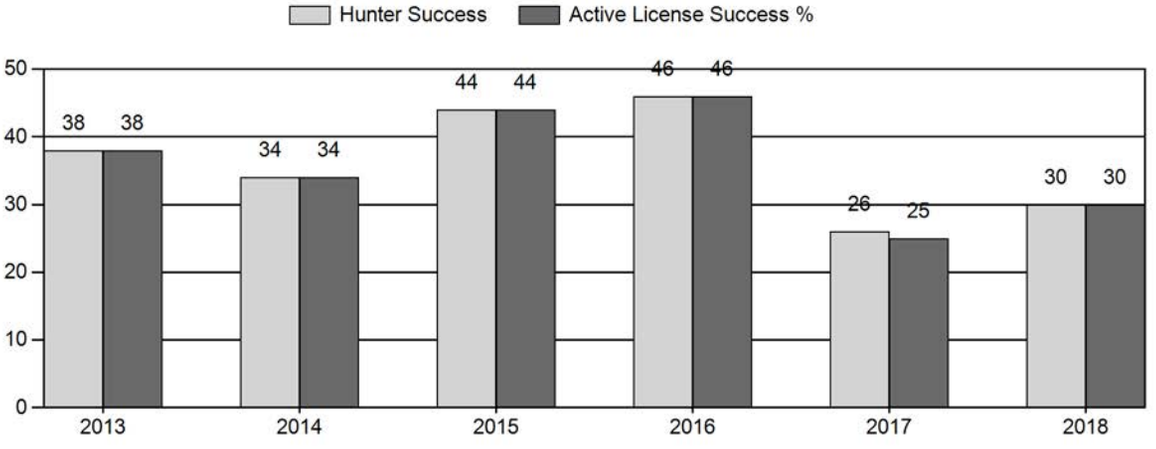
Harvest



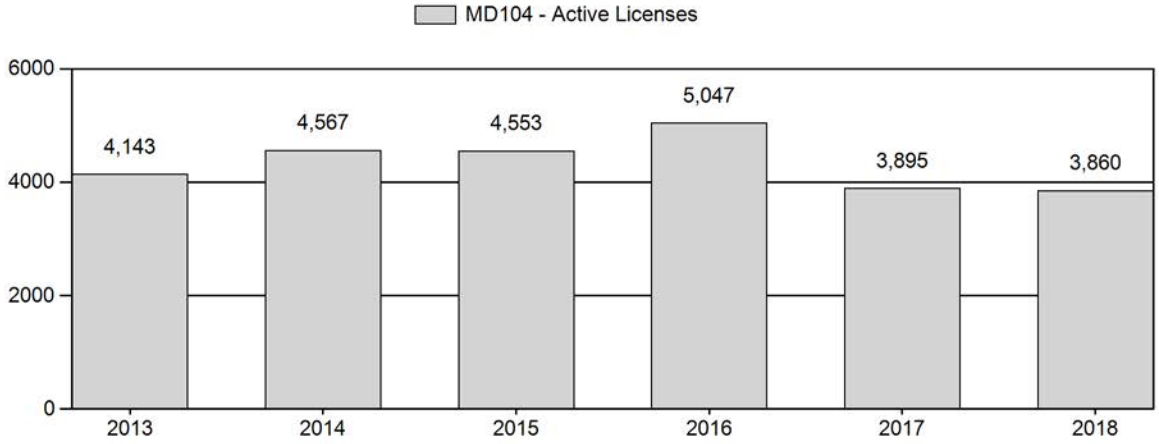
Number of Active Licenses



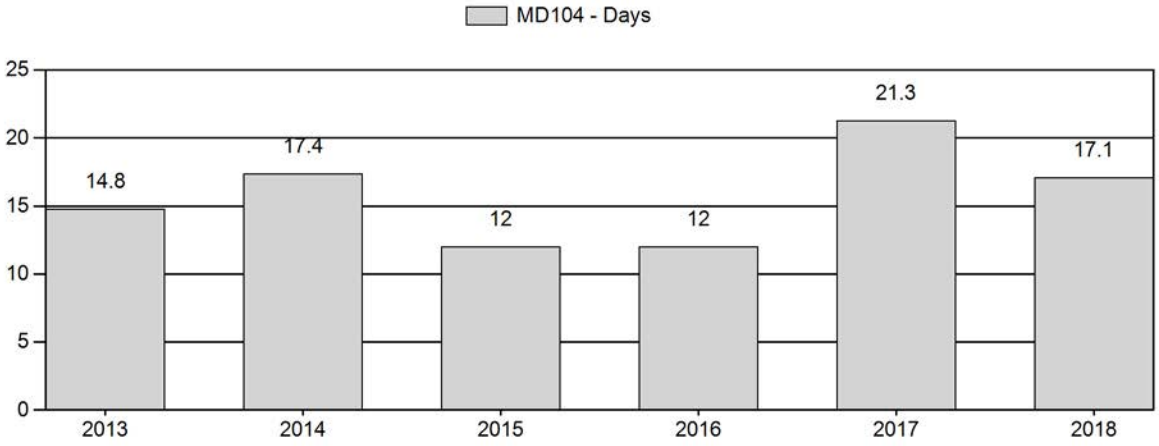
Harvest Success



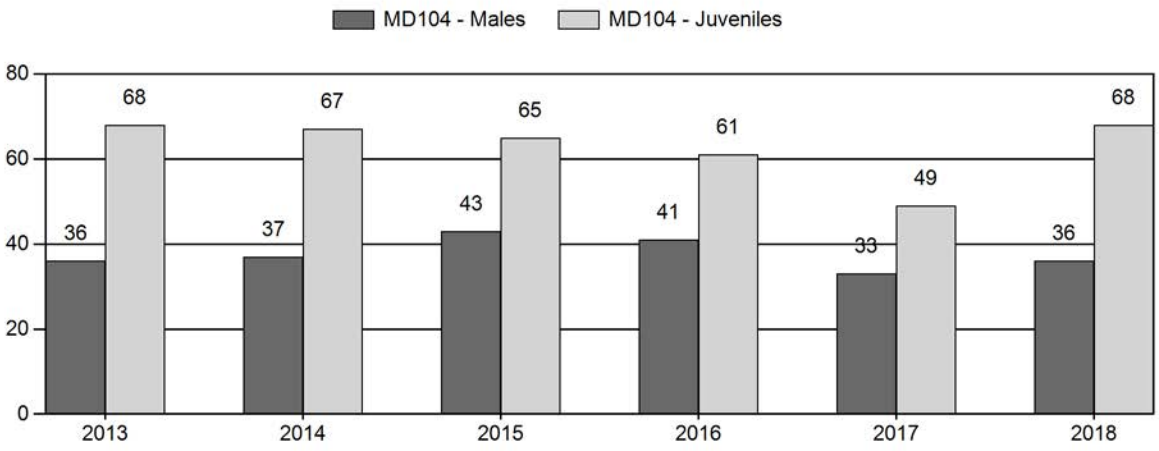
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Mule Deer Herd MD104 - SUBLETTE

		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	22,900	575	0	0	0	895	1,470	18%	4,044	49%	2,745	33%	8,259	1,436	14	22	36	± 1	68	± 2	50
2014	26,337	620	514	483	144	0	1,761	18%	4,699	49%	3,167	33%	9,627	1,420	13	24	37	± 1	67	± 2	49
2015	28,976	766	585	490	217	0	2,058	21%	4,768	48%	3,106	31%	9,932	1,463	16	27	43	± 1	65	± 2	46
2016	28,509	660	646	647	231	5	2,189	20%	5,285	49%	3,207	30%	10,681	1,248	12	29	41	± 1	61	± 1	43
2017	17,299	178	503	480	142	0	1,303	18%	3,907	55%	1,902	27%	7,112	1,123	5	29	33	± 1	49	± 1	37
2018	19,838	430	338	405	157	0	1,330	18%	3,663	49%	2,491	33%	7,484	1,444	12	25	36	± 1	68	± 2	50

2019 Seasons - Sublette Mule Deer (MD104)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
130		Oct. 1	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
130	1	Oct. 15	Oct. 31	15	Limited quota	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
130	6	Oct. 1	Oct. 31	25	Limited quota	Doe or fawn valid on private land within Sweetwater County
131		Oct. 1	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
131, 132, 133, 134, 135, 168	3	Oct. 1	Nov. 30	25	Limited quota	Any white-tailed deer
131	6	Oct. 1	Oct. 31	50	Limited quota	Doe or fawn valid within the Farson-Eden Irrigation Project
131	7	Oct. 1	Oct. 31	50	Limited quota	Doe or fawn valid west of the Blue Rim (Sweetwater County Road) and Old Stauffer Roads (Sweetwater County Road 7) and south of the OCI Entrance Road (Sweetwater County Road 6)
138		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
138, 139, 140, 142, 143	3	Oct. 1	Nov. 30	50	Limited quota	Any white-tailed deer
139		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
140		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
141	1	Oct. 1	Oct. 21	80	Limited quota	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
141	1	Oct. 22	Oct. 31			Antlered mule deer three (3) points or more on either antler or any white-tailed deer on national forest
142		Sept. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
146		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
150		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
150	3	Sep. 15	Nov. 30	15	Limited quota	Any white-tailed deer
151		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
151		Oct. 7	Oct. 31		General	Antlerless white-tailed deer
152		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
152		Oct. 7	Oct. 31		General	Antlerless white-tailed deer
153		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
154		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
155		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
156		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
Archery Seasons						
130,131, 141		Sept. 1	Sept. 30			Refer to Section 3
138-140, 142,146, 150-156		Sept. 1	Sept. 14			Refer to Section 3

REGION H NON-RESIDENT QUOTA - 600 LICENSES

Summary of Changes in License Numbers

Hunt Area	License Type	Quota Changes from 2018
131	3	+25 (new)
131	6	+50 (new)
131	7	+50 (new)
MD104 Totals		
131	**3**	**+25**
131	**6,7**	**+100**

Management Evaluation

Current Postseason Population Management Objective: 32,000
Management Strategy: Special
2018 Postseason Population Estimate: ~20,000
2019 Proposed Postseason Population Estimate: ~21,000

The Sublette Mule Deer Herd Unit is very large and contains habitat throughout Teton, Sublette, Lincoln and Sweetwater Counties. This deer herd contains 16 hunt areas (130, 131, 138-142, 146, 150-156, 162) with a population objective of 32,000 deer and a "special" management buck ratio objective of 30 to 45 bucks:100 does.

Herd Unit Issues

Winter survival, habitat condition and quality on winter ranges, and habitat loss (direct and indirect) from gas and residential development are the primary issues the influencing population dynamics in this herd unit. During the past 10 years, this deer herd experienced two winters that resulted in above normal fawn mortality (> 50% loss). Winter conditions experienced in 2016-17 resulted in a significant deer die-off where fawn loss was estimated near 85% and adult mortality near 35%. From the winter of 2010-11, fawn mortality estimates exceeded 70%. Winter fawn mortality estimates average around 30% on most years when winter severity is moderate to average. Current annual growth on key winter browse species has varied among years, but the overall habitat conditions remain poor with some improvement on certain years. Gas field development has and will continue to impact deer numbers within this herd unit. The Pinedale Anticline gas field development overlaps with crucial winter range located on the Mesa, where annual population estimates indicate deer numbers have declined by roughly 40% from 2001 – 2017. Studies have demonstrated that deer avoid areas with intensive winter gas development, resulting in less forage available for wintering deer within and adjacent to gas development.

We are maintaining this herd at the current objective and management strategy based on internal discussions and conversations with our constituents. We evaluated and considered population status and habitat data included in this document and a change is not warranted at this time. We will review this herd objective again in 2024; however, if the situation arises that a change is needed, we will review and submit a proposal as needed.

Weather

Precipitation

Overall precipitation from October 2017 through September 2018 was below average when evaluated across the entire herd unit, over the water year (Fig. 1; October through September of

the following year). The general characteristics included a very mild and dry winter followed by average spring precipitation. Although growing season (April through June) precipitation was near average due to several significant precipitation events, summer (May-July) precipitation was significantly below average and resulted in less than ideal growing conditions on summer range.

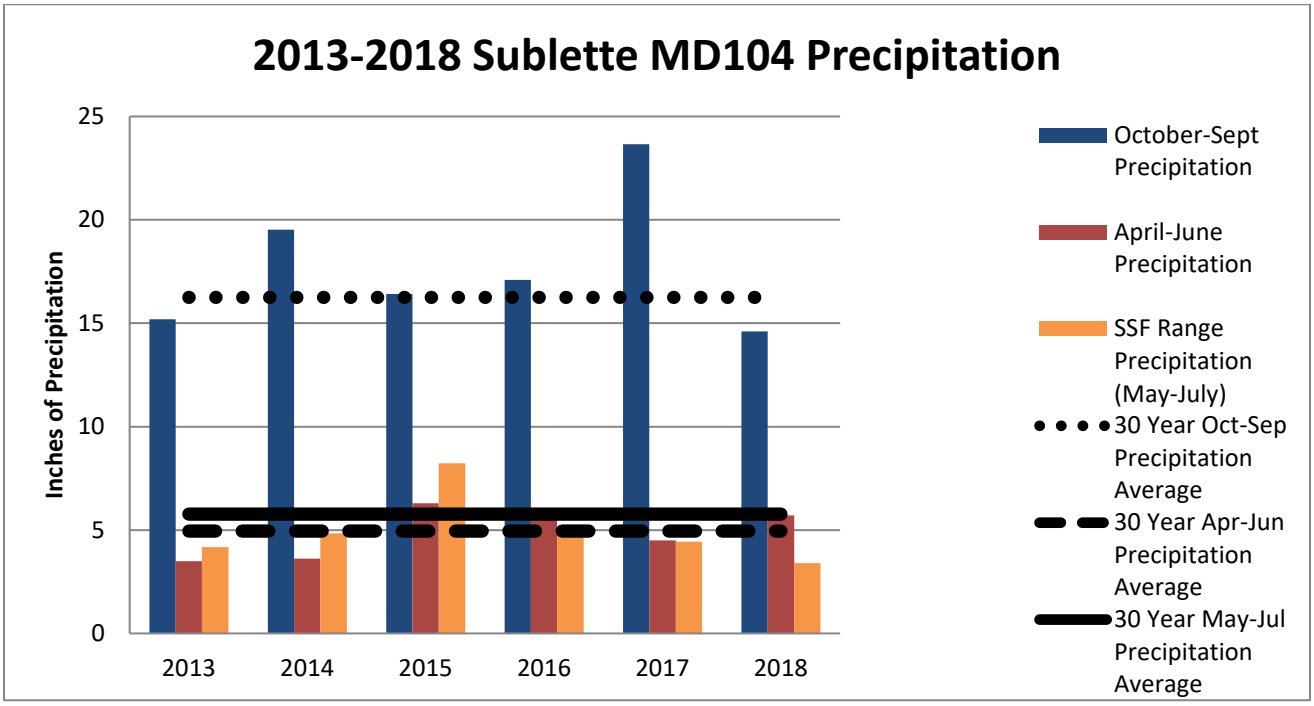


Figure 1. Inches of precipitation for three time periods/year in the Sublette Deer herd unit from 2013-2018, as modeled by the USDA's PRISM interpolation method. See DOI: 10.1002/joc.1688 for an article on the PRISM method.

Winter Severity

The 2018-2019 winter started mild but the months of January and February have been increasingly tough for wildlife with regard to snow accumulation and cold temperatures on winter ranges. Fawn survival data from the Wyoming Range Mule Deer Research project (winter ranges located to the south and west of the Sublette Herd Unit) indicate as of February 22, 2019, fawn survival since November 1, 2018 is 64% with more mortality expected to occur in the next several months. Current winter conditions follow the mild conditions in 2017-2018 which resulted in excellent fawn and adult survival and increased fawn production in 2018. As of February 24, 2019, SNOWTEL locations in the high elevations of the Sublette herd indicate snow water equivalent ranging from 85-100% of average and the Green River Basin watershed is near 100% of average. Additional snow accumulation and warmer temperatures are forecasted for the next several weeks.

Habitat

In 2018, annual leader production on important forage shrubs was significantly less than the last three years. This reduction is due to less overall precipitation and relatively higher than average temperatures during the growing season, which affected the availability of soil moisture as a resource for plants to put into growth. As of late February, sagebrush plants are generally buried in snow. Snow crusting has also been noteworthy which limits mobility and requires deer to expend more energy moving between patches of habitat.

Significant Events

Habitat treatments were conducted at several locations in 2018 throughout the herd unit. The Sublette Mule Deer Mitigation project implemented its third year of treatments including nearly 700 acres of sagebrush mowing and 370 acres of Spike application to thin sagebrush communities. Other projects include over 23 miles of fence modified to wildlife-friendly standards, 362 acres of aspen mechanical treatments, 283 acres of aspen prescribed burns, and over 17,600 acres of cheatgrass treated with herbicide. Lastly, livestock management and weed control was cooperatively implemented in the 34,000 acre Cliff Creek Wildfire (2016) in the Hoback basin and within the Sublette Mule Deer sagebrush treatments completed in 2016 and 2017 on BLM land. More detailed information can be obtained by reading the Pinedale Region report in the 2018 Strategic Habitat Plan (SHP) Annual Report.

In September-October 2018, the 62,000 acre Roosevelt Wildfire burned in the Upper Hoback and Beaver Creeks drainages near the Hoback Rim. This wildfire burned extensive areas dominated by conifer, aspen, sagebrush, and riparian habitat including spring-summer-fall, fawning, and migration corridor habitats. Although expected to provide long-term improvements to habitat, this fire likely reduced forage in the short-term during migration in the fall 2018 and spring 2019. Restoration efforts including livestock rest and weed control as well as vegetation monitoring are slated to occur in 2019-20.

Habitat Monitoring

Winter Range Shrub transects were not monitored in 2018 by Department personnel, but monitoring associated with past and future treatments was conducted throughout the herd unit and is discussed in more detail in the 2018 SHP Report.

Rapid Habitat Assessments

In 2015, Department personnel initiated the Rapid Habitat Assessment methodology to survey important mule deer habitats. This method strives to capture large-scale habitat quality metrics to better understand how the habitat is providing for the current population of mule deer. The overall end result of this effort is to provide a standardized habitat component for discussions about how mule deer objectives should or should not be adjusted based on the general concept of carrying capacity. In 2018, 2,362 acres of rangeland and 651 acres of aspen RHAs were completed by personnel in the Pinedale Region.

Data was summarized (Table 1) for 2015-2018 to facilitate discussions on the Sublette mule deer objective review. Some of the more interesting findings include: 1) rangeland conditions either did not meet or only partially met objectives in the three seasonal ranges where assessments occurred; 2) invasive species were documented on nearly 25% of the rangelands and 20% of the aspen areas; and 3) aspen had a greater percentage of stands meeting objectives than the rangeland assessment areas. The primary reasons for not meeting objectives in rangeland sites were lack of age class diversity, unhealthy mixed mountain shrub communities, and excessive hedging on key species.

Table 1. Rangeland and aspen Rapid Habitat Assessments of seasonal ranges in the Sublette mule deer herd.

Rangeland RHA								
Migration/Transitional Range			Spring-Summer-Fall Range			Winter Range		
Acres		20,387	Acres		6,985	Acres		6,441
Seral State	Early	0%	Seral State	Early	0%	Seral State	Early	0%
	Middle	4%		Middle	88%		Middle	82%
	Late	96%		Late	12%		Late	18%
Herbivory	Light	25%	Herbivory	Light	20%	Herbivory	Light	0%
	Moderate	45%		Moderate	80%		Moderate	45%
	Severe	30%		Severe	0%		Severe	55%
Species Diversity	Low	30%	Species Diversity	Low	16%	Species Diversity	Low	0%
	Medium	67%		Medium	44%		Medium	100%
	High	3%		High	40%		High	0%
Invasives	None	72%	Invasives	None	72%	Invasives	None	83%
	Present	25%		Present	25%		Present	17%
	Mngt Limiting	3%		Mngt Limiting	3%		Mngt Limiting	0%
Meet Objectives	Yes	3%	Meet Objectives	Yes	7%	Meet Objectives	Yes	2%
	Partial	25%		Partial	67%		Partial	23%
	No	71%		No	26%		No	74%

Aspen RHA		
Spring-Summer-Fall Range		
Acres		14,950
Seral State	Early	30%
	Middle	35%
	Late	20%
	PFC	15%
Herbivory	Light	33%
	Moderate	44%
	Severe	23%
Species Diversity	Low	7%
	Medium	63%
	High	30%
Invasives	None	80%
	Present	20%
Meet Objectives	Yes	54%
	Partial	37%
	No	10%

Field Data

Postseason herd composition (classification) counts in late November 2018 totaled 7,484 deer, a slight increase from 7,112 deer in 2017 but much lower than 10,681 deer in 2016. Snow cover was good in most areas surveyed during 2018, with deer distribution occupying most traditional winter habitats. Survey effort and timing to conduct these herd composition counts has remained relatively similar during all years.

The postseason 2018 total buck:100 doe ratio of 36:100 increased from 33:100 in 2017, a result from an improved yearling buck ratio of 12:100 in 2018. The 2018 and 5-year average (39:100) total buck ratios are both meeting management goals for this herd unit. Yearling buck:100 doe ratio in 2017 were 5:100, a result from the poor fawn survival during the 2016-17 winter. Adult buck ratios vary annually based on yearling buck recruitment and buck harvest levels.

The 2018 fawn:100 doe ratio of 68:100 improved drastically from 49:100 in 2017, the lowest documented since 1993 (50:100) following the very severe winter of 2016-17. The previous 5-year average fawn:100 doe ratio is 62:100. Good fawn production and winter survival are important for population growth and sustainability in this herd unit. Fawn production and recruitment through the winter has been sporadic in this herd and appears to influence population trend the most.

Harvest Data

The 2018 harvest was approximately 1,150 total deer (1,100 bucks and 50 does/fawns), slightly higher than the 2017 harvest of 1,000 total deer (950 bucks and 50 does/fawns), and much lower than the 2016 harvest of approximately 2,300 deer (2,200 bucks and 100 does/fawns). Since the low harvest reported in 2011, harvest has gradually increased within this herd. Similar to harvest rates, hunter success has also shown increasing trends through 2016, which reported a 46% hunter success and 12 days/harvest. The 2017 and 2018 hunter success of 25% and 30% remain lower compared to 2016 and the previous 5-year average of 38%. Hunter effort showed an increase in 2017 and 2018 at 21 and 17 days/harvest compared to 2016. Hunter numbers in 2017 declined around 24% to 3,886 and remained low in 2018 at 3,857 hunters, compared to 5,040 in 2016. The hunting seasons in 2011-2018 were more conservative compared to previous years, as all doe/fawn harvest opportunities were eliminated (except for youth), season lengths were slightly shortened, and limited quota licenses (including non-resident quotas) were reduced. The 2017 and 2018 seasons had an antler point restriction (APR) of 3 points or better to protect harvest on young bucks. Harvest and hunter effort trends correlate well with estimated population trends. When this deer population declines, as in 2011 and 2017, harvest rates and hunter participation decrease, and hunter effort increases. The opposite trend (increase harvest rates, hunters, and reduced hunter effort) is apparent with a population increase as harvest metrics have shown in 2013-2016. Harvest rates vary among hunt areas, as hunting pressure and harvest is highest in Hunt Areas 142, 152, 153, and 154, attributed to higher deer densities and little to no wilderness area limitations for non-resident hunters.

Population

The WGFD changed modeling techniques for all of big game herd units in July, 2012. A spreadsheet model designed by the Colorado Division of Wildlife uses harvest, sex/age ratios, and survival data. With the consolidation of data from the Steamboat Herd (Hunt Area 131) with the Sublette Herd Unit data a new model was incorporated, resulting in a slightly higher 2013 postseason population estimate of roughly 1,700 more deer compared to the previous model. The Time-Specific Juvenile and Constant Adult Survival (TSJ,CA) Model always exhibits the best overall fit compared to the other models (Fit = 102 and Relative AICc = 209) resulting in a 2018 postseason population estimate of approximately 20,000 deer, nearly a 30% decline from the 2016 population estimate, but a 13% increase from 2017. The TSJ,CA model appears to track

male:female ratios very well and represent population trends well. The 2018 population estimate is 38% below the desired objective of 32,000 for this herd unit.

Management Summary

The combination of variable reproductive rates, fawn survival, natural gas development on the Mesa winter complex, and habitat conditions are the primary factors regulating population trends in the Sublette herd unit. The winter/spring losses (fawns and adults) during 2010-11 dropped this population to an estimated 20,600 deer. The following winters through 2015-16 were mild resulting in good winter survival and continual population growth. The 2016-17 resulted in one of the toughest winters experience by this deer herd in over 25 years. With severe winter conditions (deep snow accumulations and below normal temperatures) experienced during the 2016-17 winter, little forage (browse) was available on much the traditional winter ranges and deer were forced to search and move into habitats not typically used in the winter. Spring data collection efforts such as change-in-ratio surveys, deer mortality documentation, and survival of collared deer estimate fawn loss near 85% and adult loss near 35% resulting from the 2016-17 winter. The 2017-18 winter was mild resulting very good winter survival for fawns and adults attributing to modest growth near 13% and improved fawn production in 2018.

In addition to years with large winter die-off, other population setbacks have been common in this herd and are likely attributed to poor fawn survival and poor forage conditions on winter ranges. Overall habitat conditions remain poor, but conditions have improved in recent years. Although the current management direction is for maximum population growth (minimal female harvest), female harvest may be necessary at some point in the future to offset degradation of crucial winter habitats and poor survival rates as this population increases. Population estimates indicate the population is roughly 38% below the objective of 32,000. Buck ratios are meeting herd goals (special status; 30-45 bucks:100 does) with trophy buck quality being maintained. Overall hunter satisfaction has been good within this herd in most years, even following years with winter die-off and fewer deer.

Harvest strategies in this herd have been very conservative in allowing primarily buck harvest, and hunting seasons will remain conservative to reduce buck harvest rates and maintain adequate buck ratios.

An antler point regulation (APR) on mule deer was established in 2017 for all hunt areas within this herd unit, restricting harvest to bucks with three (3) points or more on either antler in an effort to help maintain buck ratios above 30:100. That same APR will be maintained again in 2019, with plans to eliminate the APR for 2020 if buck ratios are adequate. A general license deer season for most hunt areas will open on September 15 and close October 6. Doe/fawn harvest opportunities will be the same as in 2012-2018, as only youth hunters will be allowed to harvest doe/fawn deer in general seasons.

Limited quota (Type 1) licenses in hunt areas 141 will remain at 80 licenses valid for the month of October. Limited quota (Type 1) licenses in hunt area 130 will remain at 15 licenses with an October 15 to October 31 season. There will be the same white-tailed deer season with 50 limited quota (Type 3) licenses valid for any white-tailed deer, October 1-November 30 in hunt areas 138-140 and 142, and 15 limited quota licenses Type 3 in hunt area 150. A Type 3 license

(n=25) will be now be available in hunt area 131, also valid for other hunt areas outside this herd unit from October-November. A total of 25 limited quota doe/fawn licenses (Type 6) in hun area 130 are available and 50 new Type 6 licenses available in hunt area 131 to address damage concerns on private lands near Farson valid in October. An additional 50 Type 7 licenses will be added in hunt area 131 to address damage on private lands along the Green River.

The Nonresident Region H quota will remain at 600 licenses. The 2019 season is projected to harvest approximately 1,400 deer (1300 bucks, 100 doe/fawns).