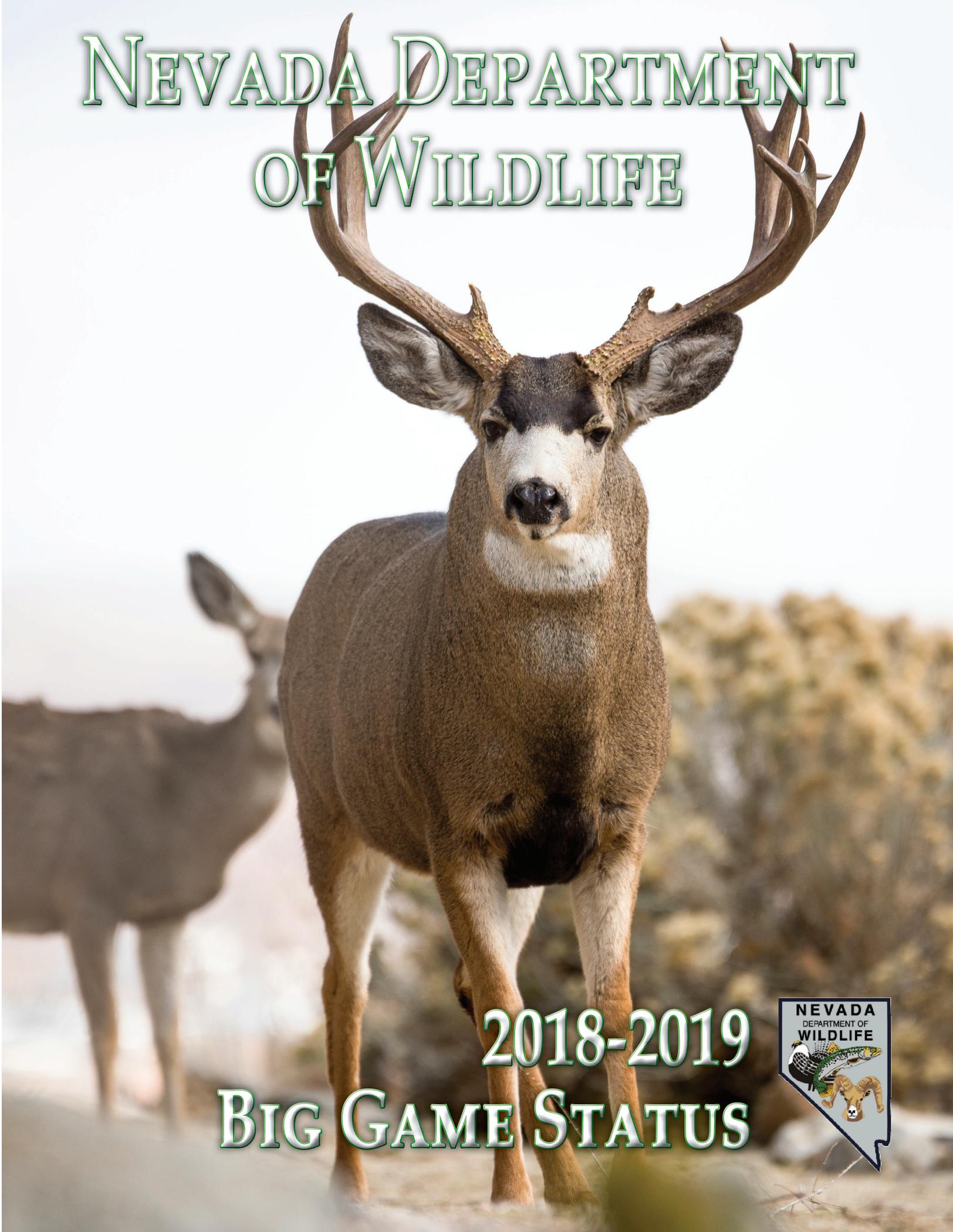


# NEVADA DEPARTMENT OF WILDLIFE



2018-2019  
BIG GAME STATUS





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# NEVADA DEPARTMENT OF WILDLIFE

## 2018-2019 BIG GAME STATUS



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Federal Aid Project

# TABLE OF CONTENTS FOR STATUS REPORTS

<b>BIG GAME STATUS STATEWIDE SUMMARY .....</b>	<b>SS-1</b>
<b>MULE DEER.....</b>	<b>1</b>
UNITS 011 - 013; NORTHERN WASHOE AND WESTERN HUMBOLDT COUNTIES .....	1
UNIT 014: GRANITE RANGE, WASHOE COUNTY .....	2
UNIT 015: INTERSTATE DEER HERD; DRY VALLEY RIM, BUFFALO HILLS, COPPERSMITH HILLS, WASHOE COUNTY .....	3
UNIT 021: INTERSTATE DEER HERD; PETERSEN MOUNTAINS, DOGSKIN MOUNTAINS, FORT SAGE MOUNTAINS .....	4
UNIT 022: VIRGINIA MOUNTAINS, PAH RAH MOUNTAINS, FOX RANGE .....	5
UNITS 031, 032, 034, 035: WESTERN HUMBOLDT COUNTY.....	6
UNIT 033: SHELDON NATIONAL WILDLIFE REFUGE; WASHOE AND HUMBOLDT COUNTIES .....	7
UNITS 041, 042: WESTERN PERSHING AND SOUTHERN HUMBOLDT COUNTIES .....	8
UNITS 043 - 046: EASTERN PERSHING AND SOUTHERN HUMBOLDT COUNTIES .....	8
UNIT 051: SANTA ROSA MOUNTAINS; EASTERN HUMBOLDT COUNTY .....	9
UNITS 061 - 062, 064, 066 - 068: INDEPENDENCE AND TUSCARORA RANGES; ELKO COUNTY .....	9
UNIT 065: PIÑON RANGE; SOUTHWESTERN ELKO COUNTY .....	10
UNITS 071 - 079, 091: NORTHEASTERN ELKO COUNTY.....	11
UNIT 081: GOOSE CREEK AREA; NORTHEASTERN ELKO COUNTY .....	12
UNITS 101 - 109: SOUTHERN ELKO AND NORTHWESTERN WHITE PINE COUNTIES .....	13
UNITS 111 - 113: EASTERN WHITE PINE COUNTY.....	14
UNITS 114 - 115: SNAKE RANGE; SOUTHEASTERN WHITE PINE COUNTY .....	15
UNIT 121: NORTH EGAN, CHERRY CREEK RANGES; WHITE PINE AND ELKO COUNTIES.....	15
UNITS 131 - 134: SOUTHERN WHITE PINE, EASTERN NYE AND WESTERN LINCOLN COUNTIES.....	16
UNITS 141 - 145: EUREKA AND WESTERN WHITE PINE COUNTIES .....	17
UNITS 151, 152, 154, 155: LANDER AND WESTERN EUREKA COUNTIES.....	18
UNITS 161 - 164: NORTH-CENTRAL NYE AND SOUTHERN LANDER AND EUREKA COUNTIES .....	19
UNITS 171 - 173: NORTHWESTERN NYE AND SOUTHERN LANDER COUNTIES.....	20
UNITS 181 - 184: CHURCHILL, SOUTHERN PERSHING, AND WESTERN LANDER COUNTIES .....	20
UNIT 192: CARSON RIVER INTERSTATE HERD; DOUGLAS COUNTY .....	21
UNIT 194, 196: CARSON RANGE AND PEAVINE MOUNTAIN INTERSTATE HERD; WASHOE AND CARSON CITY COUNTIES .....	22
UNIT 195: VIRGINIA RANGE; STOREY, WASHOE, AND LYON COUNTIES .....	22
UNITS 201, 202, 204 - 208: WALKER / MONO INTERSTATE DEER HERD; DOUGLAS, LYON, AND MINERAL COUNTIES .....	23
UNIT 203: MASON AND SMITH VALLEY RESIDENT HERDS; LYON COUNTY .....	23
UNITS 211, 212: ESMERALDA COUNTY.....	24
UNITS 221 - 223: NORTHERN LINCOLN AND SOUTHERN WHITE PINE COUNTIES .....	24
UNIT 231: WILSON CREEK RANGE; NORTHEASTERN LINCOLN COUNTY .....	25
UNITS 241 - 245: CLOVER, DELAMAR, AND MEADOW VALLEY MOUNTAIN RANGES; LINCOLN COUNTY.....	26
UNITS 251-253: SOUTH CENTRAL NYE COUNTY .....	26
UNITS 261 - 268: CLARK AND SOUTHERN NYE COUNTIES .....	27
UNITS 271, 272: SOUTHERN LINCOLN AND NORTHEASTERN CLARK COUNTIES.....	27
UNIT 291: PINE NUT MOUNTAIN HERD; DOUGLAS COUNTY .....	28
<b>ANTELOPE.....</b>	<b>29</b>
UNIT 011: VYA AND MASSACRE RIMS, COLEMAN CANYON, BITNER TABLE .....	29
UNIT 012 - 014: HIGH ROCK, LITTLE HIGH ROCK, HAYS CANYON, BOULDER MOUNTAIN, GRANITE RANGE, CALICO RANGE. 30	30
UNIT 015: BUFFALO HILLS, DRY VALLEY RIM, COPPERSMITH HILLS .....	31
UNITS 021, 022: VIRGINIA MOUNTAINS, DOGSKIN MOUNTAINS, PETERSEN MOUNTAINS, SEVEN LAKES MOUNTAINS, FORT SAGE MOUNTAINS, LAKE RANGE, FOX RANGE .....	32
UNITS 031, 032, 034, 035, 051: HUMBOLDT COUNTY .....	33
UNIT 033: SHELDON .....	34
UNITS 041, 042: WESTERN PERSHING AND SOUTHERN HUMBOLDT COUNTIES .....	35
UNITS 043 - 046: EASTERN PERSHING AND SOUTHERN HUMBOLDT COUNTIES .....	36
UNITS 061, 062, 064, 071, 073: NORTH CENTRAL ELKO COUNTY .....	36

UNITS 065, 142, AND A PORTION OF 144: SOUTHERN ELKO COUNTY, NORTHERN EUREKA COUNTY .....	37
UNIT 066: OWYHEE DESERT; NORTHWESTERN ELKO COUNTY .....	38
UNITS 067, 068: WESTERN ELKO AND NORTHERN LANDER AND EUREKA COUNTIES .....	38
UNITS 072, 074, 075: NORTHEASTERN ELKO COUNTY .....	39
UNITS 076, 077, 079, 081, 091: NORTHEASTERN ELKO COUNTY .....	40
UNITS 078, 105 - 107, 121: SOUTHEASTERN ELKO AND CENTRAL WHITE PINE COUNTIES .....	41
UNITS 101 - 104, 108, 109 AND A PORTION OF 144: SOUTH CENTRAL ELKO AND WESTERN WHITE PINE COUNTIES .....	41
UNITS 111 - 114: EASTERN WHITE PINE COUNTY.....	42
UNITS 115, 231, 242: EASTERN LINCOLN AND SOUTHERN WHITE PINE COUNTIES .....	43
UNITS 131, 145, 163, 164: SOUTHERN EUREKA, NORTHEASTERN NYE, AND SOUTHWESTERN WHITE PINE COUNTIES.....	44
UNITS 132-134, 245: EASTERN NYE AND WESTERN LINCOLN COUNTIES.....	45
UNITS 141, 143, 151 - 156: EASTERN LANDER AND EUREKA COUNTIES .....	46
UNITS 161 - 162: NORTHERN NYE, SOUTHEASTERN LANDER, AND SOUTHWESTERN EUREKA COUNTIES .....	47
UNITS 171 - 173: NORTHWESTERN NYE AND SOUTHERN LANDER COUNTIES.....	48
UNITS 181 - 184: CHURCHILL, SOUTHERN PERSHING, WESTERN LANDER, AND NORTHERN MINERAL COUNTIES .....	48
UNITS 202, 204: LYON AND MINERAL COUNTIES .....	49
UNITS 203, 291: LYON, DOUGLAS COUNTIES .....	50
UNITS 203, 291: LYON, DOUGLAS COUNTIES .....	50
UNITS 205 - 208: EASTERN MINERAL COUNTY .....	51
UNITS 211 - 213: ESERALDA COUNTY .....	52
UNITS 221 - 223, 241: LINCOLN AND SOUTHERN WHITE PINE COUNTIES .....	52
UNIT 251: CENTRAL NYE COUNTY .....	53
<b>ROCKY MOUNTAIN ELK.....</b>	<b>54</b>
UNIT 051: SANTA ROSA MOUNTAINS; EASTERN HUMBOLDT COUNTY .....	54
UNITS 061, 071: BRUNEAU RIVER AND MERRITT MOUNTAIN AREA; NORTHERN ELKO COUNTY .....	54
UNITS 062, 064, 066 - 068: INDEPENDENCE AND TUSCARORA RANGES; WESTERN ELKO, NORTHERN EUREKA AND LANDER COUNTIES.....	55
UNIT 065: PIÑON RANGE, CEDAR RIDGE AREA; SOUTHWESTERN ELKO AND EASTERN EUREKA COUNTIES .....	56
UNITS 072, 073, 074: JARBIDGE MOUNTAINS; NORTHERN ELKO COUNTY .....	57
UNIT 075: SNAKE MOUNTAINS; ELKO COUNTY .....	58
UNITS 076, 077, 079, 081: THOUSAND SPRINGS, GOOSE CREEK AND PEQUOP MOUNTAINS AREA; NORTHERN ELKO COUNTY .....	58
UNIT 078, AND PORTIONS OF 104, 105 - 107, 109: SPRUCE MOUNTAIN; ELKO COUNTY .....	59
UNIT 091: PILOT RANGE; EASTERN ELKO COUNTY .....	60
UNITS 101 - 103: EAST HUMBOLDT AND RUBY MOUNTAINS; ELKO COUNTY .....	61
UNITS 111 - 115: SCHELL CREEK, ANTELOPE, KERN AND SNAKE RANGES; EASTERN WHITE PINE AND NORTHERN LINCOLN COUNTIES.....	61
UNIT 121, 104 AND A PORTION OF UNIT 108 <sup>A</sup> : CHERRY CREEK, NORTH EGAN, BUTTE, MAVERICK SPRINGS AND MEDICINE RANGES; NORTHERN WHITE PINE AND SOUTHERN ELKO COUNTIES .....	62
UNITS 131, 132 AND PORTION OF UNIT 108 <sup>B</sup> : WHITE PINE, GRANT AND QUINN CANYON RANGES; SOUTHERN WHITE PINE AND EASTERN NYE COUNTIES .....	63
UNITS 144, 145: DIAMONDS, FISH CREEK RANGE, MAHOGANY HILLS AND MOUNTAIN BOY RANGE; SOUTHERN EUREKA AND WESTERN WHITE PINE COUNTIES. ....	64
UNITS 161 - 164: NORTH-CENTRAL NYE AND SOUTHERN LANDER AND EUREKA COUNTIES .....	64
UNITS 171 - 173: NORTH-WESTERN NYE AND SOUTHERN LANDER COUNTIES .....	65
UNITS 221 - 223: EGAN AND SCHELL CREEK RANGES; NORTHERN LINCOLN AND SOUTHERN WHITE PINE COUNTIES.....	66
UNIT 231: WILSON CREEK RANGE; LINCOLN COUNTY .....	66
UNIT 241 - 242: DELAMAR AND CLOVER MOUNTAINS; LINCOLN COUNTY.....	67
UNIT 251: KAWICH RANGE; NYE COUNTY .....	68
UNIT 262: SPRING MOUNTAINS; CLARK AND SOUTHERN NYE COUNTIES .....	68
<b>DESERT BIGHORN SHEEP .....</b>	<b>70</b>
UNITS 044,182: EAST AND STILLWATER RANGES; PERSHING AND CHURCHILL COUNTIES .....	70

UNITS 045,153: TOBIN RANGE AND FISH CREEK MOUNTAINS; PERSHING AND LANDER COUNTIES .....	70
UNITS 131 AND 164: DUCKWATER HILLS, WHITE PINE RANGE AND NORTH PANCAKE RANGE; SOUTHERN WHITE PINE AND EASTERN NYE COUNTIES .....	71
UNIT 132: GRANT RANGE AND QUINN CANYON RANGE; EASTERN NYE COUNTY .....	72
UNIT 133, 245: PAHRANAGAT AND MOUNT IRISH RANGES; LINCOLN COUNTY.....	73
UNIT 134: PANCAKE RANGE; NYE COUNTY.....	73
UNIT 161: TOQUIMA RANGE; NORTHERN NYE COUNTY.....	74
UNITS 162 - 163: MONITOR AND HOT CREEK RANGES; NYE COUNTY .....	74
UNIT 173: TOIYABE RANGE; NORTHERN NYE COUNTY .....	75
UNIT 181: FAIRVIEW PEAK, SLATE MOUNTAIN, AND SAND SPRINGS RANGE; CHURCHILL COUNTY .....	76
UNIT 183: CLAN ALPINE RANGE; CHURCHILL COUNTY .....	76
UNIT 184: DESATOYA RANGE; CHURCHILL AND LANDER COUNTIES .....	77
UNIT 195: VIRGINIA RANGE; STOREY COUNTY .....	78
UNIT 202: WASSUK RANGE; MINERAL COUNTY .....	78
UNIT 204: EAST WALKER RIVER; LYON COUNTY .....	79
UNIT 205,207: GABBS VALLEY RANGE, GILLIS RANGE, PILOT MOUNTAINS; EASTERN MINERAL COUNTY.....	80
UNIT 206, 208: EXCELSIOR RANGE, CANDELARIA, GARFIELD AND MILLER MOUNTAIN; MINERAL COUNTY .....	80
UNIT 211: SILVER PEAK RANGE AND VOLCANIC HILLS; ESMERALDA COUNTY .....	81
UNIT 212: LONE MOUNTAIN; ESMERALDA COUNTY .....	82
UNIT 213: MONTE CRISTO RANGE; ESMERALDA COUNTY .....	83
UNIT 221, 223, 241: HIKO, PAHROC, SOUTH EGAN, AND DELAMAR RANGES; LINCOLN COUNTY.....	83
UNIT 243: MEADOW VALLEY MOUNTAINS; LINCOLN COUNTY .....	84
UNIT 244: ARROW CANYON RANGE; NORTHERN CLARK COUNTY.....	85
UNIT 252: STONEWALL MOUNTAIN; NYE COUNTY .....	85
UNIT 253: BARE MOUNTAIN; SOUTHERN NYE COUNTY .....	86
UNIT 254: SPECTER RANGE; SOUTHERN NYE COUNTY.....	87
UNIT 261: LAST CHANCE RANGE; SOUTHEASTERN NYE COUNTY .....	88
UNIT 262: SPRING MOUNTAINS (LA MADRE, RED ROCK AND SOUTH SPRING MOUNTAINS) AND BIRD SPRING RANGE; WESTERN CLARK COUNTY .....	88
UNIT 263: MCCULLOUGH RANGE AND HIGHLAND RANGE; SOUTHERN CLARK COUNTY.....	89
UNIT 264: NEWBERRY MOUNTAINS; SOUTHERN CLARK COUNTY.....	90
UNIT 265: SOUTH ELDORADO MOUNTAINS; SOUTHEASTERN CLARK COUNTY .....	91
UNIT 266: NORTH ELDORADO MOUNTAINS; SOUTHEASTERN CLARK COUNTY .....	92
UNIT 267: BLACK MOUNTAINS; EASTERN CLARK COUNTY .....	92
UNIT 268: MUDDY MOUNTAINS; CLARK COUNTY .....	93
UNIT 269: RIVER MOUNTAINS; CLARK COUNTY.....	94
UNIT 271: MORMON MOUNTAINS; LINCOLN COUNTY .....	95
UNIT 272: VIRGIN MOUNTAINS AND GOLD BUTTE; NORTHEASTERN CLARK COUNTY .....	95
UNIT 280: SPOTTED RANGE; NORTHWESTERN CLARK COUNTY .....	96
UNIT 281: PINTWATER RANGE; NORTHWESTERN CLARK COUNTY .....	97
UNIT 282: DESERT RANGE AND DESERT HILLS; NORTHWESTERN CLARK COUNTY .....	98
UNIT 283, 284: EAST DESERT RANGE AND SHEEP RANGE; NORTHERN CLARK COUNTY .....	99
UNIT 286: LAS VEGAS RANGE; NORTH CLARK COUNTY .....	100
<b>CALIFORNIA BIGHORN SHEEP .....</b>	<b>101</b>
UNIT 011: MASSACRE RIM, COLEMAN RIM; NORTHERN WASHOE COUNTY .....	101
UNIT 012: CALICO MOUNTAINS AND HIGH ROCK CANYON; WESTERN HUMBOLDT AND WASHOE COUNTIES .....	101
UNIT 013: HAYS CANYON RANGE; WASHOE COUNTY.....	102
UNIT 014: GRANITE RANGE; WASHOE COUNTY .....	103
UNITS 021, 022: VIRGINIA MOUNTAINS; WASHOE COUNTY .....	104
UNIT 032: PINE FOREST RANGE AND MCGEE MOUNTAIN; HUMBOLDT COUNTY .....	105
UNIT 033: SHELDON NATIONAL WILDLIFE REFUGE; WASHOE AND HUMBOLDT COUNTIES .....	106
UNIT 034: BLACK ROCK RANGE; HUMBOLDT COUNTY .....	107

UNIT 035: JACKSON MOUNTAINS; HUMBOLDT COUNTY.....	108
UNIT 041: SAHWAVE MOUNTAINS; PERSHING COUNTY .....	108
UNIT 051: SANTA ROSA RANGE; HUMBOLDT COUNTY .....	109
UNIT 066: SNOWSTORM MOUNTAINS; WESTERN ELKO COUNTY .....	109
UNIT 068: SHEEP CREEK; NORTHERN LANDER AND EUREKA COUNTIES .....	110
<b>ROCKY MOUNTAIN BIGHORN SHEEP .....</b>	<b>112</b>
UNIT 074: THE BADLANDS; ELKO COUNTY .....	112
UNIT 091: PILOT RANGE; ELKO COUNTY .....	112
UNIT 101: EAST HUMBOLDT RANGE; ELKO COUNTY.....	113
UNIT 102: RUBY MOUNTAINS; ELKO COUNTY .....	114
UNIT 114: NORTH SNAKE RANGE - MOUNT MORIAH; EASTERN WHITE PINE COUNTY.....	115
UNIT 115: SOUTH SNAKE RANGE - MOUNT WHEELER: EASTERN WHITE PINE COUNTY .....	115
<b>MOUNTAIN GOAT .....</b>	<b>117</b>
UNIT 101: EAST HUMBOLDT MOUNTAINS; ELKO COUNTY.....	117
UNIT 102: RUBY MOUNTAINS; ELKO COUNTY .....	117
UNIT 103: SOUTH RUBY MOUNTAINS; ELKO AND WHITE PINE COUNTIES .....	117
<b>BLACK BEAR .....</b>	<b>119</b>
WESTERN REGION .....	119

## BIG GAME STATUS STATEWIDE SUMMARY

### MULE DEER

The Nevada Board of Wildlife Commission approved a statewide quota of 17,367 mule deer tags for the 2018-2019 season. Of those, 730 tags were returned that could not be re-issued resulting in 16,637 deer hunters with valid tags when the season began. Total deer harvest for 2018 was 8,018 including bucks and does. Of the 7,113 bucks harvested, about 41% were 4-point or greater. Success rate for all deer hunters continues to increase at the statewide level. Of those who reported they hunted, success rate was about 54% statewide for all mule deer hunts.

In 2018, Nevada Department of Wildlife game biologists classified about 17,700 mule deer during the fall survey. Statewide fawn production was slightly higher during 2018 with 49 fawns:100 does counted during post-season surveys, compared to 45 fawns:100 does during fall 2017. The observed post-season buck ratio was 33 bucks:100 does for 2018. Unfortunately, over-winter fawn survival was significantly lower for the 2018-19 winter, with an observed ratio of 26 fawns:100 adults during the spring survey. This represents the lowest observed spring fawn ratio since 2008. The low fawn recruitment is likely due to dry summer conditions followed by above average snow depths and cold temperatures for much of northern and eastern Nevada.

### ANTELOPE

The 2018 antelope season provided excellent hunting opportunities and success rates for Nevada hunters. The Nevada Board of Wildlife Commission approved a statewide quota of 4,558 antelope tags for the 2018 season. Of those, 257 tags were returned that could not be re-issued resulting in 4,301 antelope hunters with tags when the season began. Over 27,600 people applied for antelope tags in the 2018 main big game draw, not including specialty tags such as the PIW and Silver State. Over 3,100 antelope were harvested during 2018 for all seasons and weapon types. Overall, hunt success rate for 2018 was 72% for all antelope hunts. The percentage of bucks with horns 15 inches or greater was about 30% statewide.

In 2018, Nevada Department of Wildlife game biologists classified 11,966 antelope during autumn and early winter surveys with an observed buck and fawn ratio of 42 bucks:100 does:30 fawns. The Nevada Department of Wildlife uses a management objective of 20-30 bucks:100 does (for bucks 2 years old and older) when making quota recommendations for the following hunt year. The 2019 statewide population estimate for antelope is 30,300, which represents a slight increase from 2018.

The Nevada Department of Wildlife will initiate a new GPS radio collaring study on antelope in the fall 2019. The study efforts are in response to Secretarial Order 3362, which was declared by the US Department of Interior to identify, prioritize, and protect migration corridors and winter ranges for mule deer, elk, and antelope. Nevada Department of Wildlife plans to capture and mark up to 60 animals in two study areas in northern Nevada for this effort.

### ROCKY MOUNTAIN ELK

The Nevada Department of Wildlife issued 9,283 tags for elk hunts during the 2018-2019 season. The harvest of 1,203 bulls, including those taken during spike-only hunts, was slightly higher than 2017-2018. An additional 1,326 antlerless elk were harvested, representing a 14% decline from the previous year. The decline in antlerless harvest is reflective of tag reductions recommended in 2018 to maintain elk herds at their population objective.

Reported hunter success for all sex and weapon classes dropped 4% from 2018 to 27%. Combined success for bull hunters was 48% with 28% of successful hunters reporting antler lengths of 50 in or greater. Hunters of antlerless elk reported a success rate of 27%. Following the hunting season, biologists with the Nevada

Department of Wildlife classified 8,487 elk from 83% unit groups during aerial surveys. Ratios representative of the statewide composition were 41 bulls:100 cows:39 calves.

Data collected from hunters and during aerial surveys suggest the Nevada Department of Wildlife's goal of reducing the statewide elk population has been successful. The 2019 population estimate is down 7% to 12,500 elk. Composition of antlered elk with 50-in antlers or longer is down slightly from 2017, suggesting a shift to younger males in the harvest. Hunters should expect a slight reduction in antlered tags to increase the antler length metric. Further, substantial harvest of antlerless elk is no longer required to reduce densities in most areas of Nevada and tag quotas are intended to maintain herds at their population objective.

## DESERT BIGHORN SHEEP

There were 317 ram tags issued in 2018, including the 5 specialty tags (Heritage, Silver State, Dream, and Partnership in Wildlife). There were also 134 ewe tags issued (Units 212, 213, 253, and 268) to reduce herd size below population objectives. Total ram harvest was 279, down from the all-time high of 302 last year. The hunter success rate was again 90%, slightly above the long-term average of 87%. Average days hunted jumped up from 2017 almost 1 full day from 4.5 to 5.4 days (long-term average is 5.6). Statewide average ram age dropped to 6.4 from last year's highest average age ever of 6.7. The average B&C score also dropped from 2017 at 154 4/8 to 151 4/8 in 2018. There were 17 170+ B&C rams harvested from 11 different units, (compared to 21 and 12 units, respectively in 2017). Any season compared to the recording breaking 2017 season will be a letdown. But the 2018 ram harvest metrics do speak to declining ram availability but also at the same time possible hunter inexperience and challenges of locating rams in remote and physically demanding terrain in several units. The fifth desert bighorn sheep ewe hunt resulted in 85 animals harvested. The current population objective was met for Lone and Bare Mountain herds and therefore, those 2 units were removed from the ewe hunts in 2019. Thirteen of the 130 tag holders (4 tag returns before season were not reissued) did not hunt. Overall hunter success rate was 65% including those that did not hunt. Of note is that the number of desert bighorn sheep ewe applicants dramatically increased again to almost 1,000 compared to 532 in 2017 and 210 in 2016.

The statewide aerial desert bighorn sheep survey efforts were reduced in 2018 which resulted in lower sample size but still a representative sample of the statewide lamb recruitment levels being experienced. The observed lamb ratio was 23 lambs:100 ewes, the lowest on record. The lamb ratio is a serious concern likely caused by extreme drought conditions in summer 2018. Another cause to the poor lamb ratio is from prolonged lamb mortality in several herds caused by continued pathogen "shedding" and circulation among nursery groups after the initial polymicrobial pneumonia event in many herds over the last 5-8 years. The reality of lack of lamb recruitment over several years, will become more and more evident over the next 5 years with declining mature ram numbers and reduced ram quotas in several units.

A new pneumonia die-off occurred in the Clan Alpine Mountain's desert bighorn sheep herd beginning in September 2018. Ground surveys by field biologists first detected it and then field necropsies in mid-November confirmed it. Almost every hunter helped contribute samples from their harvested ram. Twenty-nine animals were sampled including 13 rams of the 16 successful hunters. Eight ewes, lambs, and young rams had sufficient quality lung tissues for necropsy and histopathology confirmed death caused by bronchopneumonia consistent with *Mycoplasma ovipneumoniae* (*M. ovi.*) infections. Interestingly, all 5 rams harvested in Cow Canyon proper were negative for *M. ovi.*, though 1 ram killed between Cow and Deep Canyon was *M. ovi.* positive. Field and aerial observations showed almost no 2018 lambs existed in the southern portions of Clan Alpines, whereas several lambs were observed in Cow Canyon area. The *M. ovi.* strain was confirmed by the diagnostic lab at Washington State to be an exact match to the strain in the 2007 Fairview-Slate-Sand Springs die-off, indicating a desert bighorn sheep to desert bighorn sheep pathogen spillover during summer 2018. Most mortalities occurred by mid-December and based on a March aerial survey, about one-third of the adults (about 150) died from the disease event. Monitoring of the Cow Canyon sub-herd will occur summer 2019. Concerns exist for additional pathogen spillover to adjacent desert bighorn sheep herds and potential for high adult losses.

Despite several herds struggling with low lamb recruitment and the recent Clan Alpine Range die-off, the statewide population estimate grew slightly to 10,400 up from 10,100 in 2018. There are essentially 60 geographically distinct desert bighorn sheep herds currently in Nevada. This many herds and the wide variation in herd performance can easily buffer losses incurred by a small proportion of herds that are declining.

Two years of coordination and planning with US Forest Service culminated in helicopter netgun desert bighorn sheep captures in the Arc Dome and Alta Toquima Wilderness Areas in November 2018. Forty-two ewes and rams were captured, sampled and a majority radio collared to assess and document pathogen profiles, seasonal use areas, habitat resource selection, and long-distance forays. In addition, 23 desert bighorn sheep on the Spotted Range were captured in collaboration with Department of Defense (DOD) to document critical bighorn seasonal use areas in relation to the proposed DOD land withdrawal.

Concerns exist over the ongoing Naval Air Station - Fallon (NAS) and DOD's Nevada Test and Training Range land withdrawals to allow for expansion of air and ground activities associated with Navy and Air Force training and special missions. Both combined proposed land withdrawals of Bureau of Land Management and US Fish and Wildlife Service public lands (direct management transferred to DOD) involve about 950,000 acres and could affect management of up to 2,000 desert bighorn sheep, their water developments, and public access.

Nevada Department of Wildlife hosted the Desert Bighorn Council Meeting in April 2019 held every 2 years in the desert southwest. Strong attendance occurred with again great sharing of information and knowledge to improve the collective management and conservation of desert bighorn sheep and their habitats range wide. The theme of the meeting was "Beyond Borders: Collaborative Management Recognizing Connectivity, Disease, and Genetics."

## CALIFORNIA BIGHORN SHEEP

There was a slight increase in California bighorn sheep ram tags from 57 in 2017 to 61 in 2018. The 2018 hunter success rate increased slightly to 97% compared to 93% in 2017. Average days hunted in 2018 of 7.8 days was still above the long-term average of 6.4. The average age of harvested rams continued a gradual decline to 6.4 in 2018 from a high of 7.4 in 2010. On a positive note, the harvest of a 9-year old ram scoring almost 176 B&C was the second largest California bighorn ram taken since 2001.

Aerial surveys classified 835 California bighorn sheep with 40 lambs:100 ewes ratio, identical to the statewide California bighorn lamb ratio in 2017. A slight increase in rams:100 ewes observed occurred in 2018 compared to 2017. The 2018 statewide California bighorn population estimate remains at 1,900.

It was an exciting winter with 2 California bighorn sheep translocations being conducted. Earlier in November 2018, pathogen profile pre-sampling occurred in the Double H Mountains and Pine Forest Range, the 2 source stock herds. All 18 animals captured and sampled were negative for the primary pathogen of concern, *Mycoplasma ovipneumoniae* (*M. ovi.*). On 31 January 2019, 19 California bighorn ewes and lambs were captured from the Double H Mountains and transported and released later that day to the base of the Massacre Rim to augment the existing small herd and hopefully boost that herd size to a sustainable level. On 1 February 2019, 31 California bighorn ewes and rams were captured from the Pine Forest Range and translocated to the west side of the Bloody Run Hills to reintroduce California bighorn to that mountain range as part of an overall augmentation to the Unit 035 California bighorn distribution. Both captures and translocations were a huge success with many volunteers involved, including a film crew that developed a short documentary on the entire process from start to finish.

## ROCKY MOUNTAIN BIGHORN SHEEP

All 5 ram tag holders in the North and South Snake Range were successful in 2018 with an average age of 5.8. The average and maximum B&C score was 140 3/8 and 166 2/8, respectively. The average days hunted greatly dropped to 9.4 in 2018 from 12.7 in 2017 but is still above the long-term average of 6.0 days

The following herds are still reduced from past pneumonia events that caused both adult and lamb mortality relative to their population estimates a decade ago: Unit 074 with the most recent die-off event in 2014; Unit 101 in 2010 and 2015, Unit 102 in 2010, and Unit 091 from likely periodic “spillovers” of virulent pathogens from adjacent domestic or wild sheep from the mid-1990s and early 2010s. From the winter 2018-2019 aerial surveys, optimism exists for 3 of these herds that showed strong lamb recruitment involving the Badlands herd (Unit 074), East Humboldt Range, and Ruby Mountains herds. Their average lamb ratio was 64 lambs:100 ewes. Survey totals of all Rocky Mountain bighorn herds conducted primarily in early 2019 was 172 animals classified with a ratio of 43 rams:100 ewes:40 lambs. On a positive note, albeit short-term, ample mature rams were detected in Units 074 and 091 to offer 1 tag in each unit for 2019. The statewide population of Rocky Mountain bighorn increased to 280 in 2019 from 230 in 2017 based on both improved lamb recruitment and improved demographic information to warrant increased modelled population estimates.

In March 2019, 8 satellite collars were deployed on adult ewes found using historical winter range on the north end of Unit 101. The objective of the project was to sample the pathogens present in the individual Rocky Mountain bighorn sheep and potentially remove any individuals that are chronically shedding. This project is designed to work in tandem with the continued sampling and collaring effort of the Unit 101 mountain goats. No *Mycoplasma ovipneumoniae* (*M. ovi.*) was detected using Polymerase Chain Reaction (PCR) that detects active shedding of the pathogen. These pathogen profiles corroborate with the strong lamb ratio detected during aerial survey this winter.

## MOUNTAIN GOAT

Six of 8 mountain goat tag holders in 2018 were successful with 2 nannies being harvested. All tag holders continue to be encouraged to take the non-mandatory Mountain Goat Hunting Orientation on the Nevada Department of Wildlife’s website to help hunters determine sex of mountain goats in the field. The average age of all harvested mountain goats was 6.5 years old in 2018, a substantial increase from the 4.7 average age in 2017.

The combined January 2019 aerial survey results for Units 101-103 was 159 total mountain goats classified with a ratio of 19 kids:100 adults. This overall kid ratio is much improved over the last decade of low kid recruitment and provides continued optimism for mountain goat herd recovery, especially in the East Humboldt Range. Though the concern still exists that most nannies in the East Humboldts are so old that we will see higher mortality in the adults and female mountain goats do not typically reach sexual maturity and give birth until 3 or 4 years of age. Will we see the improved kid recruitment soon enough to offset the increased mortality of most of the nannies that are well over 10 years old? The 2019 population estimate for all 3 herds is stable at 310 adults.

## MOUNTAIN LION

In 2018, a statewide harvest limit of 245 mountain lions was established. A 2-mountain lion harvest limit for the interstate hunt with Utah in Unit 091 remained unchanged.

In 2012, 6 unique genetic subpopulations were identified (Andreasen et al. 2012) and boundaries of existing units were chosen to approximate the boundaries of the genetic subpopulations. These subpopulations consist of the following units:

1. Central Population: 142,143, 144, 145, 155, 161, 162, 163, 171, 172, 183, 184, 251
2. East Population: 102, 103, 104, 105, 106, 108, 109, 111, 112, 113, 114, 115, 121, 231
3. North Population: 44, 45, 46, 51, 61, 62, 64, 65, 66, 67, 68, 71, 72, 73, 74, 75, 76, 77, 78, 79, 81, 91, 101, 107, 141, 151, 152, 153, 154, 156
4. West Population: 11, 12, 13, 14, 15, 21, 22, 32, 33, 34, 41, 192, 194, 195, 196, 201, 202, 203, 204, 206, 291
5. South Population: 131, 132, 133, 134, 164, 221, 222, 223, 241, 242, 243, 244, 245, 253, 254, 261, 262, 263, 264, 265, 266, 267, 268, 269, 271, 272, 280, 281, 282, 283, 284, 286
6. Transient Population: 31, 35, 42, 43, 181, 182, 205, 207, 208, 211, 212, 213, 252

The Nevada Department of Wildlife currently monitors to ensure hunter harvest does not exceed 35% adult female harvest or 50% overall female harvest for any genetic subpopulation on a 3-year average.

No trends were observed in adult female and overall female harvest.

	Overall Female Harvest	Adult Female Harvest
East	36%	25%
South	28%	24%
North	43%	31%
Central	44%	28%
West	43%	22%
Transient	43%	19%

## BLACK BEAR

Forty-five resident and 5 nonresident tags were issued for the 2018 black bear season; 11 male and 3 female bears were harvested. Unique harvest limits and female harvest limits were set for Areas 19, 20, and Unit 291. No harvest limits were reached for the 2018 black bear season. Various bear sightings have been reported around the state, a good indicator that black bears are naturally recolonizing native black bear habitat.

## WEATHER AND CLIMATE EFFECTS

**Reader’s note:** Previous Big Game Status Reports summarized weather at the time of publication. However, status of big game populations is often more related to conditions encountered during the previous year. While the water outlook for 2019 is favorable due to above-average winter precipitation, below-average snowfall and drought were experienced throughout much of Nevada in 2018. Poor juvenile recruitment observed during aerials surveys and resulting effects to 2019 population estimates are likely a result of poor range conditions encountered during the 2018 water year. Beginning in 2019, the Big Game Status Report Describes conditions experienced during the previous water year to better reflect conditions affecting the status of big game populations in Nevada.

The 2018 summary of Nevada weather and climate data was obtained from Natural Resources and Conservation Service’s (NRCS) SNOTEL sites throughout northern Nevada from October 2017 through April 2018. Water basin measurements from SNOTEL sites for snow water equivalent (SWE) data (snowpack) through 18 April 2017 ranged between 45% in the Eastern Nevada to 81% in the Carson River Basin (Figure 1). Total precipitation for the water year 2018 (October-April) was above the long-term average and generally ranged between 120% of average in Eastern Nevada to over 250% of average in the Carson River Basin (Figure 2). Unfortunately, despite the above average precipitation, many of Nevada’s ranges and water sources trended back to drought conditions due to a warm winter and below average snow-water equivalent for most basins. According to the US Drought Monitor, as of 25 September 2018, about 94% of Nevada was “Abnormally Dry” while approximately 48% of the state was considered to have “Moderate Drought” conditions. In September 2017, drought conditions were categorized as “Abnormally Dry” for about 1% of the state.

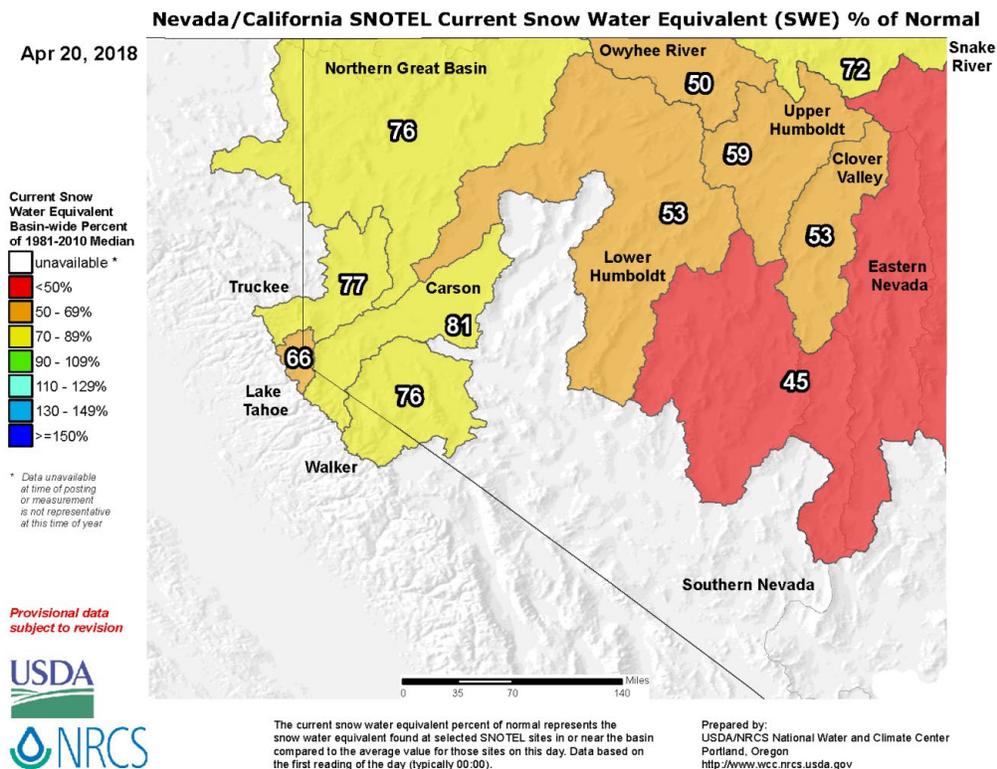


Figure 1. Percent of normal snow water equivalent (SWE) for the state of Nevada and portions of California. Data was generated on 20 April 2018 from the USDA website: <http://www.wcc.nrcs.usda.gov>.

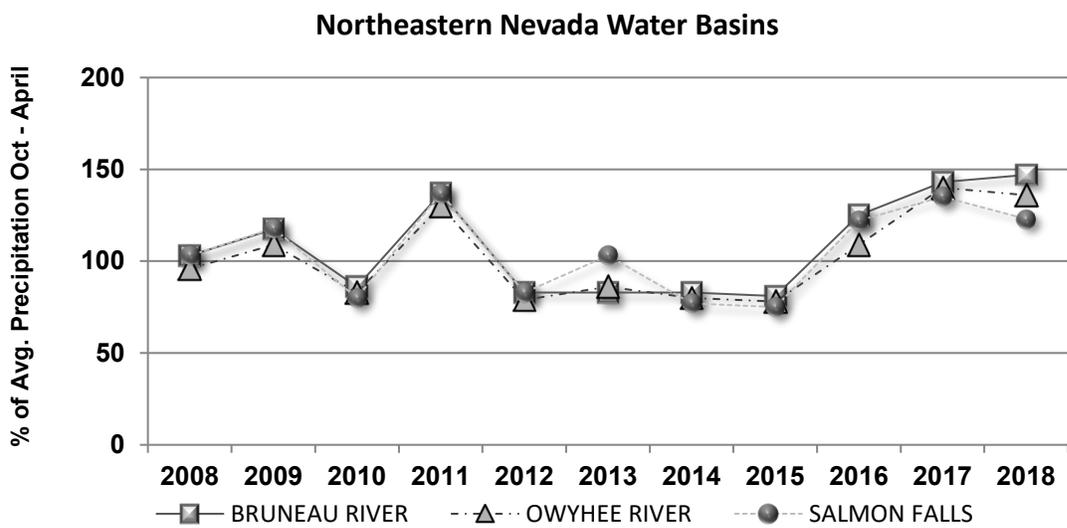
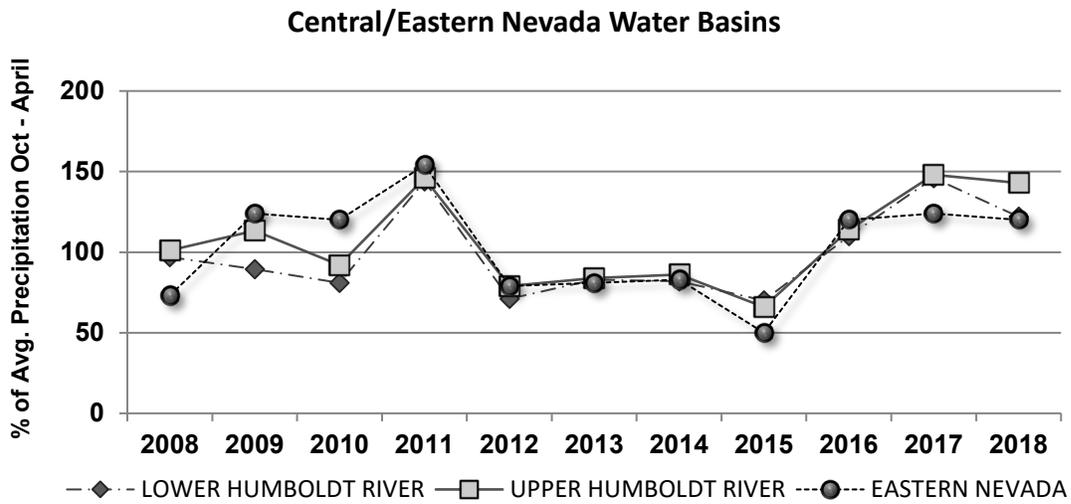
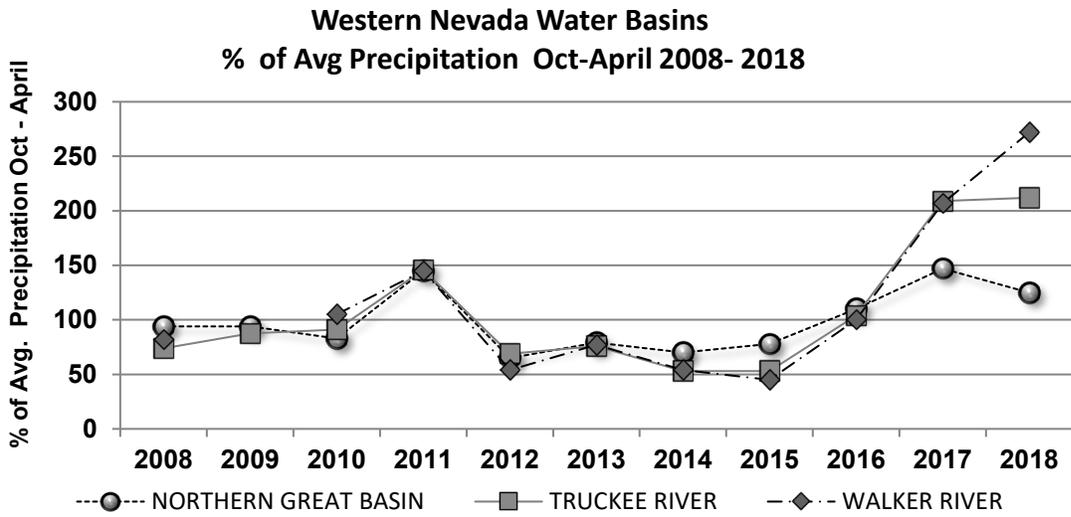


Figure 2. Trends in percent of average October - April precipitation for Nevada water basins from 2008 - 2018 (SNOTEL sites, Natural Resources Conservation Service).



# BIG GAME HERD STATUS REPORTS





# MULE DEER

## Units 011 - 013; Northern Washoe and Western Humboldt Counties

Report by: Chris Hampson

### Harvest

The early season resident rifle quota increased by 20 tags from 40 to 60 in 2018. The late season quota was 10 tags. Resident rifle hunters had more success during the early season in 2018 as the hunter success rate was 47% compared with 41% the previous year. Late season hunters had a 50% success rate this year compared with a 56% rate in 2017.

Junior hunters had good success and reported a 50% success rate while hunting in northwestern Nevada.

The percent of 4-points in the harvest for all hunts increased from 47% in 2017 to 50% this past year. The percentage of 4-points has slowly increased over the past few years within this unit group but can also be influenced by relatively lower quotas.

A new single month-long rifle season format was approved by the Nevada Board of Wildlife Commissioners for the 2019-20 hunting seasons. This is a change from a split early-late rifle season format that has been in place over the past decade or more.

### Survey Data

The fall survey took place following the hunting season in early November 2018. A sample of 325 deer was classified within the unit group. The composition ratio for the sample was 34 bucks: 100 does: 44 fawns. Buck ratios remain above the harvest objective but observed fall fawn ratios were lower this year when compared with the previous year. The lower recruitment values observed this past year in mule deer, antelope and even sage-grouse are believed to be mainly due to the near record dry summer in 2018.

The spring surveys were attempted in early March but were impacted significantly by very high winds and blowing snow. A second attempt was made to survey mule deer in early April 2019. A combined sample of 576 mule deer had a composition ratio of 33 fawns: 100 adults. A very good sample was obtained in Unit 011 on crucial winter range in Coleman Valley.

The mule deer radio collaring project that was started in late November 2017 will continue through at least 2019. Due to the significant winter weather, mule deer were on the move this year and these movement patterns and corridors are being documented for the first time in northwestern Nevada. In 2017, the winter was so mild that most of the mule deer never left their summer ranges. The information gained from this study will help managers into the future.

### Habitat

Winter 2018-2019 started out slowly but accelerated during January through March 2019. Significant precipitation in the form of both rain and snow have increased precipitation to above average levels. The Great Basin Outlook Report shows the Northern Great Basin region of Northwestern Nevada at between 120-145% of average for both snow water equivalent and total precipitation. The significant moisture will allow more water to be available at spring sources and upper elevation lakebeds this coming summer, benefiting all wildlife.

### Population Status and Trend

The average fawn ratios for most Washoe County deer herds were lower this year due to the nearly record dry summer in 2019. Recruitment rates for other big game species such as antelope were also lower in 2019.

The number of animals observed during both fall and spring surveys have generally decreased and have mimicked the downward trend of this mule deer herd. The long-term drought that lasted from 2007 through 2015 negatively affected mule deer populations throughout much of Northwestern Nevada.

Mule deer numbers in the northwestern corner of the state remain low and the recruitment rate observed this year will only maintain current numbers. Due to the lower numbers of mule deer observed on survey over the past several years, as well as those reported by hunters, a more conservative approach was taken for estimating this population.

**Unit 014: Granite Range, Washoe County**  
**Report by: Chris Hampson**

**Harvest**

Early season hunter success rates for resident deer hunters in Unit 014 remain very low and have been reported at 24% and 17% the past two seasons. Late season tagholders have also struggled and report having difficulty locating mature bucks. Late season success rates have been slightly higher but can be heavily influenced by the lower tag quotas. Junior hunters had a higher success rate of 58% as parents put more effort into ensuring success for young family members

**Survey Data**

Deer numbers and overall densities remain low in the Granite Range, making both post-season and spring composition surveys more difficult. Fall helicopter surveys located a sample of 161 mule deer with a ratio of 38 bucks: 100 does: 46 fawns.

The post-season buck ratio increased from 31 bucks: 100 does in 2017 to 38 bucks:100 does in 2018. The post-season fawn ratios were observed to be 10 fawns: 100 does lower this year and were classified at 46 fawns:100 does. Fawn ratios for antelope in Northwestern Nevada were also observed to be between 10 and 15 fawns:100 does lower this year due to the very dry summer in 2018.

Depending upon the severity of the winter, mule deer living in the Granite Range may move into adjacent units to spend the winter. In spring 2019, radio collar data showed many Granite Range mule deer moving into the adjacent Unit 015 to spend the winter. Collar data was useful to differentiate groups of mule deer during spring composition surveys. A sample of 94 mule deer was located during the March 2019 survey, however, the survey was shortened due to poor weather conditions. The sample provided a fawn to adult ratio of 36 fawns:100 adults.

The Washoe County mule deer radio collaring study continued in 2018-2019. Mule deer movement patterns were better defined due to the heavy winter. In 2017, many deer did not move from summer ranges because of a mild winter 2017-2018. This year the higher than average snowpack pushed deer to move onto their crucial winter ranges. Data collected from this study will help managers better understand important seasonal use areas, movement corridors and the overall population dynamics of deer herds in Washoe County.

**Habitat**

Habitat conditions should improve this coming year due to the excellent moisture received this past winter. The latter portion of the winter provided significant snowfall for much of northwestern Nevada. This boost was needed as winter 2017-2018 was dry. Water availability for all wildlife during the summer 2019 should be much improved.

Streamflow forecast for this coming spring and early summer show well above average levels for most of the Northern Great Basin Region. Precipitation amounts remain between 120-145% above average as of March 1, 2019.

### **Population Status and Trend**

The recruitment rate observed this year is considered average and the herd is not expected to increase this year. Due to poor herd performance over the past several years, a more conservative population estimate has been projected for this herd. Continued low survey sample sizes, poor harvest metrics, and fewer deer observed and reported by hunters are some of the reasons for the conservatism for this deer herd.

With the increased precipitation this winter, we expect spring forage conditions to be above average and mule deer will enter the summer in good condition and fawn recruitment and survival should increase in 2019.

Quota recommendations will continue to be more conservative in this unit due to the lower overall numbers of deer observed and poor performance of this deer herd. Also, a recent change to the rifle hunting season from a split early-late season to a single season lasting one month, will likely result in reduced tag quotas in 2019.

### **Unit 015: Interstate Deer Herd; Dry Valley Rim, Buffalo Hills, Coppersmith Hills, Washoe County**

**Report by: Chris Hampson**

### **Harvest**

The resident rifle success rate for the 2018 season was 27%, down 6% from the 2017 rate of 33%. Both figures are near the long-term average success rate for this interstate deer unit. In 2018, the muzzleloader and archery hunting seasons were changed from late December to the standard August and September hunting seasons. The archery hunters had more success with the earlier seasons. In 2018, resident archery hunters reported a 50% success rate as 3 of the 6 hunters harvested bucks. Two resident muzzleloader tags were allotted, though neither hunter reported being successful this past year.

### **Survey Data**

California biologists did not conduct fall mule deer surveys in California Unit X5b in 2018 for this interstate herd. The California mule deer generally do not move to their Nevada winter ranges in Unit 015 until late November or early December; however, there is a small resident deer herd that remains in Nevada year-round.

Nevada Department of Wildlife biologists conduct the spring surveys in March 2019 and focus their efforts on winter ranges along the California-Nevada border in Unit 015. Surveys in spring 2019 classified a total of 269 mule deer with a ratio of 32 fawns:100 adults.

Due to winter 2019, the migrating mule deer pushed further east into Nevada and were more concentrated on the traditional Nevada winter ranges. Surveys had to be shortened due to prolonged weather with strong winds. Deer surveys in adjacent units were also hampered in Northwestern Nevada due to the poor survey conditions.

### **Habitat**

Winter 2018-2019 has been well above average for both snow accumulations and total precipitation. The months of January through March provided significant moisture following a relatively dry start to the winter. The above average snowfall will help to maintain summer ranges in good condition. Water availability should be excellent as lakebeds are now full and spring sources have been recharged due to the increased precipitation.

The limiting factor for this interstate deer herd is the loss of habitat from past wildfires. The Rush Fire that burned in 2012 consumed over 350,000 acres along the California-Nevada border. The loss of brush species important to mule deer for both forage and cover has decreased the overall carrying capacity for this deer herd. The mid to lower elevations within the unit are very susceptible to both cheatgrass and Medusa's Head infestation which limits recovery of these burned areas.

### **Population Status and Trend**

The recruitment observed this year will allow for a stable trend for this interstate deer herd. The near record dry summer in 2018 reduced both the body condition of doe mule deer and the survival of mule deer fawns.

Fortunately, the habitat conditions in both California and Nevada should be much better entering summer 2019 due to the excellent moisture received this past winter. Mule deer should benefit from the improved conditions.

Quota recommendations are expected to be like those in recent years.

### **Unit 021: Interstate Deer Herd; Petersen Mountains, Dogskin Mountains, Fort Sage Mountains Report by: Chris Hampson**

#### **Harvest**

Resident rifle hunters reported a very good 82% success rate in 2019. Youth hunters also reported an impressive 67% success rate. Archery and muzzleloader hunter success rates in this unit are generally lower and more resemble statewide averages. The unit continues to have low tag draw odds due to its quality deer hunting and proximity to Reno-Sparks.

#### **Survey Data**

No fall mule deer survey data was obtained from California Fish and Game in 2019. In recent years, surveys of the California deer herds have not occurred. The last survey data obtained for California Units X6b and X7a which border Nevada, Unit 021 was in 2016.

The last survey in 2016 showed strong buck ratios of 39 bucks:100 does. High hunter success rates over the past several years also validate the higher buck ratios observed within this deer herd.

Spring surveys conducted by Nevada Department of Wildlife provided a spring sample of 347 mule deer with a ratio of 34 fawns:100 adults, which is considered average recruitment for this interstate deer herd.

Due to the significant snow accumulations during winter 2018-2019, an increased number of mule deer moved into Nevada Unit 021 to spend the winter. The sample from the survey, however, was lower due to the survey being shortened due to bad weather.

The mule deer collaring project that captured nine deer in the Petersen Mountains in late 2017 continues to provide good information on this local herd. Many of the mule deer originally captured in the Petersen Mountains turned out to be resident animals who live in the range year-round. Only one of the nine deer caught on the eastern side of the Petersen Mountains moved back into California to spend the summer and fall. Collar data shows some of the resident deer moving east into the Dogskin Mountains to spend the winter. Confirming these movement corridors is very important and will help to manage these local deer herds into the future.

**Habitat**

The Petersen Mountains have a long history of large wildfires in the range destroying mule deer habitat. In recent years, several large wildfires have destroyed habitat in other areas of the unit such as Fort Sage and Dogskin Mountain. Both resident deer as well as migrating deer from California are dependent upon the remaining unburned habitat for survival. Some of the older burned areas are slowly recovering but still do not provide the forage and cover needed for the deer herd to grow. Continued urban encroachment is shrinking the amount of habitat left for mule deer that live on the northern edge of Reno.

Restoration efforts in the burned areas continued in 2018 and early 2019. Nevada Department of Wildlife, Bureau of Land Management, US Geological Service and other agency personnel and volunteers planted sagebrush seedlings in portions of the Long Valley Fire that burned in 2017. This followed efforts to aerial seed the area with native plant and shrub species in fall 2017. Hopefully, the above average precipitation will help to increase the success of these restoration efforts.

**Population Status and Trend**

The average recruitment observed in 2019 will result in a static trend for this deer herd.

Due to the static trend of this deer herd quota recommendations for this interstate deer herd are expected to be like the previous year.

**Unit 022: Virginia Mountains, Pah Rah Mountains, Fox Range  
Report by: Chris Hampson****Harvest**

Hunter success rates were surprisingly high this year considering the amount of habitat that has been lost or burned over the past few years in both the Virginia Mountains and the Pah Rah Range. The closure of a major access road into the upper elevations of the Virginia Mountains by a private landowner has also made it more challenging for hunters to get into the areas that have higher deer densities.

The resident rifle success rate was reported at 54% in 2018. This is up from the 36% success rate in 2017. Due to the large amount of habitat burned in recent wildfires, mule deer were more concentrated in the unburned portions of the unit. The hunters who worked hard to get into these areas had good success.

**Survey Data**

Spring surveys were conducted from both the air and the ground this year due to poor weather conditions that hampered aerial surveys in early March 2019. The sample provided a ratio of 29 fawns:100 adults. This is comparatively lower than the ratio of 35 fawns:100 adults during 2017. Despite the significant winter 2018-2019, mule deer were scattered widely this spring. This may have been due to recent fires that burned large amounts of their winter range in 2017, and deer using pockets of remaining habitat.

**Habitat**

Winter 2018-2019 has been well above average for both snow accumulations and total precipitation received. The Great Basin Outlook Report shows the areas adjacent to Reno-Sparks as being well above average with snowfall totals near 145% of average as of March 1, 2019. The significant moisture will help to provide wildlife with ample water this coming summer. Habitat conditions should be very good this coming year with plants benefiting from the excellent soil moisture.

Unfortunately, the area has suffered tremendously from recent wildfires that have burned well over 100,000 acres within the unit. In 2018, the Paiute Fire burned over 50,000 acres in the Pah Rah Range that lies to

the east of Reno-Sparks. In 2017, the Long Valley Fire burned additional acreage in the Virginia Mountains. The amount of good quality mule deer habitat continues to shrink in this unit every year.

Restoration of these burned areas continues, as more work was completed this past winter to try to restore some of the native plant species that benefit mule deer. Portions of the 2018 Paiute Fire were aerially seeded with sagebrush and other important grass and forbs species. This effort was in conjunction with Nevada Division of Forestry and Carson City Bureau of Land Management. The excellent moisture received this winter and this spring should benefit the restoration efforts.

### **Population Status and Trend**

Mule deer living in the Virginia Mountains and Pah Rah Mountains of Unit 022 continue to lose large chunks of habitat. The amount of burned habitat within the unit nearly outweighs the amount of unburned habitat. Restoration efforts are important to help ensure that some of these burned areas eventually can provide the cover and forage needed for mule deer to survive.

Due to the loss of so much mule deer habitat within the unit, a more conservative population estimate was forecast for this deer herd. The lower recruitment values observed this year also contribute to the more conservative estimate.

Tag quotas for hunting mule deer in Unit 022 are expected to be lower in 2019.

### **Units 031, 032, 034, 035: Western Humboldt County Reported by: Ed Partee**

#### **Survey Data**

Post season surveys for Area 3 took place over the course of 2 days in mid-November 2018. During these flights 604 deer were classified. Ratios obtained from these surveys were 30 bucks: 100 does:48 fawns.

In March 2019, spring mule deer surveys were conducted over a 3-day period. Cloud cover, rain, and breezy conditions made for a difficult survey. A total of 1,242 deer were classified. This survey yielded a ratio of 34 fawns: 100 adults, which is lower than the previous 3 years and below the 5-year average.

#### **Habitat**

Unit 032 suffered another 2,000 plus acre fire in 2018. This fire occurred just south of Denio in deer winter range. Conditions for the rest of Area 3 have improved over the last 3 years due to increased precipitation. As of March 1, 2019 precipitation is 115% of normal. Improved moisture the last couple of years has helped habitat conditions improve in areas affected by fires. Rehabilitation work on past and present fires continues to improve these burned areas.

### **Population Status and Trend**

The population estimate for Area 3 saw a small drop overall. Fawn and buck ratios are stable with only minor fluctuations due to higher winter mortality. Population levels at this time are expected to remain relatively constant with existing habitat conditions. With the amount of moisture that has been received over the last 3 years, fawn production should improve with plenty of available forage and water.

## **Unit 033: Sheldon National Wildlife Refuge; Washoe and Humboldt Counties**

### **Report by: Chris Hampson**

#### **Harvest**

Hunter success rates for the resident rifle seasons on the Sheldon increased this year to 50% for the early hunt and 88% for the late season. Lower tag quotas influence these percentages somewhat, but hunters are having slightly more success hunting mule deer on the Sheldon when compared with just a few years ago. Junior hunters reported having a 57% success rate.

#### **Survey Data**

Winter 2017-2018 was mild and mule deer in Unit 033 remained on their summer ranges located within the borders of the Sheldon. This year, the heavy snow and cold temperatures forced more Sheldon mule deer to leave their summer ranges and move to their critical winter ranges. Several of these winter ranges lie outside of the Sheldon's borders. For this reason, surveys were concentrated on the winter ranges in Unit 012. One day of additional ground surveys located a handful of mule deer on the Sheldon north of Nevada SR 140. The combined sample provided a fawn ratio of 33 fawns:100 adults. The combined Units 011-013, 033 sample totaled 592 mule deer.

Fall surveys on the Sheldon classified a total of 101 mule deer with a ratio of 38 bucks:100 does:53 fawns. Buck ratios increased from 33 bucks:100 does in 2017 to 38 in 2017. Fawn ratios were average for the fall period at 53 fawns:100 does.

#### **Habitat**

Late winter snowstorms helped to added to the overall precipitation total on the Sheldon. The larger picture for the entire region shows the northwestern corner of the state having snow water equivalent and total precipitation between 120-145% of average. This is very good news for the Sheldon as it has been drier than most other areas in that part of the state. Lakebeds on the Sheldon continue to go dry by late summer impacting all wildlife that are attempting to remain on their normal upper elevation summer ranges.

The improved moisture will help to improve habitat conditions on the Sheldon for all wildlife. Forage quality and water availability should be much improved this coming year. The drought years between 2007 and 2015 severely impacted the amount of available water on the Sheldon and the quality of forage for all wildlife.

Pinyon-juniper removal continues on the Sheldon in an effort to protect sagebrush communities for wildlife. Additional removals are planned along the western edge of the Little Sheldon that will benefit both bighorn sheep and mule deer. Removal of trees near springs can help increase flows and help provide wildlife with critical water sources during drought conditions that are more and more common on the Sheldon.

#### **Population Status and Trend**

Hunter success rate are increasing slowly on the Sheldon but can be influenced by the low quotas allocated. Habitat conditions are expected to be much improved this coming summer and should provide mule deer with ample quality forage and water. Female mule deer should enter the summer in good condition for fawning. Mule deer fawns should have better resources available to them this year.

Overall mule deer numbers on the Sheldon remain low. Buck ratios remain strong within the population. Hunter success rates are creeping upwards and hunters are reporting seeing a few more deer while hunting on the Sheldon. Tag quotas for the 2019 hunting season are expected to be similar or slightly lower than those allocated in 2018.

**Units 041, 042: Western Pershing and Southern Humboldt Counties**  
**Report by: Kyle Neill**

**Hunt Results and Survey Data**

This population is not modeled or surveyed. According to management objectives, this unit group is managed conservatively to achieve the Resident Any Legal Weapon hunt success rate 45% or greater. Last year's success rate was 43%, with the 3 year mean at 40%. Reduced tag quotas were successful in increasing the Resident Any Legal Weapon hunt success rate.

**Habitat**

There was only one major wildfire this past year within this unit group. The Kumiva Fire (Unit 041, southwest portion of Selenite Range) occurred in July 2018 and burned 3,758 acres. Recovery efforts included applying herbicide to reduce noxious weeds and broadcast seeding 800 acres with native and non-native perennials. This fire along the past wildfires that have occurred in the Selenite Range over the last several years is thought to negatively impact mule deer.

**Population Status and Trend**

This herd appears stable with minimal annual change.

**Units 043 - 046: Eastern Pershing and Southern Humboldt Counties**  
**Report by: Kyle Neill**

**Survey Data**

Aerial spring surveys were conducted for 2 days in early March 2019. All units within the unit group were surveyed. A total of 449 mule deer were classified as 32 fawns:100 adults. The 2019 observed spring fawn ratio continues to remain below maintenance level.

**Habitat**

There was only one major wildfire that occurred in 2018 within the unit group. The Gregg Fire located on the east side of the Sonoma Range in Unit 046 was ignited by lightning in July 2018. This fire burned 10,220 acres (2,769 acres were private). Many sections of this fire occurred in previously burned areas; however, the northwest portion of the burned area had not burned previously and was composed of shadscale, sagebrush and bunch grass. The Bureau of Land Management's recovery plan included treating 1,705 acres with herbicides to control noxious weeds that occurred in fall 2018. Additionally, aerial and ground broadcast seeding on 880 acres with drill seeding on approximately 447 acres is to occur fall 2019. Another 880 acres will be broadcast seeded fall 2020. Annual wildfires continue to convert sagebrush into annual grasslands that do not favor mule deer. Overall, winter range within all the units remains deplorable.

**Population Status and Trend**

This mule deer population remains on a declining trend which started in 2013. Declining spring fawn ratios from 2013 to 2019 (average is 30 fawns:100 adults) have been observed. Furthermore, 4-point or greater bucks harvested in all hunts has been declining since 2014. In 2018, percent 4-point or greater bucks harvested in all hunts was 29% with the 10-year average of 35%. The 2019 mule deer population estimate is near 2,000 animals and represents a 13% decline from last year's estimate. Future management objectives should include predator removal and aggressive re-seeding efforts of habitat from future wildfires.

**Unit 051: Santa Rosa Mountains; Eastern Humboldt County**  
**Report by: Ed Partee**

**Survey Data**

During mid-November, post-season helicopter surveys were conducted, and 524 animals were classified. Surveys resulted in a ratio of 25 bucks:100 does:48 fawns. These survey results are slightly down from last year but still above the 5-year average. Both buck and fawn ratios are holding stable.

Spring survey flights were conducted in mid to late March 2019. Conditions were cloudy and breezy with intermittent rain showers. During this survey some of the areas were not covered well due to fog in the area. Deer were located anywhere from 5000-5500 feet in elevation. A total of 353 deer were classified and indicated that significant fawn loss has occurred with fawn ratios at 26 fawns:100 adults.

**Habitat**

This unit took another major hit to the winter range this year. The Martin Fire took place in July 2018 and burned over 400,000 acres. Both Nevada Department of Wildlife and well as the Bureau of Land Management were involved with a significant amount of rehabilitation efforts for this fire. Both herbicide treatments as well as seeding projects were conducted. The weather patterns this year made it difficult to get some of the work accomplished, however it was beneficial to the rehabilitation efforts once seed was on the ground. Winter 2018-2019 was much better than the previous year with above average precipitation. As of April 1, 2019, annual precipitation was 112% of normal, which has added to the benefits of last year's above-average precipitation.

**Population Status and Trend**

Population levels for this herd have dropped in recent years. Winter fawn loss played a big role in the reduction as well as lower than normal fawn ratios. This unit had high harvest last year which has contributed to the slight drop. With increased moisture, summer range conditions should sustain these herds into next winter. Current green up and increased quality of forage should lead to good fawn production and substantial antler growth. Available winter habitat remains limited and large increases in the population are not expected at this time.

**Units 061 - 062, 064, 066 - 068: Independence and Tuscarora Ranges; Elko County**  
**Report by: Matthew Jeffress**

**Harvest**

The percentage of bucks with 4-points or greater harvested was 40%, slightly below the long-term average.

**Survey Data**

An abbreviated fall helicopter survey was conducted over a two-day period in early December. A sample of 2,683 deer was obtained with ratios of 35 bucks:100 does:72 fawns.

A spring helicopter survey was conducted in March 2019, with 5,388 deer classified as 28 fawns:100 adults. The fawn ratio is the same as was observed winter 2016-2017 and is most likely attributed to mule deer residing on compromised winter ranges for extended periods of time during a moderate to severe winter. The observed fawn ratio represents a 50% overwinter fawn loss.

## **Habitat**

Severe drought conditions last summer likely contributed to the loss of 233,500 acres of mule deer winter range, transition range and summer range from the devastating South Sugarloaf fire. Most of the vegetation on the Bull Run Mountains and North Independence Mountains went up in smoke with the South Sugarloaf fire. The outlook for Area 6 mule deer is especially bleak when coupled with additional losses of 284,000 acres that burned in Area 6 and 88,300 acres that burned along the Bruneau River just north of the state line last summer. Much of the lands administered by the Bureau of Land Management were rehabbed this winter while a very small percentage of lands administered by the US Fish and Wildlife were rehabbed. Above average snowpack throughout Area 6 should greatly benefit the establishment of desirable forage on rehabbed lands.

Vegetative resources from past rehab efforts have allowed this deer herd to remain one of the largest in the state. Rehab efforts have gone a long way to maintain deer on the landscape, particularly due to the foresight of managers to use non-natives (forage kochia) in seed mixes to provide forage quality for wildlife and livestock while also competing with invasive annual grasses. Various personnel from Bureau of Land Management and Nevada Department of Wildlife and cooperating landowners should be commended for these efforts. However, with all the positives surrounding post fire rehabilitation, it is important to remember post fire rehabilitation is highly dependent on timely seeding, precipitation and proper management following establishment of seedings. Even when rehabilitation efforts are deemed successful, because of cheatgrass and other weeds, the likelihood of that site burning again increases tremendously with each consecutive fire.

Mining activity continues to increase throughout Area 6. Direct and indirect effects to mule deer migration corridors remain the highest concern with increased mining and exploration. The Department of Wildlife is working with the Bureau of Land Management, Barrick, Halliburton, and Newmont to ensure adequate mule deer migration corridors are maintained. An annual meeting among all stakeholders is conducted to address potential conflicts through open dialog and information sharing.

## **Population Status and Trend**

The population estimate for the Area 6 deer herd is slightly below that of last year. The outlook for this herd is unknown currently. Efforts to maintain the deer herd within the confines of limited winter range should be continued to avoid a boom-and-bust population cycle. Sportsmen and citizens of the state benefit more from a herd maintained at or below carrying capacity than a herd susceptible to large, broad-scale winter die-offs. As has been the case since 2012, female harvest is necessary to maintain the population within the management objectives for this herd. Without implementing doe harvest over the past 7 years, as a means to curb herd growth, the Area 6 deer herd would have likely experienced a much higher rate of fawn and adult mortality on compromised southern winter ranges this year.

## **Unit 065: Piñon Range; Southwestern Elko County** Report by: Tyler Nall

### **Harvest**

There were 114 tags issued in 2018 across all weapon classes for both residents and nonresidents with 63% of all tag holders successful in harvesting a deer. Of the bucks harvested, 65% were 4-points or greater; above the previous 3-year average of 58%. For more specific hunt results please refer to the Appendix section.

### **Survey Data**

A post season deer survey was flown in November 2018, during which biologists classified 431 deer resulting in an observed buck ratio of 35:100 does and a fawn ratio of 51:100 does. Survey timing and conditions were better than during the previous year's survey which resulted in a higher observed buck ratio.

**Habitat**

As of March 19, 2019, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 134%-223% of the long-term average with water year-to-date precipitation totals at 116%-142% of average ([www.nrcs.usda.gov](http://www.nrcs.usda.gov)). The heavy winter should provide for better range conditions throughout the summer than the previous two years, but spring and summer rains will still be important for optimal range conditions.

Three fires occurred this last summer that are worth noting: County Line (12,978 acres), Emigrant (1,524 acres), and the Dixie Fire (2,520 acres). Despite the total combined acreage of roughly 17,000 acres, these fires shouldn't have a large negative impact on the deer herd. A coordinated effort was made to reseed roughly 6,000 acres of the County Line and Emigrant fires during winter 2018-2019. The limited temporal loss of ecological function of these acres was partially mitigated by the application of a seed mix comprised primarily of sagebrush, perennial grasses and some forbs.

Mineral exploration throughout the area continues to be a growing concern as companies are concentrating on much of the higher elevations of the Piñon Range. Most of the areas seeing increased exploratory drilling represent the most productive summer range in Unit 065.

**Population Status and Trend**

This deer herd has been relatively static over the past 5 years. The heavy winter will provide for better range conditions but over winter mortality was higher than average and will have some short-term effects on the population.

**Units 071 - 079, 091: Northeastern Elko County**

Report by: Kari Huebner

**Harvest**

The 2018 hunter success for both the early and late season Any Legal Weapon hunts decreased compared to 2017. Hunter success for the early hunt was down from 75% to 68%; the late hunt decreased from 92% to 88% success. In 2017, the reported harvest of 4-point or greater bucks was 51% early and 66% late. This year, the reported harvest of 4-point or greater bucks was lower during the early season and higher in the late seasons at 47% and 71%, respectively.

The 2018 archery success was 33% for the early season, up from 28% last year. Late season success increased to 57% in 2018, compared to only 25% in 2017.

**Survey Data**

Post-season aerial composition surveys were conducted in December 2018. A total of 3,463 mule deer were classified yielding a ratio of 35 bucks:100 does:40 fawns. An aerial spring survey was conducted in March 2019 with biologists classifying 4,098 mule deer with an observed ratio of 20 fawns:100 adults.

**Habitat**

An Environmental Assessment is being analyzed by the Bureau of Land Management's Wells Office for vegetation treatments within this unit group. Once the Environmental Assessment is completed, possible treatments may include removal of encroaching juniper, herbicide application where necessary, and creating fuel breaks to reduce large acreage fires. All treatments should increase the health of the sagebrush ecosystem and benefit the wildlife that depends on it.

Most of the Area 7 deer herd winters south of Interstate 80 in the Pequop and Toano Mountains. There are 6 wildlife safety crossings on US Route 93 designed to facilitate movement across the highway. Four

additional crossings over Interstate 80 were completed on Pequop Summit in 2017. Deer-vehicle collisions have decreased each year the crossings have been in place, making the road safer for motorists. These migration routes for deer maintain habitat connectivity.

Recent deer collaring efforts have been instrumental in gaining a better understanding of migration triggers, timing, pathways, length of migrations (some deer are moving more than 100 miles to winter range), important stopovers and seasonal use patterns. The information garnered through the monitoring of radio collars may also help identify potential habitat projects to address limiting factors for this deer herd.

### **Population Status and Trend**

Due to a combination of fires, drought conditions, and possible plant senescence, deer habitat in Area 7 may no longer be capable of supporting the numbers of deer documented in past decades. The past 3 fall surveys were the lowest on record for the Area 7 deer herd. This indicates that the herd may be near or over carrying capacity. In addition to habitat loss from fires, drought on summer range can play a significant role in the deer's ability to put on adequate fat reserves to survive the winter.

Since 2008, 171 deer were radio collared in a collaborative effort between Nevada Department of Wildlife, Newmont Mining Corp., and University of Nevada, Reno, on the Pequop winter range. As of spring 2019, 28 collars remain active.

Observed fawn ratios are down again this year due to a multitude of factors. Summer 2018 was incredibly dry and drought conditions plagued the vegetation on summer ranges. Then, the above average winter forced deer onto their crucial winter range and greatly delayed their migration back to more productive summer ranges. Deer in weakened condition from severe winter and heavy snow events are more prone to perish on their long migration back to summer range.

### **Unit 081: Goose Creek Area; Northeastern Elko County** **Report by: Kari Huebner**

#### **Survey Data**

Surveys were not conducted during the reporting period in Unit 081.

#### **Habitat**

The Unit 081 deer herd's winter range and a portion of its summer range were affected by the West Fork Fire in 2007. The fire burned 154,943 acres of winter habitat. This past summer the Goose Creek Fire burned an additional 100,000 acres in both Nevada and Utah. Seeding efforts on public lands in both states was extensive. Nevada Department of Wildlife also partnered with private landowners to seed private lands as well. The planting of Bitterbrush seedlings later in the spring should aid in the recovery of extensive stands lost in the White Rock portion of crucial winter range.

An Environmental Assessment is being analyzed by the Bureau of Land Management's Wells Office for vegetation treatments within this unit group. Once the Environmental Assessment is completed, possible treatments may include removal of encroaching juniper, herbicide application where necessary, and creating fuel breaks to reduce large acreage fires. All treatments should increase the health of the sagebrush ecosystem and benefit the wildlife that depends on it.

### **Population Status and Trend**

This is a relatively small resident deer herd, although there is likely some migration from both Idaho and Utah into Nevada late in the year. The magnitude of migration from surrounding states is dependent on weather conditions during the hunting season and timing of the hunt. To take advantage of these later migrations, the muzzleloader and Any Legal Weapon hunts have been scheduled later than in previous years.

The objective is to take advantage of the migratory segment of the herd and reduce hunting pressure on the small resident deer populations in the area.

Unit 081 has been identified as one of 8 “alternative” deer herds to be managed more conservatively based on hunter success and antler point (age) data. Hunter success increased slightly again this past year during the Any Legal Weapon season (87% success in 2018 compared to 86% success in 2017). The percentage of 4-points harvested also increased.

## **Units 101 - 109: Southern Elko and Northwestern White Pine Counties**

### **Report by: Scott Roberts**

#### **Harvest**

The 2018 harvest of 1,204 deer (1,091 antlered and 113 antlerless) is slightly lower than the previous 5-year average of 1,332, with the buck harvest being near the previous 5-year mean of 1,014. The percentage of 4-points in the harvest was 34%, which is slightly higher than the previous 5-year mean of 30%.

#### **Survey Data**

A post-season composition survey was conducted in November 2018 employing a randomly generated stratified polygon approach in tandem with a directed search strategy outside of the identified polygons. The survey classified 2,183 deer within the polygons yielding ratios of 37 bucks:100 does:48 fawns, while the entire survey classified 4,536 deer yielding the same age and sex ratios. A spring helicopter survey was conducted in April 2019, resulting in 5,964 deer being classified resulting in a ratio of 21 fawns:100 adults. This observed fawn ratio represents the highest percentage of overwinter loss since the 1996-1997 winter and is 1 of the 3 lowest spring fawn ratios in the past 25 years.

#### **Habitat**

Winters 2015-2016 and 2016-2017 were marked by heavy snow coverage for extended periods. Winter 2017-2018 experienced mild temperatures and was followed by the exceptionally dry summer 2018. Winter 2018-2019 was above average in all respects with April 1, 2019, local water basin reports showing 127-134% of average for total precipitation and 153-178% of median for present snowpack (<https://www.nrcs.usda.gov>). The snowpack conditions will lead to improved summertime range conditions throughout the unit group.

The Nevada Department of Wildlife continues to work on habitat projects to improve mule deer winter and transitional range by creating a more browse-dominated environment. These efforts should increase wildlife diversity and reduce the potential for catastrophic wildfires by reducing the overall fuel load. The Overland-Big Wash Project has been in an implementation stage for the past 4 years. The wildlife habitat improvement project is a collaborative effort between the Bureau of Land Management, Nevada Department of Wildlife, and the US Forest Service, designed to treat 18,500 acres within a 45,200-acre project area over a 10-year period in Units 103 and 108. Treatments have included a combination of hand-thinning, mastication, chaining, weed abatement, and seeding. The Overland project is adjacent to the treatments identified in the Newark and Huntington Watershed Restoration Project that the Bureau of Land Management has been busy implementing since 2017. The combination of these 2 projects will improve the available seasonal habitat for a large percentage of the Area 10 deer herd.

#### **Population Status and Trend**

Three of last 4 winters have been above average in both snowpack and precipitation. All 3 winters have resulted in below average fawn ratios and consequently population reductions. The maturation and increased productivity of the numerous habitat enhancement projects have the potential to expand the capacity of the various transitional and winter ranges used by the deer herd.

## **Units 111 - 113: Eastern White Pine County**

### **Report by: Kody Menghini**

#### **Harvest**

For specific hunt results, please refer to the Appendix section.

#### **Survey Data**

Post-season surveys were not conducted in 2018. Spring mule deer surveys were conducted in conjunction with post-season elk surveys in late February and early March 2019. A composition survey sample of 2,508 mule deer yielded a ratio of 21 fawns:100 adults. The previous 5-year average (2014-2018) fawn recruitment is 29 fawns:100 adults for this herd.

#### **Habitat**

The below average winter precipitation in 2017-2018, followed by a hot and dry summer and fall, deteriorated quality and quantity of habitat available for mule deer in the short-term. Minimal green-up was available to benefit mule deer prior to winter. The National Weather Service precipitation total for the 2018 calendar-year measured at the Ely Airport was 80% of normal. Winter 2018-2019 was cool and snowy. The National Weather Service reported the 2018-2019 winter precipitation to be 149% of normal at the Ely Airport. As of March 18, 2019, the Berry Creek SNOTEL site had received 126% of the long-term average (1981-2010) snowpack during winter 2018-2019. Spring storms have been on the increase in 2019 and may improve habitat conditions.

The long-term habitat potential for mule deer is slowly declining due to the encroachment of pinyon-juniper into mountain brush habitats, range degradation due to excessive numbers of feral horses in some areas, and subdivision and sale of private parcels in quality habitat. However, over the last decade, Bureau of Land Management, US Forest Service, and the Nevada Department of Wildlife have been active in conducting habitat enhancement projects. Past habitat enhancement projects have included 3 new wildlife water developments, several thousand acres of pinyon-juniper chainings and thinning, and a 5,700-acre shrub planting on the east side of Unit 111. In 2017, 61 acres of aspen were treated to promote aspen regeneration in Unit 113. Twelve-hundred acres on the East Schell Bench were aerielly reseeded in January 2018 in attempt to increase beneficial forage production on winter range in Unit 111. Many other projects with potential benefits to mule deer are still in the planning stages.

In June 2012, the Range and North Schell fires burned about 15,000 acres on the west side of the Duck Creek Range and from the Muncy Creek drainage northward on the east side of the Schell Creek Range. Although these fires may negatively affect mule deer in the short-term, a net positive benefit for mule deer is expected in the long-term.

#### **Population Status and Trend**

In 2017, adjustments were made to the Unit 111-113 mule deer population model to more accurately reflect observed sex ratios, high sample sizes, and upward trends in percent 4-points in harvest. In 2018, 33% of the bucks harvested were 4-points or greater which is above the 10-year (2008-17) average of 28%. The current population estimate reflects a decrease from the published estimate in 2018. Low recorded fawn recruitment in the spring 2019 is the main factor in the population decline.

**Units 114 - 115: Snake Range; Southeastern White Pine County**  
**Report by: Kody Menghini**

**Harvest**

For specific hunt results, please refer to the Appendix section.

**Survey Data**

Post-season surveys were not conducted in 2018. Spring mule deer surveys were conducted in conjunction with post-season elk surveys and bighorn surveys in late February 2019. A composition survey sample of 632 mule deer yielded a ratio of 24 fawns:100 adults. The previous 5-year average (2014-2018) fawn recruitment is 30 fawns:100 adults for this herd.

**Habitat**

Like Units 111-113, below average precipitation was observed in the Snake Range units in 2018. Conditions deteriorated during summer and fall 2018 with warm and dry conditions. Minimal green-up was available to benefit mule deer prior to winter. The above average winter precipitation in 2018-2019 may improve quality and quantity of habitat available for mule deer in the short-term. As of March 18, 2019, the Wheeler Peak SNOTEL site had received 27.0" since October 1, 2018, compared to 21.0" in 2018 during the same period. Spring storms have been on the increase in 2019 and should also improve quality and quantity of habitat.

The long-term habitat potential for mule deer is slowly declining due to encroachment of pinyon-juniper into mountain shrub and sage-steppe habitats. In some areas, recurrent drought has resulted in loss of native vegetation and expansion of cheatgrass and noxious weeds. Large scale projects designed to control the encroachment of trees without imposing long-term impacts to shrub communities will be needed to reverse this trend. In 2017, the US Forest Service thinned 484 acres of pinyon-juniper in old chainings. Great Basin National Park is developing plans to use prescribed fire to create openings in expansive areas of conifers, many of which hold the remnants of aspen stands currently being crowded out by conifers such as white fir. These actions could benefit mule deer far into the future. The Black Fire (Unit 115) burned 4,900 acres in 2013, the Hampton Fire (Unit 114) burned 12,500 acres in 2014, and the Strawberry Fire burned 4,600 acres in 2016. A second round of aerial seeding was conducted on 1,200 acres in the Strawberry Fire in March 2018. Most of these fires were at higher elevation and in dense trees. While response has varied, multiple years of above average precipitation should benefit vegetation response and benefit mule deer.

**Population Status and Trend**

A conservative management strategy has been employed in this unit to maintain a robust male age structure. This area continues to produce quality mature bucks, with the 10-year (2009-2018) average percent 4-point or greater buck harvest at 49% compared to the statewide average of 41%, indicating an older age structure in the population. For 2019, the mule deer population estimate for this unit group is showing a slight decrease.

**Unit 121: North Egan, Cherry Creek Ranges; White Pine and Elko Counties**  
**Report by: Tyler Nall**

**Harvest**

The 2018 total harvest across all weapon classes of 234 deer (223 bucks, 11 does) was noticeably higher than the previous 3-year average of 188. The overall harvest of 4-point or greater bucks was 27%; which is below the previous 3-year average of 34%. For specific 2018 hunting season results, please refer to the Appendix section.

**Survey Data**

An aerial post-season deer survey was conducted December 2018. A total of 1,364 deer was classified yielding ratios of 29 bucks:100 does:50 fawns. Both the buck and fawn ratios were the highest observed in recent years.

An aerial spring mule deer survey was conducted during March 2019. A sample of 835 deer was classified in Unit 121; yielding a ratio of 38 fawns:100 adults. Deer distribution across the unit and high winds made for a difficult survey and resulted in a lower sample than average.

**Habitat**

Pinyon-juniper encroachment occurs across a substantial portion of this unit group. Several large-scale habitat enhancement projects are proposed for Unit 121. The Egan and Johnson Basin Restoration Project would treat roughly 24,000 acres of pinyon-juniper in sagebrush communities. The Combs Creeks project was designed to reduce pinyon-juniper encroachment on 7,000 acres in the southern portion of Unit 121. The treatment concluded summer 2016 when the final 353 acres were cleared.

As of March 19, 2019, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 135%-229% of the long-term average with water year-to-date precipitation totals at 136%-155% of average ([www.nrcs.usda.gov](http://www.nrcs.usda.gov)). The heavy winter should provide for better range conditions throughout the summer than the previous two years, but spring and summer rains are still important for optimal range conditions. The Goshute Cave fire of 2018 burned roughly 31,000 acres of prime mule deer habitat in Unit 121. A coordinated effort was made to reseed the area during winter 2018-2019 using funds from the Bureau of Land Management. Despite the effort to mitigate loss of productivity through the application of seed, the area will likely decrease in habitat value for mule deer in the future which will have an overall negative effect on the population.

**Population Status and Trend**

Both the spring and fall fawn ratios were above average. Because the spring survey was flown in early March 2019, it is likely that an increase in winter mortality occurred post survey and the functional fawn ratio is lower than that observed during survey. Despite the heavy winter and resulting over winter mortality, the population estimate is only slightly lower than that of 2018. The planned enhancement of thousands of additional acres of summer, winter and transitional habitats could allow for population growth in coming years.

**Units 131 - 134: Southern White Pine, Eastern Nye and Western Lincoln Counties**

Report by: Clint Garrett

**Harvest**

The 2018 combined harvest of 316 deer is below the previous 5-year average of 354. The overall 4-point or greater buck harvest was 43%; below the previous 5-year average of 45% and above the 2018 statewide average of 41%.

**Survey Data**

In November 2018, a post season aerial survey was conducted with 991 deer classified yielding ratios of 39 bucks:100 does:52 fawns. In March 2019, an aerial spring deer survey was conducted with 1,096 deer classified yielding a ratio of 33 fawns:100 adults, which indicates an estimated overwinter fawn loss of 18%. The 2019 spring observed fawn ratio is below the previous 5-year average of 36 fawns:100 adults.

## **Weather and Habitat**

As of March 2019, the Western Regional Climate Center's Blue Eagle Ranch site shows above normal precipitation for the calendar year at lower elevations. Well above normal precipitation was recorded in February 2019 and is currently above normal for March 2019. However little precipitation was recorded for 2018 starting in spring through summer and into early fall. The US Drought Monitor currently shows the units to be abnormally dry with a small portion of Unit 131 still in a moderate drought. Soil moisture for this year is below normal at 21% saturation for Units 131,132 and 134 in eastern Nevada. For Unit 133, soil moisture in southern Nevada increased to just above normal at 33% according to the Nevada Water Supply Outlook Report by NRCS for March 2019. The White River watershed snowpack analysis has increased from 23% to 115% of median for 2019, according to the Nevada Water Supply Outlook Report by NRCS for March 2019. Even though most of these units are still abnormally dry, soil moisture is improving, and the current above normal precipitation should lead to better range conditions this spring and early summer compared to last year.

Pinyon-juniper removal projects and riparian fencing projects targeting sage-grouse by the US Forest Service and the Bureau of Land Management are ongoing and beneficial to mule deer. Increasing feral horse numbers are degrading habitat in the Mt. Hamilton and Green Springs areas of Unit 131 and the Cove area in the White River Valley of Unit 132. Mineral production of the Centennial-Seligman mine on Mt. Hamilton and the exploratory drilling in the Green Springs area for fluid or mineral development may affect sage-grouse, mule deer, and elk habitat in Unit 131. In August 2018, a new guzzler was constructed by volunteers along the migration corridor for mule deer in Unit 132.

## **Population Status and Trend**

Deer were radio collared in 2017 and 2018 throughout Area 13 to gain a better understanding of seasonal movement patterns and potential effects of mining related development, pinyon-juniper encroachment, and oil and gas exploration. The previous 5-year observed spring fawn ratio has averaged 36 fawns:100 does with last year's ratio being 35 fawns:100 does. Modeled population numbers were changed to better reflect data from buck harvest and survival rates. For 2019, the population estimate is showing a slight increase and is currently above the previous 5-year average.

## **Units 141 - 145: Eureka and Western White Pine Counties** **Report by: Clint Garrett**

### **Harvest**

The 2018 combined harvest of 428 deer was higher than the previous 5-year average of 349. The overall 4-point or greater buck harvest was 31%; higher than the previous 5-year average of 29% and below the 2018 statewide average of 41%.

### **Survey Data**

In November 2018, a post season aerial survey was conducted with 1,496 deer classified yielding ratios of 33 bucks:100 does:55 fawns. In March 2019, an aerial spring deer survey was conducted with 2,008 deer classified yielding a ratio of 29 fawns:100 adults, which indicates an estimated overwinter fawn loss of 34%. The 2019 spring observed fawn ratio is noticeably below the previous 5-year average of 39 fawns:100 adults.

## **Weather and Habitat**

As of March 2019, the Western Regional Climate Centers Eureka site shows above normal precipitation for the calendar year. The US Drought Monitor currently shows most of Unit 145 and the southern portion of Unit 144 as abnormally dry. The soil moisture is below normal at 21% saturation for eastern Nevada according to the Nevada Water Supply Outlook Report by NRCS for March 2019. The eastern Nevada watershed snowpack analysis has increased from 35% to 130% of median for 2019, according to the Nevada Water Supply

Outlook Report by NRCS for March 2019. Even though some of the units are still abnormally dry, soil moisture is improving, and the current above normal precipitation should lead to better range conditions this spring and early summer compared to last year.

Fire seasons 2016 and 2017 burned almost 16,000 acres in prime mule deer and sage-grouse habitat in Units 141 and 144. Rehabilitation efforts are ongoing by the Bureau of Land Management and the Nevada Department of Wildlife. In April 2018, with the help of volunteers, another 2,000 serviceberry, snowberry, and bitterbrush shrubs were hand planted within the 2016 Pinto burn. Plans are still underway to fence and protect the Robinson Spring area on the east side of the Diamond Range. Exploration for oil, gas, and minerals continues throughout Area 14. Mule deer habitat and movement corridors are being affected by mining in Units 141 and 143. Even though many feral horses were removed in the Cortez Range in 2015, a significant number remaining on the range still compete for available resources. There are large concentrations of horses above Appropriate Management Level, around and in Herd Management Areas at the north end of the Diamonds, south end of Roberts-Kobeh Valley, Antelope Valley, and Fish Creek Valley. These concentrations are negatively affecting resources and wildlife in those areas. In June 2018 a big game guzzler was rebuilt by volunteers in Unit 142.

### **Population Status and Trend**

Deer were radio collared again this last winter throughout Area 14 to gain a better understanding of seasonal movement patterns and potential effects of mining related development, pinyon-juniper encroachment, and oil and gas exploration. Modeled population numbers were changed to better reflect data from buck harvest and survival rates. Given the above average overwinter fawn loss, the 2019 population estimate shows a decrease.

### **Units 151, 152, 154, 155: Lander and Western Eureka Counties** Report by: Jeremy Lutz

#### **Survey Data**

No post-season surveys were completed in Area 15 during the reporting period. A spring was conducted during the third week of February 2019 and resulted in the classification of 938 mule deer, yielding an observed ratio of 39 fawns:100 does. The 2019 survey occurred at the beginning of a pattern of severe storms and large snow accumulations in northern Nevada. Surrounding units experienced very high overwinter fawn loss because of the storms continuing throughout March 2019, and it is likely that the observed fawn ratio obtained during survey is an unreliable measure of actual recruitment. Spring mule deer surveys in Area 15 will be scheduled later in the year moving forward to avoid this in the future.

#### **Habitat**

An extremely dry spring and summer impacted wildlife habitats throughout Area 15 in 2018. A reduction in forage quality and quantity resulted in animals entering the winter period in comparatively worse body condition than normal. While late-fall and early-winter conditions were mild, significant snow accumulations related to a pattern of severe storms from late February through March 2019 resulted in above normal overwinter fawn loss throughout the region.

A rapid increase in feral horse numbers is occurring throughout Lander and Eureka counties. Several Bureau of Land Management Horse Management Areas are above their established Appropriate Management Levels, and there are designated "horse free" areas which are receiving horse use. Both situations are resulting in continued negative affects to wildlife habitat.

### **Population Status and Trend**

This population has been influenced by the varying amount and timing of precipitation received in Area 15, resulting in "boom or bust" population cycles. Reduced fawn recruitment due to extended periods of drought or above average snow depths on winter range have result in a general population decline over the past few years.

### **Units 161 - 164: North-Central Nye and Southern Lander and Eureka Counties**

Report by: Joe Bennett

### **Harvest**

For specific hunt results, please refer to the Appendix section.

### **Survey Data**

In 2018, a new randomized aerial survey design was conducted in Area 16. The 2018 post-season composition surveys observed 459 deer, which were classified as 80 bucks, 262 does and 117 fawns. In comparison, the 2017 aerial survey yielded a sample size of 1061 deer comprised of 186 bucks, 589 does and 286 fawns. With the new aerial survey strategy, lower sample sizes are expected since we are only surveying portions of each unit. Fawn and buck ratios stabilize at this lower sample size.

Spring aerial composition survey in 2019 yielded a sample size of 1,137 deer which were classified as 898 adults and 239 fawns. In comparison, 2018 yielded a sample of 735 deer classified as 560 adults and 175 fawns. The survey was drawn from portions of Units 161, 162, and 163 to include a well-distributed sample.

### **Population Status and Trend**

The Area 16 mule deer population has remained relatively stable for much of the past decade. Regularly occurring periods of drought, excessive feral equids, aging browse species, and increasing pinyon-juniper densities have collectively managed to keep mule deer populations in central Nevada from experiencing significant growth.

From February 2018 to February 2019, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 87% of the 30-year average. Spring precipitation (March, April, and May) resulted in 16% of 2018's precipitation accumulation and winter precipitation (December, January, February) resulted in 24% of the 2018-2019 accumulation with the majority in the form of snow. The one SNOTEL site located in central Nevada measured snowpack levels at 148% in March 2019. Drought conditions in spring through early summer 2018 plausibly caused reduced forage vigor and decreased forage quality earlier in the year. In turn, these drought conditions may help explain depressed fawn recruitment. Above-average winter 2018-2019 precipitation amounts will plausibly result in good spring and summer forage conditions.

Multiple US Forest Service pinyon-juniper removal projects have been conducted in Little Fish Lake Valley in Unit 162. In 2017, about 700 acres were removed near Clear Creek. In 2018, 500 acres near Horse Canyon and approximately 2,000 acres south of Danville Canyon of pinyon-juniper were removed via lop and scatter techniques. The removal of these trees will allow the herbaceous understory to regenerate providing good forage and habitat for mule deer at certain times of the year. In addition, another two hundred seventeen acres of pinyon-juniper was removed near Pasco Canyon with the help of local resource conservation programs.

The Area 16 mule deer population is considered stable or slightly decreasing due to depressed fawn recruitment.

**Units 171 - 173: Northwestern Nye and Southern Lander Counties**  
**Report by: Joe Bennett**

**Harvest**

For specific hunt results, please refer to the Appendix section.

**Survey Data**

For the third consecutive year, a new, randomized aerial survey methodology was used in 2018-2019. A post-season aerial survey was conducted in late November 2018. The post-season aerial survey yielded a sample size of 574 deer which were classified as 112 bucks, 310 does, and 152 fawns. In comparison, 2017 yielded a sample size of 1,232 deer which were classified as 236 bucks, 651 does, and 345 fawns. With the new aerial survey strategy, lower sample sizes are expected since we are only surveying portions of each unit. Fawn and buck ratios stabilize at this lower sample size.

Spring aerial surveys for 2019 yielded a sample size of 594 deer, which were classified as 464 adults and 130 fawns. In comparison, 2018 yielded a sample size of 510 deer, which were classified as 398 adults and 112 fawns.

**Population Status and Trend**

Periods of drought have plagued central Nevada over the past decade or more. This has resulted in little overall growth of mule deer populations and a relatively stable trend.

In February 2018 through February 2019, according to Community Environmental Monitoring and Planning precipitation data, central Nevada received 87% of the 30-year average. Minimal spring-early summer precipitation in 2018 may explain the depressed fawn recruitment that was observed in the survey. In early 2019, much-needed precipitation was received. The SNOTEL site located in central Nevada measured snowpack levels at over 148% in March 2019. Above-average snow pack will plausibly produce higher quantity and quality nutritional forage for does approaching the critical fawning period allowing them to enter summer in better body condition.

In 2018, a radio-collaring and habitat enhancement project (pinyon-juniper removal) was implemented on Carvers Bench (east side of the Toiyabe range from Broad Canyon to Summit Canyon) in Unit 173. Two thousand six hundred acres of pinyon-juniper were removed from the bench and 30 adult female mule deer were collared to study their response to the removal. The collaring event occurred over two years with 20 deer collared in April 2018 and an additional 10 collared in March 2019. These data will help the Nevada Department of Wildlife to better understand mule deer movements, distribution, and critical use areas at a more refined scale in Unit 173. The habitat component on this project will enhance winter forage conditions.

Due to depressed fawn recruitment, the Area 17 mule deer population is currently experiencing a stable or slightly decreasing trend.

**Units 181 - 184: Churchill, Southern Pershing, and Western Lander Counties**  
**Report by: Jason Salisbury**

**Survey Data**

Post-season deer surveys were conducted in early January 2019. A total of 325 deer were classified; yielding a ratio of 31 bucks:100 does:35 fawns. A small ground survey in March 2019 resulted in the classification of 92 mule deer; yielding a ratio of 28 fawns:100 adults.

**Habitat**

Over the past three years fires have consumed 8,900 acres of pinyon-juniper woodland within the Desatoya Mountain Range and 60,000 acres in the Clan Alpine Mountain Range. The removal of pinyon-juniper allows for the establishment of brush and grass species. This habitat conversion will enable the deer herd to thrive in these early successional stage plant communities. The newly created foraging areas may also attract feral horses which will compete with the mule deer herd.

Springs and riparian areas in the Clan Alpines and Desatoya Mountains have been identified for protective fencing projects. Fencing key riparian areas with pipe rail fence will allow for increased flow of water while providing areas where shrubs, grasses, and forbs are available to wildlife.

**Population Status and Trend**

The Area 18 mule deer herd appears relatively stable. Winter 2018 was significant with high snow loads in the upper elevations which will benefit these areas going into spring and summer 2019. The lower elevations still provide adequate exposed south facing slopes for deer to escape the heavy snow loads.

The 2018 hunt data indicates that 42% of harvested bucks were 4-point or greater with the 10-year average being 36% 4-points or greater. The overall success for this unit in the rifle hunt is up at 42%. These high success rates for area 18 indicate a healthy and stable mule deer herd.

**Unit 192: Carson River Interstate Herd; Douglas County**  
**Report by: Carl Lackey**

**Survey Data**

Post-season survey flights were flown in November 2018 and resulted in the classification of 141 deer with a ratio of 38 bucks:100 does:39 fawns. The spring survey flight was not scheduled until after this report's due date. The timing of both surveys was intended to gather data on the resident herd, prior to the fall migration and post-migration in the spring.

**Habitat**

There were no significant changes to the habitat occupied by this deer herd in 2017-2018. The majority of this herd uses the eastern slopes of the Carson Range as crucial winter range, migrating from the Tahoe Basin and Hope Valley summer ranges.

**Population Status and Trend**

The 2019 population estimate is about 1,100 animals and it has been at this level for several years. March 2018 saw several major precipitation events, as did February 2019. These high levels of snowfall likely affected winter survival. Survey and harvest data indicate this deer herd has been maintaining over the last few years, with adequate fawn recruitment rates and generally good age cohort distribution.

## **Unit 194, 196: Carson Range and Peavine Mountain Interstate Herd; Washoe and Carson City Counties**

Report by: Carl Lackey

### **Survey Data**

Post-season surveys were flown in November 2019 and resulted in the classification of 395 deer with a ratio of 41 bucks:100 does:43 fawns. The timing of this survey was intended to gather data on the resident herd, prior to the fall migration and to minimize bias in the observed buck ratio.

### **Habitat**

Urban sprawl and the accompanying human recreation associated with it are the biggest challenges facing the Carson Front deer herds. The majority of this herd uses the eastern slopes of the Carson Range as winter range, migrating from their summer range in the Tahoe Basin or the Truckee, California area.

### **Population Status and Trend**

The 2019 population estimate is 1,800 and it has been at this approximate level for several years. March 2018 saw several major precipitation events, as did February 2019. These high levels of snowfall likely affected winter survival. Over the last few years, this deer herd has appeared healthy with adequate fawn recruitment rates and generally good age cohort distribution. With continued urban development on and near Peavine Mountain, the long-term trend in abundance is downward, mostly due to habitat loss and fragmentation. This unit remains a much-desired area to hunt deer, with high success rates and older age class bucks harvested.

## **Unit 195: Virginia Range; Storey, Washoe, and Lyon Counties**

Report by: Carl Lackey

### **Survey Data**

Formal post-season and spring surveys have not been completed for Unit 195 since 2002.

### **Habitat**

Most of the land in this unit is privately owned and a significant portion has been developed commercially and residentially. The resulting fragmentation and loss of habitat, along with increased traffic on US Route 395, has decreased this once migratory herd to a resident herd.

### **Population Status and Trend**

There is no population model for this herd. The 2019 population estimate of 500 adult deer for this herd is derived from harvest statistics and is based upon total buck harvest. Deer are common along the Truckee River corridor on mostly private lands. Significant portions of the unit contain monocultures of pinyon-juniper and the deer in this unit spend a considerable amount of time in these pinyon-juniper forests, making them hard to detect. Deer are well distributed in the southern part of the unit near Jumbo Grade.

## **Units 201, 202, 204 - 208: Walker / Mono Interstate Deer Herd; Douglas, Lyon, and Mineral Counties**

Report by: Jason Salisbury

### **Survey Data**

Post-season flights were conducted in January 2019. A three-hour survey yielded 687 deer with a ratio of 18 bucks:100 does:25 fawns. A spring flight was scheduled for early April 2019 by California Fish and Wildlife and data from the survey will be incorporated into the model once that data is received.

### **Habitat**

Water is limited in certain parts of this unit group. Future water developments may aid in the establishment of a viable resident deer herd.

Pinyon-juniper encroachment is a continuing problem for the Bodie interstate herd. Future management plans have identified potential project areas for the benefit of sage-grouse. These same areas will aid in restoring the shrub communities which, in turn, will benefit the mule deer herd.

### **Population Status and Trend**

California Fish and Wildlife has been capturing mule deer in X12 and Nevada Area 20 for the past three years. The purpose of this radio collaring project is to look at body condition of individuals over an extended time frame. They also marked individuals with neck collars as well as satellite collars during the study. This information will be used for a mark and re-sight project that will estimate population size.

The population decline this herd is experiencing may suggest a density-dependent response due to limited resources. This assumption is based on continued low fawn ratios. Mule deer appear to be in poor body condition. Biologists also believe that degraded summer range in California leaves mule deer in poor condition when entering the winter. Research suggests that reducing competition for limited resources may enable this population to experience an upward growth trend following positive climatic conditions. One way to reduce competition is to introduce a management doe hunt which would allow biologists to assess body condition as well. Body condition scoring information could then be used to evaluate carrying capacity of this interstate herd. Based on past fawn to adult ratios, this population appears to show a declining trend.

## **Unit 203: Mason and Smith Valley Resident Herds; Lyon County**

Report by: Jason Salisbury

### **Survey data**

No formal surveys were conducted in this unit group.

### **Habitat**

Mule deer habitat within Mason Valley consists of alfalfa fields surrounded by buffaloberry and salt desert shrub communities. The Mason Valley Wildlife Area contributes the most to this mule deer herd in Mason Valley and serves as a sanctuary to the habitat fragmentation that surrounds it in the valley. The highest concentrations of deer exist in and around the Walker River corridor which provides thick stands of willows creating shelter and escape cover. Future plans on the Mason Valley Wildlife Area include revegetating tracts of non-irrigated land with seed mixes favored by wildlife. These newly created areas may allow for some expansion of the mule deer herd. Additionally, new water developments will be added to the area.

### **Population Status and Trend**

There is no modeled population estimate for this herd. This population is believed to be stable but has the potential to increase under favorable habitat conditions. The Mason and Smith Valley mule deer herds appear to be stable currently. The Any Legal Weapon hunt is an indicator of stability. The 2018 overall hunter success rate was 48% with 36% of the bucks being 4-point or greater.

### **Units 211, 212: Esmeralda County**

Report by: Joe Bennett

#### **Survey Data**

Currently, no formal surveys are conducted in Area 21. Past survey efforts have not resulted in enough sample sizes for use in monitoring population dynamics. Harvest information is used to derive harvest recommendations.

### **Population Status and Trend**

Based on annual harvest data and ground survey data, the Area 21 mule deer population appears to have remained stable at comparatively low levels for quite some time. Recent drought periods have reduced mule deer numbers in Esmeralda County. However, recent year's precipitation should have alleviated some of the detrimental rangeland effects caused by prior droughts. During 2018-2019, central Nevada received 87% of the 30-year average on precipitation. Throughout spring and early summer 2018, central Nevada received very little moisture. However, much-needed precipitation has occurred during winter 2018-2019. Along with precipitation related effects, increasing densities of pinyon-juniper and the aging of the shrub component in the area have collectively affected the quantity and quality of available habitat in Area 21.

Aerial survey data gathered in adjacent units indicate that fawn production in this region of Nevada remain somewhat stable or slightly decreasing. The same situation likely exists in Area 21. Currently, the Area 21 mule deer population is stable or slightly decreasing.

### **Units 221 - 223: Northern Lincoln and Southern White Pine Counties**

Report by: Cooper Munson

#### **Survey Data**

Post-season aerial surveys were conducted in December 2018. Survey effort in this area was reduced due to other aircraft operations in the area. A total of 799 deer were classified composed of 134 bucks, 458 does, and 207 fawns. This provides for an observed ratio of 29 bucks:100 does:45 fawns.

Spring deer surveys were conducted in March 2019. A total of 1,505 deer consisting of 1,200 adults and 305 fawns were classified during five hours of the survey. Migratory herds were dispersed among elevations and habitat types, while the uppermost elevations were still covered with snow.

#### **Habitat**

Habitat conditions are improving throughout much of Area 22 because of above-average precipitation in 2015 and 2016, however, in 2017, some habitat conditions decreased due to competition for resources with feral horses coupled with the lack of precipitation. In March 2019 Bureau of Land Management gathered nearly 1,000 feral horses throughout Area 22. This should allow for some habitat to recuperate from years of overuse. According to the Community Environmental Monitoring Program (CEMP) precipitation data, Lincoln and White Pine Counties received approximately 81% of the previous ten-year average of precipitation. So far in 2019 persisting snowpack and early spring precipitation may increase forage throughout much of the summer range in Area 22.

Multiple threats exist for mule deer throughout Area 22. Pinyon-juniper forest continues to expand in both elevation and density into all seasonal ranges for mule deer. Although pinyon-juniper provides thermal cover for mule deer, it reduces the understory and limits forage availability for deer. Fire suppression and wilderness areas continue to allow dense pinyon-juniper stands to remain undisturbed throughout large expanses in Area 22. Nonetheless, Nevada Department of Wildlife and Bureau of Land Management along with other local resources are continuing projects to improve many of the areas that have been degraded or invaded by pinyon-juniper throughout Area 22. Since 2014, 26,971 acres have been treated to decrease pinyon-juniper encroachment. Multiple off-road vehicle issues may increase seasonal stress for mule deer in Area 22 with the Silver State Trail system, various motor vehicle races, and shed antler hunters engage in activities in areas occupied by mule deer during winter and spring, increasing stress on animals at a difficult time of year. Wilderness areas prohibit projects that would benefit mule deer through vast acreages of Area 22. A 24,000-acre solar energy zone is being proposed in Dry Lake Valley, adjacent to several crucial mule deer wintering areas.

### **Population Status and Trend**

The Area 22 deer herd has remained stable and the current population model suggests that the population is tracking with the 5-year average.

### **Unit 231: Wilson Creek Range; Northeastern Lincoln County** **Report by: Cooper Munson**

#### **Survey Data**

Post-season aerial surveys were conducted in December 2018 resulting in the classification of 1,006 deer. The surveys resulted in a post-season ratio of 29 bucks:100 does:40 fawns. Many of the deer were encountered in the Wilson and Fortification mountain ranges along with agricultural areas that have been developed on historical winter range that may augment winter forage.

Spring deer surveys were conducted in March 2019 with a total of 1,133 deer being classified as 886 adults with 247 fawns. This provides a ratio of 28 fawns:100 adults. Deer were observed throughout much of Unit 231 in each of the mountain ranges. Heavy snow in early 2019 excluded many deer from the higher elevations and transitional areas between winter and summer range.

#### **Habitat**

Habitat conditions were well below average for most of Unit 231 due to limited precipitation during 2017 and well below average in 2018. Minimal snowpack was observed during early winter but quickly accumulated after January 2019 which is likely to improve some riparian areas and upland vegetation affected by drought in the recent past. Deer likely went into winter in moderate to poor condition due to the timing and accumulation of precipitation in 2018. According to the Community Environmental Monitoring Program (CEMP), this portion of Lincoln County received 100% of the 10-year average annual precipitation during 2018 but has not recovered from recent drought. The availability of plentiful forage on private property likely helps deer in Area 23 to persist through the winter in better condition.

Mule deer habitat in Area 23 is threatened by the continued invasion of pinyon-juniper into both upper and lower elevations, as well as increasing in density in areas already invaded. Fire suppression efforts in dense pinyon-juniper forest result in continued stagnation of large expanses of degraded habitat. Multiple habitat improvement projects have been accomplished by the Bureau of Land Management and Nevada Department of Wildlife to remove and decrease dense pinyon-juniper from thousands of acres in Unit 231. The primary focus of the projects was to increase sage-grouse habitat but will also benefit mule deer and other wildlife. Excessive numbers of feral horses continue to cause degradation of habitat and water sources. Shed antler hunter numbers have significantly decreased this year due to new regulations which has allowed deer to winter without much of the added stress that has been forcing deer and other wildlife to retreat to less

desirable habitat in the past. Wilderness areas created in each mountain range of Area 231 prohibits the completion of any habitat projects beneficial for mule deer in vast areas of mule deer habitat.

### **Population Estimates and Trend**

The Unit 231 deer herd population has been on the rise over the last 10 years and appear to be stable and healthy.

### **Units 241 - 245: Clover, Delamar, and Meadow Valley Mountain Ranges; Lincoln County** Report by: Cooper Munson

#### **Survey Data**

Postseason aerial surveys were conducted in December 2018 in Units 241 and 242. Most of the survey was conducted in the Clover and Delamar Mountains on transitional habitat and winter ranges. A total of 590 deer were classified and composed of 324 does, 144 bucks, and 124 fawns. This provides a survey ratio of 52 fawns, 100 does:47 bucks.

Spring deer surveys were conducted in March 2019 with a total of 619 deer classified as 469 adults and 150 fawns. Most of this survey was completed in Unit 242 where there is a high potential for interstate deer movements. Many of the individuals observed were within 1 mile of the Nevada-Utah border.

#### **Habitat**

Habitat conditions are fair throughout the majority of Area 24 due to a lack of precipitation and increasing competition for resources with feral horses and livestock. According to the Community Environmental Monitoring Program (CEMP), approximately 84% of the previous 10-year average precipitation was received in 2018 that potentially increased the risk of drought to persist in the area. Thus far in 2019, Area 24 has received above-average precipitation that should provide for improved vegetation growth and habitat quality.

Although mule deer exist in all units of Area 24, the bulk of mule deer habitat is found in Units 241 and 242. In the Clover Mountains of Unit 242, pinyon-juniper densities are such that mule deer habitat is limited by lack of understory. The highest densities of deer are found in areas which have either burned or manipulated by habitat improvement projects. Many deer are also found near private agricultural land as well. The Delamar Mountains of Unit 241 also contain mule deer in somewhat lower densities, many are found in areas that burned within the last decade. Although some large fires have burned in both units in the past, vast areas of dense, closed-canopy pinyon-juniper still exist in both areas. Feral horses exist in both Units 241 and 242 in very high densities. These are both areas that have been declared horse-free by the Bureau of Land Management where the Appropriate Management Level is set at zero.

### **Population Estimates and Trend**

The 2019 population estimate is relatively stable. Portions of this population reside along the Utah-Nevada border which complicates the process of evaluating the consistent population residing in Nevada.

### **Units 251-253: South Central Nye County** Report by: Joe Bennett

#### **Survey Data**

Presently, neither post-season nor spring surveys are conducted in these units. The last survey conducted was in 1998 and failed to yield a sufficient sample for analysis.

### **Population Status and Trend**

Area 25 has limited amounts of quality mule deer habitat. The greatest quantity and quality of mule deer habitat in Area 25 can be found in Unit 251. The majority of the mule deer population occurs in Unit 251. Due to recent drought periods, impacts from feral equids, pinyon-juniper expansion, and aging of browse species, the mule deer population in Unit 251 has remained stable at relatively low numbers for some time. The above-average winter precipitation in 2018-2019 should alleviate some of the detrimental effects on rangelands caused by recent droughts. In 2018, central Nevada received 87% of the 30-year average precipitation.

The aerial survey data from 2018-2019 gathered in adjacent units indicate that fawn production and recruitment rates in much of central Nevada is relatively stable or slightly decreasing.

### **Units 261 - 268: Clark and Southern Nye Counties**

Report by: Pat Cummings

#### **Survey Data**

Most of the mule deer in Area 26 inhabit the Spring Mountains (Unit 262). Mule deer occur in low densities in the Newberry Mountains, Crescent Peak and the southern portion of the McCullough Range. Overall, mule deer habitat is marginal; consequently, deer densities are low and below levels that warrant annual or periodic aerial surveys. The lack of composition data precludes development of a useful model that would demonstrate herd population dynamics and generate population estimates. Mule deer harvest objectives are largely derived through analysis of trends in hunter demand and success.

#### **Habitat**

Area 26 is in close proximity to Las Vegas and other growing cities. Recreational pursuits that include off-highway vehicles and mountain bike use and the resultant proliferation of roads and trails coupled with suburban sprawl, serve to degrade mule deer habitat. In the Spring Mountains, mule deer habitat is also affected by feral horses and burros.

The July 2013 Carpenter 1 Fire was ignited by lightning. The fire burned vegetation across 27,869 acres. The 43.5-square-mile fire burned within several vegetative associations along a 5,560 foot-elevation gradient.

### **Population Status and Trend**

In April 2019, environmental conditions are good due to moisture producing storms in the first quarter of 2019. Native and invasive annual forbs and grasses have responded to the wet conditions and are noticeably ubiquitous. The National Weather Service, Climate Prediction Center forecast for the second quarter in 2019, does not reflect the onset of drought conditions. Based on favorable mule deer harvest data in 2018 hunt seasons, and satisfactory environmental conditions, the mule deer population in Area 26 is considered stable to increasing.

### **Units 271, 272: Southern Lincoln and Northeastern Clark Counties**

Report by: Cooper Munson

#### **Survey Data**

No mule deer surveys were conducted in Unit 271 or 272 during the reporting period. Mule deer densities are low enough that standard surveys do not result in enough data for analysis. The harvest strategy is based on hunter demand and success.

**Habitat**

Mule deer habitat is limited in Area 27. Although better mule deer habitat is found in the Virgin Mountains, it is still a low-density mule deer area. Both units are within Mojave Desert ecotypes with pinyon-juniper found at higher elevations. Water is very limited and mule deer are generally found in areas not far from water, at least during the warmer times of the year. This area experienced only 79% of the 10-year average precipitation during 2018. In 2019, the area has received as much precipitation as it did for the entire year of 2018. This will likely result in far better habitat conditions that have been observed in recent years in Area 27.

**Population Status and Trend**

Although no population model exists for Area 27 deer herd, it appears to be stable and healthy with consistent harvest and regular observations of deer in the area.

**Unit 291: Pine Nut Mountain Herd; Douglas County  
Report by: Carl Lackey****Survey Data**

No formal surveys were conducted in this unit. General observations and anecdotal reports indicate that this herd is stable over the short-term but has declined over the long-term.

**Habitat**

Significant portions of the unit contain dense stands of pinyon-juniper trees, much of which is dead. Nevada Department of Wildlife and Bureau of Land Management are conducting habitat treatment in several areas under the Pine Nut Health Project funded in part by habitat and upland game stamp funds and the Nevada Wildlife Heritage Project to increase browse and decrease the pinyon-juniper. Loss of shrub communities over the long-term in this unit continues to hold the deer population at low levels.

**Population Status and Trend**

There is no modeled population estimate for this herd. This population is believed to be stable but has the potential to increase under better habitat conditions. Many of the deer, particularly in the northern part of the area, are resident deer. The 2019 population for Area 29, estimated at 500-700 adult animals based on buck harvest, is well below the historic levels recorded for the Pine Nut Mountains.

## ANTELOPE

### Unit 011: Vya and Massacre Rims, Coleman Canyon, Bitner Table

Report by: Chris Hampson

#### Hunt Results

Tag quotas for the resident rifle horns longer than ears hunt increased by 5 tags to a total of 70 tags in 2018. Tag quotas have slowly increased in recent years as the antelope population has responded favorably to the improved habitat conditions. Critical summer ranges in the unit have had water available to antelope through the summer months.

Hunter success rates for resident rifle hunters for this unit were nearly identical to the 2018 season at a reported 69%. Overall harvest of antelope was reported to be 70 buck antelope in 2018.

#### Survey Data

Helicopter surveys classified a total of 408 antelope. The resulting composition ratios were 40 bucks:100 does:39 fawns. The buck ratio showed an increase of 11 bucks:100 does when compared with the previous year, while the average fawn ratio was very similar to the 38 fawns:100 does ratio obtained in 2017.

The 2018 surveys were conducted two to three weeks later than normal and took place in late September. Antelope in this unit, were observed to be already making the move off their traditional summer ranges and headed towards distant winter ranges. Fortunately, several large groups of antelope were finally located by flying the surrounding areas of lower elevation transitional range. Unit 011 and 033 are the two most northern units and the antelope in these units are the earliest to start movement to winter ranges.

The percentage of yearling bucks within the overall buck sample was measured at 34% this year. In 2017, the yearling buck sample was measured at 32%. This would also indicate that overall survival for the year could be considered near average or slightly above maintenance level recruitment.

#### Habitat

Summer 2018 was very dry and northwestern Nevada received very little to no precipitation. The late summer-early fall period was also very dry and measurable precipitation was not received until the month of October 2018. Significant moisture did not occur until mid to late December, but the months of January and February 2019 have provided significant precipitation and snowfall. As of this writing, moisture totals are over 120% of average.

Summer ranges in Unit 011 were quite dry this past summer but held at least some water through the summer months. Antelope remained on their upper elevation summer ranges throughout the summer due to water still being available. During the long-term drought between 2007 and 2015, there were several years where most, if not all, water on upper elevation lakebeds and spring sources had dried up completely. In those dry years, antelope were forced to move down in elevation and off their summer ranges to find reliable water and better forage.

#### Population Status and Trend

Fawn recruitment in Unit 011 was measured at 39 fawns:100 does this past year. This will allow for continued herd growth within this population.

Due to the drier summer, average fawn ratios throughout northwestern Nevada were between 10 and 15 fawns:100 does lower this year than what had been observed over the past few years (depending upon the unit).

Quotas for antelope for Unit 011 are expected to be slightly higher than the 2018 levels. Average buck ratios have remained strong within this unit and showed an increase this year over what was observed in 2017.

## **Unit 012 - 014: High Rock, Little High Rock, Hays Canyon, Boulder Mountain, Granite Range, Calico Range**

**Report by: Chris Hampson**

### **Hunt Results**

Tag quotas in Units 012-014 increased by 10 tags in 2018 when compared with the 2017 season. Recruitment levels over the past several years have been above average for most antelope herds in the Northwestern portion of the state.

Hunter success rates for resident rifle hunters was 81% in 2018. In 2017, success rates were 74%. Improved water distribution, overall improved habitat conditions and forage quality have helped improve juvenile recruitment. The better habitat conditions are due to improved moisture over the past several winters.

### **Survey Data**

The helicopter survey for antelope in Units 012-014 was conducted during September 24-28, 2018, several weeks later than the usual. The sample for the 2018 survey was 689 animals with a ratio of 47 bucks:100 does:37 fawns. This compares with the 2017 sample of 500 animals that had a ratio of 66 bucks:100 does:46 fawns.

Fawn ratios were lower this year due to the very dry summer. Antelope populations in the western part of the state saw a drop in the average recruitment figures this year of between 10 and 15 fawns per 100 does. Other areas of the state also reported lower fawn recruitment this past year.

The later survey timeframe within this unit group did not negatively impact the surveys or the number of animals classified within this unit group. In the more northern units, some antelope were observed to be in transition to their winter ranges and were no longer located on their traditional upper elevation summer ranges.

### **Habitat**

Winter 2018-2019 started out mild and did not provide much in the way of snowfall or precipitation; however, the latter half of the winter has seen a nice turnaround and very good moisture has been received in the months of December 2018 through February 2019. Average precipitation and snowfall totals are currently above average at 120% for most basins or areas in the western and northwestern portions of Nevada.

No major wildfires occurred within the 012-014 units this past year. Large wildfires such as the Lost Fire in 2012 and other fires over the past decade within Unit 014 have negatively affected or reduced the quality and amount of antelope habitat.

### **Population Status and Trend**

The antelope population within Units 012-014 continue to show an upward trend. The 37 fawns:100 does observed this year will allow for continued herd growth. This represents the fourth consecutive year of growth for this population of antelope. Overall numbers will show a slight increase this year, however, the population has experienced very solid growth with recruitment rates of 50, 52, 46, and 37 fawns:100 does over the past four years.

Buck ratios have also remained strong over the past few years due to the increased productivity and recruitment for this herd. Over the next few years, these stronger recruitment years or age classes will be observed in the population as more mature bucks become available for harvest. The very high buck ratio observed in 2017 may have been strongly influenced by the improved survival as the 2017 buck sample was made up of 40.5% yearling bucks. In 2018, the yearling buck percentage in the total buck sample dropped to 34% and was more indicative of a very dry summer.

Quotas are expected to be similar or slightly above the 2018 levels due to both the strong buck ratios within this antelope herd and continued overall herd growth.

## **Unit 015: Buffalo Hills, Dry Valley Rim, Coppersmith Hills**

**Report by: Chris Hampson**

### **Hunt Results**

Resident rifle hunters reported a 76% success rate in Unit 015 during the 2018 hunting season. This is similar to the 75% rate from the 2017 hunting season. Quotas for rifle increased from 55 tags in 2017 to 65 in 2018. Improved production and survival over the past several years has allowed for improved success and led to increasing quotas. Buck quality remains strong in this unit with 43% of bucks harvested having 15-inch or longer horns in 2018.

### **Survey Data**

Antelope surveys within Unit 015 were expanded in 2018 to broaden the survey area and increase the number of animals classified. Most antelope groups were still located on their summer ranges but had already gathered or formed larger groups as they prepared to move to winter ranges.

The later survey period helped biologists classify more animals this year because antelope were not as scattered as is normally the case when surveys are flown immediately following the completion of the hunting seasons. The late September flight provided a sample of 687 animals compared with the 2017 sample of 403 antelope. The higher number of animals classified was also partially attributable to increased survey effort and an expanded survey area this year.

The larger sample obtained during summer 2018 provided a ratio of 36 bucks:100 does:37 fawns. In 2017, the ratio was 31 bucks:100 does:47 fawns. Buck ratios in 2018, increased by 5 bucks:100 does post season while fawn ratios were 10 fawns:100 does lower at 37 fawns:100 does. The 37 fawns:100 does recruitment level will still allow the population to increase in number. The dry summer and fall 2018 was likely the cause for the lower recruitment values observed this year.

Buck ratios remain strong within Unit 015 and increased this year when surveyed after the end of the hunting season.

### **Habitat**

Despite the dry summer 2018, improved moisture during the winter 2018-2019 will help to alleviate and improve habitat conditions for antelope in 2019. Lake beds on critical summer ranges should have plentiful water available through much of the summer and forage quality should be very good due to the anticipated better than average snowpack and soil moisture.

No new large wildfires were reported this past summer. The 8,000-acre wildfire that occurred in 2017 near Buffalo Creek and Parsnip Wash impacted antelope and all wildlife living in the area.

Thirteen different spring protection and restoration projects have been initiated with the Bureau of Land Management's Eagle Lake Field Office over the past year. The projects are in cooperation with private

landowners, livestock permittees, and the Bureau of Land Management. The projects will help improve flows at the spring sites and help the riparian areas around them to recover. The habitat improvement projects will benefit antelope, mule deer, sage-grouse and all other wildlife living in the southern half of Unit 015.

### **Population Status and Trend**

Antelope populations within Unit 015 have been on an upward trend for four consecutive years. This more recent trend followed several years of downward trends that were experienced during the severe drought period between 2007 and 2015. Hunter success rates have been improving and hunters have reported seeing more antelope during their hunts.

Quotas for the 2019 hunting season are expected to be slightly higher than the 2018 levels. More mature bucks are expected to be available to harvest due to the strong recruitment values observed from 2016 through 2018.

**Units 021, 022: Virginia Mountains, Dogskin Mountains, Petersen Mountains, Seven Lakes Mountains, Fort Sage Mountains, Lake Range, Fox Range**  
**Report by: Chris Hampson**

### **Hunt Results**

Resident rifle hunters reported a very high 88% success rate in 2018. In 2017, the hunt success for resident rifle hunters was 78%. Animals harvested with 15-inch horns or larger was a very respectable 40% in 2018.

Despite issues with access to the upper elevation summer ranges, the unit group remains one of the most sought-after tags for residents to draw. The unit's proximity to Reno-Sparks and the trophy quality of some bucks are the reasons for this high demand.

### **Survey Data**

Surveys in this unit group were also completed in late September 2018. The later time frame for the surveys allowed enough time for antelope to regroup following the hunting season. The animals were observed to be in larger groups and still tied to their summer ranges. Biologists noted that antelope were gathering into larger winter groups and preparing to begin moving towards their winter range.

The survey provided a record sample of 255 antelope with a ratio of 30 bucks:100 does:29 fawns. This compares with a sample of 143 animals in 2017 that had a ratio of 30 bucks:100 does:44 fawns.

Buck ratios remained constant and have been observed at 30 bucks:100 does post-season over the past two years. This falls within the buck ratio objective for this unit and indicates that population models are tracking well, and quotas have been appropriate for the herd size.

### **Habitat**

Large wildfires continue to plague the mountain ranges to the north and east of Reno. A very large fire burned this past summer on the northern half of the Pah Rah Mountains to the northeast of Reno-Sparks. The Perry Fire consumed over 50,000 acres. Rehab efforts for this fire were in cooperation with private landowners, Nevada Division of Forestry, and the Bureau of Land Management's Carson District Office. Reseeding of the fire will take place during 2019.

The amount of water available to antelope during summer 2018 was enough to enable antelope to remain on their upper elevation summer ranges through the fall. Habitat conditions were not as good this summer

due to the very dry conditions and lack of any summer precipitation. Spring flows were reduced but continued to produce enough water to hold antelope on their summer ranges.

Several large spring protection projects were finally completed this past summer in the Virginia Mountains. This was a continuation of a significant amount of work being done to protect water sources and riparian areas. The projects could not have happened without very good working relationships between private landowners, permittees, county, state and federal agencies.

**Population Status and Trend**

The recruitment levels observed this year will allow for a continued static trend for the 021-022 antelope herd. In recent years, the trend has generally been stable to slightly increasing due to better moisture received over the past few winters; however, this year’s very dry summer and fall resulted in similar recruitment rates to those frequently observed in this unit during the many drought years between 2007 and 2015.

The average fawn ratio, like most other units in the northwestern portion of the state, was down from the 2017 level. The very dry summer of 2018 is likely to blame for the lower recruitment values observed this year throughout northwestern Nevada. The 29 fawns:100 does recruitment value will result in a static trend for this population of antelope in 2019.

Nevada Department of Wildlife tag quota recommendations for the 2019 hunting season for Units 021-022 are expected to be similar to the 2018 levels.

**Units 031, 032, 034, 035, 051: Humboldt County**  
**Report by: Ed Partee**

**Survey Data**

In mid-October and the first of November 2018, post-season ground surveys were conducted in Areas 3 and 5. Three days in October and 3 days in November were spent to conduct the surveys. Since most of this occurred post rut, animals were difficult to locate in large groups. This is one of the first times a ground count was conducted due to the lack of available flight time. With such low survey numbers, it is very difficult to compare with previous years data. Group sizes were very small, and the vast amount of area cannot be covered efficiently (Table 1).

**Table 1: 2018 Post-season antelope composition for Humboldt County**

Unit	Total	Bucks:100 Does:Fawns
031	13	14:100:71
032-035	199	12:100:23
051	45	23:100:50
<b>2018 Totals</b>	<b>257</b>	<b>14:100:29</b>
2017 Totals	537	30:100:37

**Habitat**

Once again, we experienced above normal precipitation level throughout Areas 3 and 5. Unfortunately we also experienced a few very large and destructive wildland fires in Units 032 and 051. Fires affected both winter and summer habitats for both herds. In Unit 032, the Antelope Fire burned nearly 2,300 acres of some high antelope use areas. Some rehabilitation efforts have taken place to re-establish vegetation in the area. In Unit 051, the Martin Fire burned over 400,000 acres of habitat that may have immediate

effects on the use areas these herds occupy. Extensive rehab efforts have taken place by both Bureau of Land Management and the Nevada Department of Wildlife this past winter. The precipitation this year is much above the normal at 141% compared to the 82% last year. Snow pack this year has been tremendous with excellent moisture received prior to the snow fall. With the amount of precipitation received thus far, range conditions are already showing great signs of recovery from the last few dry years. With the amount of moisture and the rehabilitation efforts that have taken place this year we should see a good response from the seed that has been put on the ground after these fires. With the late moisture received this year and well saturated ground conditions, forage availability should be ideal during fawning time. With current and expected habitat conditions, these populations should have a positive response.

### **Population Status and Trend**

These units continue to show a stable trend with populations remaining relatively static. Unit 031 and Unit 051 have both remained stable with Units 032-035 showing a slight drop in the population. With the added moisture that has been experienced over the last 3 years we would expect fawn recruitment to increase due to the quality of forage available. To this point, the fawn recruitment is showing slight increases in Unit 051 with the rest of Area 3 remaining stable. The horns shorter than the ears hunts have been successful in keeping these populations from increasing and staying within the habitat capabilities. Success on buck hunts for these units has increased slightly from last year's harvest. With the amount of moisture that has been received this year we can expect group sizes to be small and spread out due to the amount of free water available.

### **Unit 033: Sheldon**

**Report by: Chris Hampson**

### **Hunt Results**

Resident rifle quotas have been generally static on the Sheldon in recent years. In 2018, quotas were 35 tags for each of the early and late seasons. This was the same number of tags allocated in 2017.

Resident rifle hunters had a success rate of 84% during the early season and 65% during the late season. The percent of bucks with 15-inch horns or better was 40% in the early season, and no bucks with horns 15-inch or longer taken during the late season hunt.

### **Survey Data**

Surveys for antelope on the Sheldon were conducted in late September 2018. This timing was almost three weeks later than normal and some of the major summer ranges were devoid of antelope. Sheldon antelope often move off to winter range during the mid to late part of September when colder overnight temperatures start to occur. Despite locating less animals on a few of the upper elevation summer ranges, overall, the number of antelope classified increased significantly in 2018.

Biologists classified a total of 645 antelope with an average composition ratio of 45 bucks:100 does:31fawns. In 2017, 440 antelope were classified with a ratio of 54 bucks:100 does:25 fawns. The data is comparable as similar time was expended surveying the Sheldon the past 2 years.

### **Habitat**

Some of the most important upper elevation lakebeds on the summer ranges of the Sheldon did not receive the necessary moisture over the winter to provide water to antelope throughout the summer. This lack of water caused antelope to move off these areas and concentrate in lower elevation areas where water and better forage was more readily available.

Weather patterns on the Sheldon can be inconsistent with some areas receiving more water or snowfall than others. For this reason, biologists often see some areas of the Sheldon with ample water and other areas that have little to no water available for antelope and other wildlife.

Due to the significant moisture received from January through March 2018, precipitation totals are approximately 120% of average. Late winter snowfall on the Sheldon will help to boost water flows and improve habitat conditions this coming spring. This is especially important following one of the driest summers ever in 2018.

Sheldon personnel continue to treat and remove encroaching junipers from areas that are near sage-grouse leks, and breeding habitats. In 2017, 5400 acres of juniper were treated and another nearly 4,900 acres were treated in recent years. Many of these cleared sites were also re-seeded with native plant species.

**Population Status and Trend**

The fawn ratio of 31 fawns:100 does is considered maintenance level recruitment and would allow for a static trend for the Sheldon antelope population in 2019. Recruitment rates for antelope herds throughout northwestern Nevada were lower this year due to the very dry conditions this past summer. This is the second consecutive year of stable to slightly decreasing trends for the Sheldon antelope population. In 2016 and 2017 the Sheldon had higher fawn ratios and experienced increasing trends during that time.

The Sheldon provides some of the best antelope hunting in Nevada and is highly sought after by Nevada’s hunters. Tag quotas recommended by Nevada Department of Wildlife for the 2019 hunting season are expected to be similar to those of the past few years.

Buck ratios remain strong and will continue to provide hunters with ample opportunity for harvest

**Units 041, 042: Western Pershing and Southern Humboldt Counties**  
**Report by: Kyle Neill**

**Survey Data**

Ground surveys were performed just after the late any legal weapon season for duration of 4 days. Survey results are summarized in Table 1. The 2018 post-season buck ratio mirrors the 5-year average and the 2018 fawn ratio remained above maintenance level.

Table 1: Antelope composition survey results for Units 041 and 042.

Year	Bucks	Does	Fawns	Total	Bucks:100 Does:Fawns
2017	91	221	89	401	41:100:40
<b>2018</b>	<b>35</b>	<b>98</b>	<b>36</b>	<b>169</b>	<b>36:100:37</b>
5-year average	75	206	85	366	36:100:41

**Habitat**

There was only one major wildfire this past year within this unit. The Kumiva Fire (Unit 041, southwest portion of Selenite Range) occurred in July 2018 and burned 3,758 acres. Recovery efforts included applying herbicide to reduce noxious weeds and broadcast seeding 800 acres with native and non-native perennials.

### **Population Status and Trend**

This herd is estimated to have about 2,000 animals. Recruitment rates have averaged 41 fawns:100 does over the last 5-years and coupled with doe hunts designed to slow and maintain population levels, have been successful. Doe hunt strategy will continue to provide hunting opportunity while slowing population growth.

### **Units 043 - 046: Eastern Pershing and Southern Humboldt Counties**

**Report by: Kyle Neill**

#### **Survey Data**

Ground surveys in this unit occurred in February 2019. Survey efforts were hampered by winter weather, which forced re-scheduling in Units 044-046. This survey is performed during this timeframe due to antelope being concentrated on the valley floors making them more available to locate. Road conditions during February usually make several areas inaccessible. A total of 404 antelope were classified that resulted in a ratio of 53 bucks:100 does:41 fawns. Observed buck ratios varied throughout the unit group, with Unit 043 having the lowest at 42 bucks:100 does. Unit 046 had the highest buck ratio at 64 bucks:100 does, possibly indicating less pressure from hunters.

#### **Habitat**

During 2018, only one major wildfire occurred within the unit group. The Gregg Fire located on the east side of the Sonoma Range in Unit 046 was ignited by lightning in July 2018. The fire burned 10,220 acres (2,769 acres were private). Many sections of the fire occurred in previously burned areas; however, the northwest portion of the burn area had not burned previously and was composed of shadscale, sagebrush and bunch grass. Bureau of Land Management's recovery plan included treating 1,705 acres with herbicides to control noxious weeds. Additionally, aerial and ground broadcast seeding on 880 acres and drill seeding on approximately 447 acres is to occur in fall 2019. Another 880 acres will be seeded in fall 2020. These fires are not expected to have a detrimental impact on antelope and may be beneficial in the short term providing new growth. This year antelope have already been observed feeding in the recently burned areas.

### **Population Status and Trend**

This herd is continuing to perform extremely well. Indications of growth include recruitment rates that have averaged 42 fawns:100 does over the last 5 years, increased survey sample size, increasing any legal weapon hunter success rates and increased field observations within all units. Additionally, it is thought that continued immigration is occurring from adjacent Areas 15 and 18. The 2019 population estimate is 800 animals which represents a 14% increase over last year's estimate.

### **Units 061, 062, 064, 071, 073: North Central Elko County**

**Report by: Matthew Jeffress**

#### **Survey Data**

A ground survey was conducted in Unit Group 061-073 in late September-early October 2018. Six hundred fifty-four antelope were observed yielding ratios of 42 bucks:100 does:31 fawns. The observed fawn ratio was the lowest observed for this unit group. The observed buck ratio is in line with the 10-year average.

### Habitat

Last August, the core of this antelope herd's summer range was burned in the 233,500-acre South Sugarloaf fire. The fire consumed a large swath of habitat from the Petan Ranch to Tennessee Mountain northeast of the Gold Creek Ranger Station. Large range fires also burned in antelope habitat during summer 2017. About 39,000 acres of winter range was burned along the I-80 corridor in Unit 073 by 4 fires: Pole Creek, Tabor Flats, River Ranch, and Oil Well. An additional 167,000 acres of winter range was burned in Units 066 and 067 by the 2017 Snowstorm and Black Point fires. Both the Snowstorm and Black Point areas provide winter range for antelope that summer on the west side of the Independence Mountains. Also, some antelope from Independence Valley winter on the Sheep Creek Range-Boulder Valley in Unit 068. That winter range was also affected by the 200,000-acre Rooster's Comb Fire in 2017. Many of the 2017 fires were aggressively seeded by Bureau of Land Management, Nevada Department of Wildlife, and private landowners. A small percentage of the South Sugarloaf fire was seeded. Success of restoration is closely tied to timely moisture and appropriate range management practices.

### Population Status and Trend

Antelope occupy all available summer habitats from I-80 north to Idaho.

For several years now, the Nevada Department of Wildlife has maintained high female harvest in this unit group to maintain the population within the confines of available winter range. In response to the loss of winter habitat from wildfires in 2017, the Nevada Department of Wildlife initiated 2 emergency hunts targeting this population. Harvest success was greater than 50% for both seasons. In addition to reducing densities through harvest, the Nevada Department of Wildlife also facilitated a request for antelope from 2 Native American Tribes in Washington State. In late October 2017, 99 antelope were translocated to the Colville Confederated Tribes and another 50 were translocated to the Yakama Nation. Success of both translocation efforts appears to be high. In early 2019 an additional 56 antelope were removed from Unit 064 for translocation to the Yakama Nation. A combination of removal through harvest and translocation is working to keep this herd within the confines of limited winter range along the Interstate 80 corridor.

### **Units 065, 142, and a portion of 144: Southern Elko County, Northern Eureka County** Report by: Tyler Nall

#### Hunt Results

The 2018 season marked the third highest total harvest on record for this unit group. The percent of animals harvested with 15-inch-or-greater horn length was 25% this year, which is lower than the previous 3-year average of 35%. The Horns Shorter than Ears hunt was very successful with an 84% success rate.

#### Survey Data

A ground survey was conducted in late December 2018 and early January 2019 resulting in 277 antelope classified with age and sex ratios of 51 bucks:100 does:36 fawns. Animal distribution across the landscape and group size were the 2 during surveys contributed to a lower sample size.

### Habitat

As of March 19, 2019, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 134-223% of the long-term average with water year-to-date precipitation totals at 116-142% of average ([www.nrcs.usda.gov](http://www.nrcs.usda.gov)). The heavy winter should provide for improved range conditions throughout the summer than the previous 2 years, but spring and summer rains will still be important for optimal range conditions.

Three fires occurred this last summer that are worth noting; County Line (12,978 acres), Emigrant (1,524 acres), and the Dixie Fire (2,520 acres). Despite the total combined acreage of roughly 17,000 acres, these fires shouldn't have a large negative affect on the antelope herd. As observed following the 2017 Red Springs Fire, antelope often respond favorably to burns and these areas may see increased use in coming years. A coordinated effort was made to reseed roughly 6,000 acres of the County Line and Emigrant fires during winter 2018-2019. The limited temporal loss of ecological function of these acres was partially mitigated by the application of a seed mix comprised primarily of sagebrush, perennial grasses and some forbs.

### **Population Status and Trend**

The population remains relatively constant at around 900 animals despite the recent drought and this year's heavy winter. The percent of bucks harvested with 15-inch-or-greater horns was below the 3-year average, although all other assessed metrics (success rates and observed buck ratio) for the buck hunt in this unit group continue to be higher than the statewide averages, indicating hunters have experienced high-quality antelope hunts.

### **Unit 066: Owyhee Desert; Northwestern Elko County** Report by: Matthew Jeffress

#### **Survey Data**

Unit 066 antelope surveys have been eliminated due to the remoteness of the unit, low sample size obtained from past surveys, and chronic low fawn ratios observed. Those factors coupled with the fact that aerial surveys had only been conducted on an every-third-year basis were used to support the decision to spend survey hours in other units.

#### **Habitat**

Last summer, the largest fire in Nevada state history burned a substantial portion of available antelope habitat in this unit. Roughly half of the 435,500-acre Martin fire occurred in Unit 066. Three guzzlers, primarily built for antelope, were damaged by the fire. Guzzlers are slated to be rebuilt this year and a substantial portion of the fire was rehabilitated by Winnemucca and Bureau of Land Management's Elko District Office in coordination with Nevada Department of Wildlife and private landowners. Above average winter moisture should aid the success of the rehabilitation efforts. In addition to the 2018 fires, about 167,000 acres of winter range and year-round habitat was burned in Units 066 and 067 by the Snowstorm and Black Point fires in 2017. The recent fires all have the potential to negatively affect antelope. However, if restoration efforts are successful and proper management of those efforts are maintained, antelope could benefit from the rehabilitation efforts over the long term.

### **Population Status and Trend**

This population will no longer be modeled to obtain a population estimate. Tag quotas will be adjusted based on success rates and harvest parameters such as percentage of bucks harvested with 15-inch horns or greater.

### **Units 067, 068: Western Elko and Northern Lander and Eureka Counties** Report by: Matthew Jeffress

#### **Survey Data**

A ground survey was conducted in the 067-068 Unit Group during January 2019. A sample of 1,007 antelope was observed yielding ratios of 48 bucks:100 does:35 fawns. The observed fawn ratio was

consistent with the 10-year average. The observed buck ratio is right at the ten-year average modeled buck ratio for this herd.

### **Habitat**

Like the Area 6 deer herd, antelope have been affected by wildfires and the loss of vital sagebrush communities within this unit group. A substantial portion of the Sheep Creek Range burned again this year, however the critical west face of the Sheep Creeks, for the most part, did not burn. Immigrant forage kochia seedlings along the base of the Sheep Creek Range continue to provide vital forage for this herd during the winter months. Appropriate management of this vegetative resource should be implemented to ensure adequate forage for wildlife during the critical winter months with use by livestock starting in early spring.

### **Population Status and Trend**

The current population estimate for Units 067-068 is similar to the estimate published in 2018. Harvest levels in 2018 maintained the population in line with carrying capacity of compromised winter range along the Interstate 80 corridor. The success of restoration efforts and proper grazing management will dictate the long-term population objectives for this herd.

## **Units 072, 074, 075: Northeastern Elko County**

Report by: Kari Huebner

### **Survey Data**

Ground surveys conducted in mid-August 2018 resulted in the classification of 529 antelope. The observed sex and age ratios were 33 bucks:100 does:21 fawns. The observed buck ratio was lower than the 2017 ratio of 44 bucks:100 does, and the fawn ratio was considerably lower than the 2017 observed ratio of 36 fawns:100 does. The survey in this unit group is typically conducted between the archery and rifle seasons due to the migration of antelope out of the northern end of Unit 072 and into Idaho during and after the rifle season.

### **Habitat**

This unit group has been affected by wildfire throughout the last 15 years, with about 700,000 acres burned. On summer range, the effects of these fires have been beneficial with perennial grasses and forbs dominating the recovering burned areas. On winter range, the brush species antelope depend on for winter survival have been negatively affected, although sagebrush is beginning to recover and provide forage and cover during the critical winter months.

An environmental assessment is currently being analyzed by the Bureau of Land Management's Wells Field Office for numerous vegetation treatments within this unit group. Once the assessment is completed, possible treatments may include removal of encroaching juniper, herbicide application where necessary, and creating fuel breaks with the intent of reducing large acreage fires. Each of the treatments should increase the health of the sagebrush ecosystem and benefit the wildlife that depend on it. The assessment is projected to be completed by summer 2019.

Following a mild winter, summer 2018 was extremely dry. The lack of deep soil moisture in the spring combined with the lack of precipitation through the summer had a substantial effect on water availability and forage quality.

### **Population Status and Trend**

A Horns Shorter Than Ears hunt was initiated in this unit group for the first time in 2015. The 2018 hunter reported success of 73% was lower than the 86% reported in 2017.

The antelope population in this unit group is taking advantage of the natural recovery of perennial grasses and forbs as well as to extensive seeding efforts in both Nevada and Idaho in previously burned areas. Total snow accumulations this past winter were much greater than what northern Elko County had seen for some time, and the heavy, drifting snow coupled with the lack of open slopes may have reduced overwinter survival of antelope in some areas. While the previous winter saw comparatively mild conditions and improved overwinter survival, the body condition of does and fawns was likely compromised due to the dry hot summer 2018. Diminished body condition and limited water availability may have reduced recruitment and the population estimate for 2019.

### **Units 076, 077, 079, 081, 091: Northeastern Elko County**

Report by: Kari Huebner

### **Survey Data**

Ground surveys conducted in September 2018 resulted in the classification of 237 antelope. The observed sex and age ratios were 77 bucks:100 does:20 fawns. The buck ratio was higher than the 2017 ratio of 46 bucks:100 does and the fawn ratio was slightly lower than the 2017 ratio of 22 fawns:100 does.

### **Habitat**

Major fires affected wildlife habitat in this unit group in 2007 with about 244,000 acres burned. An additional 100,000 acres burned this year in the Goose Creek Fire. The long-term effects of these fires have been beneficial to antelope as perennial grasses and forbs dominate the recovering burned areas. Sagebrush is also beginning to recover and will be available as forage and cover during the critical winter months.

An environmental assessment is currently being analyzed by the Bureau of Land Management's Wells Field Office for numerous vegetation treatments within this unit group. Once the assessment is completed, possible treatments may include removal of encroaching juniper, herbicide application where necessary, and creating fuel breaks with the intent of reducing large acreage fires. Each of the treatments should increase the health of the sagebrush ecosystem and benefit the wildlife that depends on it. The assessment is expected to be completed by summer 2019.

Following a mild winter, summer 2018 was extremely dry. The lack of deep soil moisture in the spring combined with the lack of precipitation through the summer had a substantial effect on water availability and forage quality.

### **Population Status and Trend**

A Horns Shorter Than Ears hunt was initiated in this unit group for the first time in 2016. The 2018 reported hunter success of 85% was higher than the 80% reported in 2017.

This antelope herd appears stable. Production continues to be lower than in surrounding units, which is likely a result of much of the unit group (such as Pilot Valley) experiencing comparatively low precipitation and having lower forage quality. This herd has begun using the northern portions of Units 076 and 081 more than in previous years. This is a result of the recovering burns, as well as increased precipitation and better forage quality. With the continuation of favorable precipitation, these burned areas will likely facilitate increases in the antelope herd in coming years.

## **Units 078, 105 - 107, 121: Southeastern Elko and Central White Pine Counties**

### **Report by: Tyler Nall**

#### **Hunt Results**

The 2018 hunting season marked a record harvest for both bucks and does. The percent of harvested bucks with 15-inch-or-greater horns was 37% this year, which is up from the previous 3-year average of 24%. This was the fourth season Units 078 and 105-107 were added to the Horns Shorter than Ears hunt that historically only included Unit 121.

#### **Survey Data**

Four hundred sixty-eight antelope were classified from the ground in January 2019. The sample yielded sex and age ratios of 44 bucks:100 does:33 fawns. Only Units 106 and 121 were surveyed this year, which reduced sample size compared with last year. Antelope distribution was very similar to years past with most typical winter ranges holding antelope.

#### **Habitat**

As of March 19, 2019, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 135-229% of the long-term average with water year-to-date precipitation totals at 136-155% of average ([www.nrcs.usda.gov](http://www.nrcs.usda.gov)). The heavy winter should provide for improved range conditions throughout the summer than the previous 2 years, but spring and summer rains will still be important for optimal range conditions.

Wild horse populations continue to pose challenges for this unit group. Most of this unit grouping is made up of arid basin and range, with very limited natural water. The competition for these water sources can be extreme. The 2018 estimates of wild horse populations in the 4 associated Herd Management Areas range between 244-1,857% of the appropriate management level as determined by the Bureau of Land Management. In February 2018, the Bureau of Land Management conducted a wild horse gather in the Triple B Complex where they gathered 1,398 horses and treated 28 mares with the contraceptive PZP. Although now closer to appropriate management level, continued reductions are necessary for the population to reach the appropriate management level.

#### **Population Status and Trend**

The 2019 population estimate is lower than 2018. Comparatively liberal harvest quotas were initiated in 2015 to reduce the population and stimulate recruitment. This population has shown little ability to increase during the recent past and appears to have been constrained by density dependent factors. The increased harvest is still planned to reduce intraspecific competition and stimulate chronically low fawn ratio. A promising sign that this hunt strategy is working is that the fawn ratios observed in the past 4 years are above the 10-year average.

## **Units 101 - 104, 108, 109 and a portion of 144: South Central Elko and Western White Pine Counties**

**Report by: Scott Roberts**

#### **Hunt Results**

In the 2018 hunting season, the greatest annual buck and total harvest was recorded for this unit group.

### Survey Data

A ground survey was conducted in October 2018 during which 697 individuals were classified yielding sex and age ratios of 56 bucks:100 does:23 fawns. The observed fawn ratio was lower than the previous 10-year mean of 31 fawns:100 does.

### Habitat

Winter 2017-2018 was below average in snowpack and in total precipitation. The mild winter was followed by an exceptionally dry summer that saw only 0.34 inches of precipitation recorded at the Elko airport from June through August ([www.usclimatedata.com](http://www.usclimatedata.com)). Fawn recruitment seems to have been hampered as range conditions deteriorated as the summer progressed. The above average precipitation and snowpack received over winter 2018-2019 should lead to improved summertime range conditions throughout much of this unit group.

During summer 2018, the Nevada Department of Wildlife installed a 7,000 foot pipe rail fence around a state owned spring complex in the south end of Ruby Valley in Unit 104. The project was initiated to protect the springs from historical overuse by wild horses. The area's wild horse population continues to be above the Appropriate Management Level as dictated in the Wild and Free-Roaming Horses and Burro Act of 1971 ([www.blm.gov/programs/wild-horse-and-burro/](http://www.blm.gov/programs/wild-horse-and-burro/)). The fence will limit competition between wildlife and horses for both the water resources and the limited forage available in this portion of the unit group.

During summer 2015, the Bureau of Land Management's Elko District Office signed the Vegetation Treatment Decision for the Ruby #6 Allotment. This document authorized up to 3,900 acres of sagebrush rehabilitation treatments within the Ruby #6 Allotment in Ruby Valley, located in Unit 102. The objective of the project is to restore the herbaceous component that is missing throughout most of the allotment to increase the suitability of the site for sage-grouse and other wildlife. The project is being implemented in phases to ensure objectives are being met. The first phase included the mowing and drill seeding of 362 acres in fall 2016 and second phase including the mowing and drill seeding of 388 acres being completed in fall 2018. The third phase is planned for fall 2020. Preliminary results of the completed treatments are promising, and anecdotal observations show that there has been notable use by the resident antelope population.

### Population Status and Trend

Buck ratios remain high and can to support increased harvest in the near future. One factor that is limiting hunter opportunity is that some animals are not available for harvest due to private lands and hunting restrictions at the Ruby Lake National Wildlife Refuge. Preliminary conversations have taken place to initiate limited hunting on the refuge, but all of the necessary steps have yet to be taken. This year's fawn ratio is 36% below the previous 5-year mean and will cause a slight population reduction.

## **Units 111 - 114: Eastern White Pine County**

**Report by: Kody Menghini**

### Survey Data

Eleven days were spent conducting the 2018 post-season ground survey was conducted from December 2018 to January 2019. Group size was modest, and groups were scattered. One thousand one hundred forty-three antelope were classified, and 47 antelope were observed, but unclassified. This sample yielded observed sex and age ratios of 39 bucks:100 does:12 fawns. In comparison, observed ratios of 51 bucks:100 does:31 fawns were obtained in 2017. The observed fawn ratio is below the 5-year (2013-2017) mean of 36 fawns:100 does and the lowest recorded for this unit group.

### Habitat

The National Weather Service precipitation measured at the Ely Airport for the 2018 calendar year was 80% of normal. Spring 2018 had good amounts of precipitation, but the summer and much of the fall was dry and warm. Habitat quality deteriorated throughout the year due to the warm, dry conditions. There was little fall green-up prior to winter to benefit antelope. Winter 2018-2019 was cool and snowy. The National Weather Service precipitation for winter measured at the Ely Airport was 149% of normal. At the time of this report, spring weather is continuing to be cool and wet. Habitat conditions should be improved in 2019 and antelope should benefit from the conditions.

Over the last decade there have been many habitat projects and fires that have increased and improved antelope habitat. While the number of habitat projects being pursued has decreased in this area, Nevada Department of Wildlife is still working with Bureau of Land Management on a few habitat projects that will continue to increase quantity and quality of antelope habitat.

The Bureau of Land Management's Ely District Office signed a NEPA document in fall 2018 approving the construction of new guzzlers and the rebuild of several existing guzzlers in this unit. Hopefully, over the next few years these guzzlers will be constructed and benefit antelope. Much of this area has excessive feral horse use and these guzzlers should help to reduce competition between wildlife and feral horses.

### Population Status and Trend

In 2018 adjustments were made to the population model to more accurately reflect observed sex ratios and high sample sizes on survey. The 2018 population estimate was increased over that reported in 2017. The low fawn ratio in 2018 resulted in a decreased population estimate in 2019. Despite the decreasing population trend the buck ratio remains high.

## **Units 115, 231, 242: Eastern Lincoln and Southern White Pine Counties**

**Report by: Cooper Munson**

### Survey Data

Ground surveys were conducted for antelope in this unit during December 2018. Survey conditions were good although heavy snowfall made access into some areas difficult or impossible. Two hundred fourteen antelope were classified, consisting of 57 bucks, 174 does, and 40 fawns. This total provides a ratio of 48 bucks:100 does:34 fawns. Antelope were classified in Lake, South Spring, Hamlin, and Snake Valleys. The majority of antelope were observed on critical winter range, and other groups were located across the state line into Utah but were not classified. Other high densities of antelope were observed near or on private property with agricultural production.

### Habitat

Habitat conditions during the survey were fair, but minimal precipitation between mid-summers through early winter resulted in many depleted water resources. Overall this portion of Lincoln County experienced about 81% of the 10-year average precipitation during 2018 according to the CEMP data. Antelope were observed using many of the recent habitat enhancements and water developments. Feral horse numbers continue to be above Appropriate Management Levels, which results in degraded habitat conditions for antelope. Pinyon-juniper expansion into lower elevations continues to slowly reduce available habitat for antelope. Sagebrush improvement and pinyon-juniper removal projects have been completed in Lake Valley, South Spring Valley, and Hamlin Valley for the benefit of sage-grouse, which may result in improved habitat for antelope.

### Population Status, and Trend

This antelope population has shown a few years of low recruitment but appears to be reasonably healthy and productive. Ongoing drought conditions may have limited the population growth to some extent but habitat improvements and water developments are maintaining the current population. Predator removal projects were implemented between 2016 and 2018 to increase the recruitment of young into the population by removing coyotes in the area. The computer-generated population estimate for 2019 is consistent with the estimate from 2018, showing a slight increase.

### **Units 131, 145, 163, 164: Southern Eureka, Northeastern Nye, and Southwestern White Pine Counties**

**Report by: Clint Garrett**

### Hunt Results

The 2018 season saw a record harvest of antelope does in this unit group, with all the doe harvest coming from Units 131 and 145. For the percentage of bucks in the harvest with 15-inch-or-greater horn length refer to the antelope harvest tables in the appendix.

### Survey Data

The 2018 post-season antelope ground survey was conducted in October and December 2018. Five days were spent classifying 463 antelope yielding sex and age ratios of 29 bucks:100 does:19 fawns. The 2018 observed buck and fawn ratios are below those obtained during the 4-day 2017 survey when a sample of 576 antelope yielded sex and age ratios of 37 bucks:100 does:35 fawns. Surveys were conducted in Antelope, Fish Lake, Jakes, Little Smoky, Sand Springs, and Railroad Valleys. The observed fawn ratio is below the previous 5-year average of 31, which historically has ranged from 5-53.

### Habitat and Weather

This unit group lies within the central basin and range ecoregion which is typified by pinyon-juniper woodland, sagebrush valleys, and basins mixed with some cool season grasses and saltbush-greasewood vegetation. As of March 2019, the Western Regional Climate Centers Blue Eagle Ranch site on the southern end of the units and the Eureka site at the northern end of the units both show above normal precipitation for the calendar year. Well above normal precipitation was recorded at both sites in February 2019 and is currently above normal for March 2019. However, both sites recorded little precipitation for 2018 starting in late spring through summer and into early fall. The US Drought Monitor currently shows most units are abnormally dry with a small portion of Unit 131 in a moderate drought. The soil moisture is below normal and has not changed from last year at 21% saturation for eastern Nevada according to the Nevada Water Supply Outlook Report by NRCS for March 2019. For 2019, the late winter and early spring precipitation should lead to more grasses and forbs available to antelope when compared to last year.

Pinyon-juniper removal efforts for sage-grouse within the northern portion of Unit 131 by Bureau of Land Management's Ely Office during this past year increased available habitat for antelope. Feral horses above Appropriate Management Levels in the northern portion of these units compete for forage and water, limiting antelope carry capacity. More pinyon-juniper projects and feral horse removal followed by spring enhancement or guzzler construction throughout this entire unit group would benefit this antelope population. Seven big game water developments for antelope have been constructed in Antelope and Jakes Valley, increasing water availability for wildlife.

### Population Status and Trend

The modeled August population estimates over the past 5 years have ranged from 900 to 950 adult antelope with the 2019 population estimate being 850 adult antelope. This year's survey indicates a decrease in the fawn to doe ratio and 100 less antelope observed during survey in 2018 compared to 2017. This antelope herd is currently on a decline, possibly due to last years below average precipitation and increasing feral horse numbers creating competition for limited resources on the rangeland.

### **Units 132-134, 245: Eastern Nye and Western Lincoln Counties**

**Report by: Clint Garrett**

### Hunt Results

For 2018 the harvest of 39 bucks for this unit group is consistent with the previous 5-year average of 40. For the percentage of bucks in the harvest with 15-inch-or-greater horn length refer to the antelope harvest tables in the appendix.

### Survey Data

The 2018 post-season antelope ground survey was conducted for this unit group in November and December 2018. Six days were spent classifying 285 antelope yielding sex and age ratios of 35 bucks:100 does:21 fawns. The 2018 observed buck and fawn ratios are below those obtained during the 3-day 2017 ground survey when 243 antelope yielded sex and age ratios of 54 bucks:100 does:34 fawns. Surveys were conducted in Railroad Valley, Sand Springs Valley, Twin Springs, Sand Springs Wash, Lunar Lake, and the Rachel area. The observed fawn ratio is below the previous 5-year average of 29 which has ranged from 6 to 71.

### Habitat and Weather

The northern portion of this unit group lies within the central basin and range ecoregion and transitions into the Mojave basin and range ecoregion on the southern end. Pinyon-juniper, sagebrush valleys and basins in the northern and central portions turn into Mohave Desert habitats with desert shrub and cactus to the south. The southern portion of this unit group tends to be less productive for antelope than the northern portion due to this habitat change. As of March 2019, the Western Regional Climate Centers Hiko site at the southern end and the Blue Eagle Ranch site at the northern end of the unit group both show above normal precipitation for the calendar year. Well above normal precipitation was recorded at both sites in February 2019 and is currently above normal for March 2019. However, both sites recorded little precipitation for 2018 starting in spring through summer and into early fall. The US Drought Monitor currently shows the units to be abnormally dry. Soil moisture for this year is below normal at 21% saturation for Units 132 and 134 in eastern Nevada, and soil moisture for Unit 133 in southern Nevada increased to just above normal at 33% according to the Nevada Water Supply Outlook Report by NRCS for March 2019. Even though these units are still abnormally dry, soil moisture is improving, and the current above normal precipitation should lead to more grasses and forbs available to antelope this spring and early summer compared to last year.

Six big game water developments for antelope have been constructed in Coal Valley, Garden Valley, and the Cove increasing water availability for wildlife. The Basin and Range National Monument encompasses most of Unit 133 and a small portion of Units 132 and 245 totaling 704,000 acres. Also, within this unit group, are 5 wilderness areas. Pinyon-juniper removal and thinning projects followed by spring enhancement or guzzler construction throughout the entire unit group would benefit this antelope population.

### **Population Status and Trend**

The modeled August population estimates over the past 10 years have ranged from 600 to 650 adult antelope with the 2019 population estimate being 600. This year's survey shows a decrease in the fawn to doe ratio and 42 more antelope observed on survey in 2018 compared to 2017. This antelope herd seems stable, yet fawn recruitment is low, possibly due to last years below average precipitation.

### **Units 141, 143, 151 - 156: Eastern Lander and Eureka Counties**

**Report by: Game Division**

### **Survey Data**

Post-season antelope surveys were conducted from the ground beginning in October 2018 and finishing in January 2019. Areas surveyed included Crescent Valley, the Argenta area, the Simpson Park Mountains, and Pine Valley along the east bench of the Cortez Range. One thousand three hundred fourteen antelope were classified, yielding age and sex ratios of 42 bucks:100 does:41 fawns. Observed fawn ratios were below the previous 5-year average of 48 fawns:100 does.

### **Habitat**

Above average precipitation during winters 2015-2016-2017 resulted in improved habitat conditions for antelope in northcentral Nevada. Many springs and seeps that had been affected by previous drought conditions began showing improvement again as well. Additionally, the recent removal of 2,000 horses from the Cortez Mountains and Dry Hills has contributed to improving habitat conditions in those areas.

Since 1999, over 450,000 acres have burned in Areas 14 and 15. Upper elevation burns have responded well with the return of a mixture of brush, native grasses, and forbs. The recovery of the lower elevation burns has been less successful with exotic annuals like cheatgrass and mustard dominating the landscape. Areas that were identified as crucial wintering areas for wildlife have been reseeded, resulting in the successful establishment of forage kochia and crested wheatgrass. Forage kochia is proving to be an essential winter browse for this antelope population and should be managed as an important forage species. With successful rehabilitation of burns since 1999, and maturation of the reestablished plant community, antelope numbers have responded positively to these large-scale disturbances. Long-term habitat conditions for antelope continue to remain stable or improve across much of Lander and Eureka counties. While very dry conditions during spring and summer 2018 affected range conditions throughout this portion of Nevada, above normal precipitation during winter and early spring 2018-2019 is encouraging.

### **Population Status and Trend**

To help alleviate some of the depredation issues on agricultural fields located in Units 151,153, and 156, the Horns Shorter Than Ears Hunt has been restructured to focus harvest in those particular units as opposed to the larger combined unit group previously covered by the hunt. Initial reports indicate the new hunt structure has been positively received by both landowners and sportsmen.

In January 2018, 10 antelope were captured in central Eureka County and outfitted with GPS satellite collars. The Nevada Department of Wildlife partnered with Barrick Mining Company to carry out the project. The objective of the project is to delineate seasonal antelope habitat on the east side of the Cortez Mountains as well as the north end of the Simpson Parks to evaluate proposed mine expansion. Data obtained from monitoring marked animals will help inform the process, ultimately reducing negative effects to antelope in the area.

As with most wildlife populations in Nevada, the amount and timing of precipitation will ultimately regulate this population's ability to increase and expand. The generally high fawn recruitment over the

past several years has resulted in population growth for this herd. Female harvest should continue to be used as a method to control this population's growth at a sustainable level.

## **Units 161 - 162: Northern Nye, Southeastern Lander, and Southwestern Eureka Counties** **Report by: Joe Bennett**

### **Survey Data**

A post-season antelope composition survey was conducted in Units 161 and 162 in September 2018. The survey yielded a sample of 272 antelope, which were classified as 78 bucks, 153 does, and 41 fawns. In comparison, the 2017 survey yielded a sample of 129 antelope which were classified as 23 bucks, 80 does, and 26 fawns. The higher observed buck ratio can be partially explained by survey timing. Although most animals observed during these surveys reside primarily in Units 161 and 162, movement of antelope between these and adjacent units is known to occur. The ingress (movement in) and egress (movement out) of antelope among units is reflected in population modeling and the quota setting processes.

### **Habitat**

From February 2018 to February 2019, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 87% of the 30-year average. Spring precipitation (March, April, and May) resulted in 16% of the precipitation in 2018 and winter precipitation (December, January, February) resulted in 24% of the 2018-2019 total, with most falling as snow. The one SNOTEL site located in central Nevada measured snowpack levels at 148% of average in March 2019. Drought conditions in spring through early summer 2018 plausibly caused reduced forage vigor and decreased forage quality earlier in the year. In turn, these drought conditions may explain the reduced fawn recruitment observed. Above-average winter precipitation in 2018-2019 will possibly result in good spring-summer forage conditions. Increased forage quantity and quality is critical during the fawning period. Female antelope require forage with higher nutritional value during the fawning period because of the added energy expenditures that are necessary to raise young. Not only are grasses and forbs important forage for adult animals, but fawns also depend on these plants to provide cover for protection from predators.

An increase in antelope near agricultural areas has occurred over the past several years in response to drought conditions. This event was prominent during spring 2018 through early summer drought.

Multiple US Forest Service pinyon-juniper removal projects have been conducted in Little Fish Lake Valley, Unit 162. In 2017, 717 acres of pinyon-juniper were removed near Clear Creek. In 2018, 500 acres near Horse Canyon and about 2,400 acres south of Danville Canyon had pinyon-juniper removed via lop and scatter techniques. Recent observation data suggests that antelope in Little Fish Lake Valley are using these areas more frequently. The removal of these trees will allow the herbaceous understory to regenerate providing good forage and habitat for antelope at certain times of the year. In addition, another 217 acres of pinyon-juniper were removed near Pasco Canyon with the help of local resource conservation programs.

### **Population Status and Trend**

Due to reduced fawn recruitment in 2018, this population is stable or slightly decreasing.

## **Units 171 - 173: Northwestern Nye and Southern Lander Counties**

**Report by: Joe Bennett**

### **Survey Data**

A post-season antelope composition survey was conducted in Units 171-173 in September 2018. The survey yielded a sample of 170 antelope, which were classified as 42 bucks, 101 does, and 27 fawns. In comparison, the 2017 survey yielded a sample of 196 antelope which were classified as 25 bucks, 131 does, and 40 fawns.

### **Habitat**

In February 2018 through February 2019, according to Community Environmental Monitoring and Planning precipitation data, central Nevada received 87% of the 30-year average. Minimal spring-early summer precipitation in 2018 may explain the reduced fawn recruitment that was observed on survey. In early 2019, much-needed precipitation was received. The one SNOTEL site located in central Nevada measured snowpack levels at over 148% of average in March 2019. Above-average snow pack will plausibly produce higher quantity and quality nutritional forage for does approaching the critical fawning period allowing them to enter in better body condition. Not only does increased spring precipitation produce better forage quality and quantity for adults, it provides necessary grasses and browse species which fawns use for hiding cover to avoid predators.

In 2018, a pinyon-juniper removal project was implemented on Carvers Bench in Unit 173. Two thousand six hundred acres of pinyon-juniper were removed. The removal of pinyon-juniper should enhance habitat conditions by allowing plant species that are important to wildlife more resources and less competition.

### **Population Status and Trend**

Slightly reduced fawn recruitment in 2018 has this population on a stable or decreasing trend. Above-average snow accumulation in 2019 should result in some degree of rangeland improvements in Area 17. This could increase population size.

Like what is occurring in many other central Nevada antelope management units, an increase in antelope using areas in and around agricultural areas is being seen in Area 17.

Due to regular movements of antelope between Nye, Esmeralda, Mineral, and Churchill Counties, the number of antelope in the unit group can vary widely on a seasonal basis. This is taken into account in the computer model when estimating population size.

## **Units 181 - 184: Churchill, Southern Pershing, Western Lander, and Northern Mineral Counties**

**Report by: Jason Salisbury**

### **Survey Data**

Ground surveys were conducted for antelope in Area 18 during fall 2018. There were 290 antelope classified with a ratio of 41 bucks:100 does:27 fawns.

### **Habitat**

Increased moisture experienced during late winter and early spring 2019 will result in excellent range conditions for the antelope herd.

A pipe rail fence was constructed the summer 2018 around an important antelope water source. Previously, a dilapidated buck and pole fence lay on the ground and provided no protection to the spring source from overuse by feral horses. The spring was developed with a stainless-steel drinker which overflows excess water to horses and livestock 500 feet below. These types of projects protect the integrity of the spring source while giving all animals adequate distance between each other.

In summer 2017, two large fires consumed thick stands of Pinyon Pine on the east face of the Clan Alpine Range. The Nevada Department of Wildlife seeded approximately 3,500 acres of the Tungsten Fire. The Draw Fire was seeded by the Nevada Department of Wildlife and Bureau of Land Management. Both fires burned close to 28,000 acres, but only a small portion of important drainages were seeded. The understory is still intact in some areas of Pinyon Pine that burned. These areas will respond quite well to the new burns and should improve habitat for antelope well into the future.

The Crown Peak water development was upgraded in spring 2019. The increased apron size as well as the increased storage capacity of 12,000 gallons will provide a much-needed dependable water source for antelope in the Lauderback Hills. Additionally, a new water development will be constructed on the north face of the Cocoon Mountains and will provide a new opportunity that is important to an expanding herd.

### **Population Status and Trend**

This is the second year Area 18 has participated in the horns shorter-than-ears hunt. Twenty-five tags were issued, and 24 hunters reported being successful for a 96% success rate.

This year's fawn ratio is significantly lower than what we have previously experienced the past three years. The high productivity experienced in the recent past will provide ample opportunity for future harvest. Hunter success for the general rifle hunt was 86% with 33% of the bucks having horns 15-inches or longer.

### **Units 202, 204: Lyon and Mineral Counties** **Report by: Jason Salisbury**

#### **Survey**

Post-season composition surveys occurred in early February 2019 and resulted in 90 antelope being classified. The resulting ratios for the sample were 52 bucks:100 does:28 fawns.

#### **Habitat**

Two water developments located near the Baldwin Canyon area will be replaced in 2019. These new developments will be complete rebuilds and will provide 10,000 gallons of water each to the antelope herd. Previous barbwire fence designs have excluded antelope from using these water sources.

In 2013, the Spring Peak Fire burned over 14,000 acres in Nevada and California. The Nevada Department of Wildlife seeded about 1,552 acres within the Spring Peak Fire area. Post-fire observations indicate an abundance of native grasses and forbs as well as bitterbrush. This area is recovering nicely and should provide new areas for the antelope to occupy.

Future projects that remove pinyon-juniper will allow for some expansion of the herd, and help to create corridors between California and Nevada, which will increase connectivity from summer to winter ranges.

**Population Status and Trend**

The 2018 fawn ratio should allow for a static population trend. Consecutive years of low fawn production have reduced the herd down to slightly more than 100 animals.

**Units 203, 291: Lyon, Douglas Counties**

Report by: Jason Salisbury

**Survey Data**

A post-season ground survey was conducted in February 2019 for this unit group. A sample of 68 antelope was obtained providing a ratio of 67 bucks:100 does:39 fawns.

**Habitat**

In early 2019, the Bureau of Land Management conducted a horse removal on the Pine Nut Herd Area that resulted in 300 horses being removed from a target goal of 500 horses. Feral horses within the Pine Nut Herd Area compete for both forage and water and may have a negative impact on the antelope population.

Large areas of pinyon-juniper within the Pine Nut Mountains have been treated to enhance and protect important sage-grouse habitat. In the process, this has opened travel corridors and foraging opportunities for the antelope population as well. Future projects that target the removal of trees will only enhance habitat for this antelope herd.

Future water development projects are needed in the Singatse, Buckskin, and Pine Nut Mountain ranges which would enable the herd to occupy new and varying terrain.

Past fires in the Pine Nut Mountains have opened up the pinyon-juniper canopies. Fires such as the Bison Fire that occurred in 2013 and burned over 24,000 acres of pinyon-juniper woodland have enabled the antelope herd to expand its range into the upper elevations of Unit 291.

**Population Status and Trend**

This population of antelope has remained stable with low fawn ratios in recent years. Because of these lower fawn ratios, a coyote removal project was initiated in 2017 during peak antelope fawning. The removal of coyotes should help facilitate increased fawn survival for this herd. The 2018 fawn ratio is well above the previous 5-year average and may have been influenced by the coyote control project which will continue into the 2019 calendar year. Overall, the herd is showing an increasing trend in population growth.

**Units 203, 291: Lyon, Douglas Counties**

Report by: Jason Salisbury

**Survey Data**

A post-season ground survey was conducted in February 2019 for this unit group. A sample of 68 antelope was obtained providing a ratio of 67 bucks:100 does:39 fawns.

**Habitat**

In early 2019, the Bureau of Land Management conducted a horse removal on the Pine Nut Herd Area that resulted in 300 horses being removed from a target goal of 500 horses. Feral horses within the Pine Nut Herd Area compete for both forage and water and may have a negative impact on the antelope population.

Large areas of pinyon-juniper within the Pine Nut Mountains have been treated to enhance and protect important sage-grouse habitat. In the process, this has opened travel corridors and foraging opportunities for the antelope population as well. Future projects that target the removal of trees will only enhance habitat for this antelope herd.

Future water development projects are needed in the Singatse, Buckskin, and Pine Nut Mountain ranges which would enable the herd to occupy new and varying terrain.

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**Population Status and Trend**

This population of antelope has remained stable with low fawn ratios in recent years. Because of these lower fawn ratios, a coyote removal project was initiated in 2017 during peak antelope fawning. The removal of coyotes should help facilitate increased fawn survival for this herd. The 2018 fawn ratio is well above the previous 5-year average and may have been influenced by the coyote control project which will continue into the 2019 calendar year. Overall, the herd is showing an increasing trend in population growth.

**Units 205 - 208: Eastern Mineral County**  
**Report by: Jason Salisbury****Survey Data**

No post-season ground surveys were conducted in Units 205-208. The last post-season survey was conducted from the ground in the fall 2017. A sample of 96 antelope was observed yielding a ratio of 42 bucks:100 does:36 fawns.

**Habitat**

Between 2013 and 2015, seven new water developments were built in the Candalaria Hills, Miller Mountain, Garfield Hills, and Eastside Mine area. These new water developments will be vital to establishing new populations of antelope in a very water-limited resource area.

Small sub-groups of antelope occupy a large area around limited water sources. Interspecific competition exists between horses and antelope. Horses deplete forage quantity as well as quality. Water developments provide the needed space and availability of resources that many perennial water sources do not provide.

**Population Status and Trend**

The population estimate for this herd has remained stable at about 300 antelope for the last 4 years.

**Units 211 - 213: Esmeralda County**  
**Report by: Joe Bennett**

**Survey Data**

A post-season antelope composition survey was conducted in Units 211-213 in September 2018. The survey yielded a sample of 37 antelope, which were classified as 7 bucks, 22 does, and 8 fawns. In comparison, the 2017 survey yielded a sample of 51 antelope classified as 7 bucks, 32 does and 12 fawns. Observed fawn ratios indicate the herd experienced above-average production in 2017 and 2018.

**Habitat**

Much of Area 21 falls within the transition zone between the Great Basin and the Mojave Desert. As a result, the quality of antelope habitat throughout the area varies widely. During periods of favorable climatic conditions, antelope tend to expand the areas they inhabit in Area 21, while during dry periods, these areas contract. Drought years within the last decade, coupled with competition from feral animals in many areas, continue to affect habitat conditions throughout Area 21. Above-average winter precipitation in winter 2018-2019 should result in some rangeland improvement for Area 21. This could increase population size.

**Population Status and Trend**

As antelope populations in surrounding areas increased in number and expanded in distribution over the past 15 years, antelope moved into the Great Basin-Mojave transition zone in Esmeralda County in greater numbers than had previously been observed. While many animals continue to move in and out of the area based on season and prevailing climatic conditions, more and more animals have become permanent residents of the county. Most of the Esmeralda County antelope population is made up of 2 core herds. One herd currently resides in and around the Monte Cristo Range in northern Esmeralda County, while the other typically inhabits the region near, and between, the towns of Goldfield and Silver Peak, Nevada, in east-central Esmeralda County. Antelope also occur, in smaller numbers, throughout many other areas of the county.

Currently, due to favorable production rates observed in 2017 and 2018, the Area 21 antelope herd is considered stable to slightly increasing.

**Units 221 - 223, 241: Lincoln and Southern White Pine Counties**  
**Report by: Cooper Munson**

**Survey Data**

Ground surveys were conducted for antelope in these units during December 2018. Four hundred seventy-eight antelope were classified consisting of 112 bucks, 279 does, and 87 fawns, which results in a ratio of 40 bucks:100 does:31 fawns. Antelope were classified in Delamar, Dry Lake, Cave, Lake, South Spring, and Steptoe Valleys. About 100 antelope were classified in near vicinity of the boundary of Area 11 and 22. This may be attributed to seasonal habitat use due to weather conditions. Overall the survey resulted in the classification of a larger sample, which may be attributed to the limited water resources. Antelope were observed using guzzlers, livestock waters, and natural water resources throughout the area; many were being rapidly depleted.

**Habitat**

Habitat conditions appeared to be moderate during the survey due to precipitation during October 2018. Antelope seem to use the recently completed habitat enhancement projects in Cave Valley, which were initiated for the benefit of sage-grouse. Newer water developments in Delamar Valley have allowed for

expanded use of habitat in that area. Nearly 1,000 feral horses were gathered by the Bureau of Land Management, which will reduce competition for resources on the range. A solar energy zone, including 24,000 acres of development, is being designated in Dry Lake Valley. This development will substantially affect antelope habitat quality and quantity in that area. Pinyon-juniper expansion into the lower elevations continues to reduce habitat quality and quantity for antelope. Habitat improvement projects have been initiated in south Steptoe Valley and Northern portions of Cave valley to remove and reduce pinyon-juniper and improve habitat for wildlife.

### **Population Status and Trend**

Although this population has seen low fawn recruitment over the past few years, it seems to be doing reasonably well despite recent drought conditions. Habitat improvements and water developments are allowing antelope to use increased habitat throughout the area. The computer-generated population estimate for 2019 is showing an increasing trend over the past 5 years this area.

### **Unit 251: Central Nye County** **Report by: Joe Bennett**

#### **Survey Data**

A post-season antelope composition survey was conducted in Unit 251 during September 2018. The survey yielded a sample of 209 antelope, which were classified as 45 bucks, 127 does, and 37 fawns. In comparison, the 2017 survey yielded a sample of 128 antelope which were classified as 33 bucks, 71 does, and 37 fawns.

#### **Habitat**

Antelope habitats in Unit 251 have been affected by competition with feral animals and regularly occurring drought periods. Many natural water sources have been degraded in this unit by unmanaged use. Feral animal gatherings have occurred within this unit over the past year and should have provided some reprieve to rangeland conditions, water sources, and competition for resources.

In 2018, according to Community Environmental Monitoring and Planning precipitation data, central Nevada received 87% of the 30-year average. Minimal spring-early summer precipitation in 2018 may help explain the reduced fawn recruitment that was observed on survey. In early 2019, much-needed precipitation occurred. The one SNOTEL site located in central Nevada measured snowpack levels at over 148% of average in March 2019. Recent precipitation should result in improved rangeland conditions going into spring-summer. The precipitation should increase forage vigor this spring when does are in greatest need of quality forage.

### **Population Status and Trend**

The Unit 251 antelope population is currently relatively stable. During dry summer months, antelope have a strong affinity for lush agricultural lands. The appeal of agricultural lands is drawing more and more animals to the area from within withdrawn lands of the Nevada Test and Training Range. These animals, based on location, are at times not available for harvest.

## ROCKY MOUNTAIN ELK

**Unit 051: Santa Rosa Mountains; Eastern Humboldt County**  
Report by: Ed Partee

### Survey Data

Post-season helicopter surveys were conducted in mid-January 2019. Forty elk were classified this year, similar to that surveyed in 2018. Elk flights were conducted over 2 days and expedited due to the approaching storms. During the first morning of survey, conditions were ideal. Conditions deteriorated during the second day due to low clouds and wind. We expected to encounter more elk on survey than we did due to snow accumulations. The survey yielded 10 bulls compared to 9 bulls classified in 2018. The ratio from this year's survey was 42 bulls:100 cows:25 calves. These results should be interpreted cautiously due to the small number of elk encountered on survey. Areas surveyed included the Osgood Mountains, Hot Springs Range, and the Santa Rosa Range.

### Habitat

Habitat conditions in the upper elevations are favorable, but a large portion of the winter range was burned in the Martin Fire, which burned over 400,000 acres in the Santa Rosa Mountains and Owyhee Desert. The winter of 2018-2019 had greater snow than the previous year. In prior years, snow accumulations like this year coincided with movements of large numbers of elk from Area 6 into this area. Elk did not move into the area this year, possibly due to effects of Martin Fire on transition zone, limiting the number of available elk during the hunting season. Precipitation was 115% of average as of March 1, 2019. The upper elevations of the Santa Rosa Mountains have been ideal for elk, providing quality forage that should result in favorable body conditions for calving and antler growth. This herd should remain stable to increasing in 2019 due to plentiful spring moisture and its influence on forage.

### Population Status and Trend

The population estimate for Unit 051 is close to the estimate from last year. The amount of snow received forced resident elk out of the higher elevations of the Santa Rosa Range to areas where they were more visible. This is the fourth year of a telemetry project using satellite-collars to monitor movement and use patterns of elk in Unit 051. The telemetry project coupled with annual surveys allows Nevada Department of Wildlife biologists to document herd growth and contraction. This population size is expected to fluctuate depending on annual winter conditions. The objective is to maintain this herd below 200 animals.

**Units 061, 071: Bruneau River and Merritt Mountain Area; Northern Elko County**  
Report by: Matthew Jeffress

### Hunt Results

Success rates were consistent with previous years for most hunts in this unit group.

### Survey Data

One-thousand two hundred sixty-eight elk were classified during an aerial survey in January 2019. The sample size was below the 10-year average of 2,600 elk and is due to an abbreviated survey to accommodate survey in other units. The sex and age ratios of the sample were 28 bulls:100 cows:41 calves. The observed calf ratio was 6 points below the 10-year average.

**Habitat**

During winter 2017-2018, most of the elk herd remained in Nevada throughout the year due to lack of snowpack. Conversely this past winter, due to above average snowpack much of the elk herd moved into Idaho for the winter. In 2017, Nevada Department of Wildlife, Elko Bighorns Unlimited, and Nevada Bighorns Unlimited-Reno funded vegetation monitoring to evaluate effects by elk in the Bruneau Watershed. The final report was made available summer 2018 and highlighted the need to manage this herd near current levels. The results of the study do not represent elk use on a landscape level, rather the Nevada Department of Wildlife identified areas of high use to evaluate effects of elk at the highest use sites. Current use by elk at select sites was noted to be moderate to high, but no higher than those observed at several sites by domestic sheep and cattle.

**Population Status and Trend**

This population is modeled as one herd; however, a substantial portion of the herd resides exclusively on the Duck Valley Indian Reservation and in Idaho. Thus, the published population estimate of the Bruneau elk herd is smaller than the total, combined estimate. In addition, a proportion of elk wintering in the Bruneau River drainage and on the Diamond A Desert, summer in Unit 072, 073, 074 (Jarbidge Mountains). Due to elk spending more time in Nevada during the open winter of 2017-2018, the population estimate for the Units 061, 071 portion of the Bruneau herd is 200 animals higher than last year's reported population estimate.

Harvest management strategies implemented by Idaho Fish and Game for the portion of the Bruneau elk herd residing in Idaho include conservative quotas for antlered elk, moderate antlerless harvest north of Unit 061, and conservative antlerless harvest north of Unit 071 due to a lack of access during the winter months. Nevada Department of Wildlife biologists continue to work with Idaho Fish and Game to improve understanding of elk distribution along the Nevada-Idaho border and improve elk management in both states.

To improve hunter access to mature bulls and meet antler quality objectives, seasons were shifted earlier for all hunts following the standard September rifle cow hunt. Success rates and antler measurements will be monitored over several years to evaluate the success of the new hunt structure in the Bruneau River drainage.

**Units 062, 064, 066 - 068: Independence and Tuscarora Ranges; Western Elko, Northern Eureka and Lander Counties**  
**Report by: Matthew Jeffress**

**Hunt Results**

Success rates for rifle cow hunts were below 15%. Low hunter success is attributed to effects from the 233,500-acre South Sugarloaf Fire that burned much of this elk herd's summer range.

**Survey Data**

Aerial surveys in January 2019 resulted in the classification of 359 elk. The sex and age ratios of the sample were 11 bulls:100 cows:50 calves. The observed calf ratio mirrored the 10-year average and the bull ratio was well below the 10-year average. Sample size and the low bull ratio are reflective of an abbreviated survey that focused on locating cow elk using radio telemetry.

**Habitat**

During the 2018 fire season, portions of the 435,500-acre Martin fire and the 233,500-acre South Sugarloaf fire burned seasonal habitats this elk herd relies on. Much of this unit group now consists of a patchwork of past burns. Lack of cover on summer range following the South Sugarloaf fire will reduce habitat suitability for elk 1-2 years post-fire. Elk will benefit from the flush of perennial grasses and forbs following the burn on key summer range, however this elk herd was not limited by summer range prior to the recent fires.

Deep-rooted perennial grasses may recover, but much of the affected acreage, especially south-facing slopes, may be converted to less desirable annual grasses. Very little of the acreage affected by the South Sugarloaf fire was seeded this past winter.

### **Population Status and Trend**

Based on telemetry data from a representative sample of radio collared elk, about 280 elk from this population spend most of the year outside the unit group boundaries, including some that summer in Idaho. When the segment of the population occurring outside of Units 062, 064, 066-068 is considered, the population estimate for adult elk permanently residing in Nevada is below objective.

Despite recent decreases in tag quotas, hunter success continues to decline which is indicative of a declining population. Reductions in the tag quota for antlerless elk hunts did not improve hunter success as expected during the 2018 hunting season, yet this could be attributed to effects from the South Sugarloaf fire. While maintaining this herd at a population objective of 500 adults, comparatively fewer elk are expected to be found within the unit group in general, and densities will continue to be higher in the northern portion of the unit group. This inequity in density and distribution of elk has become a management challenge because many of the northern elk are not available for harvest either due to time spent outside the unit group or inhabiting private land on the west side of the Bull Run Mountains. Nevada Department of Wildlife has shared this information with Idaho Fish and Game with the goal of establishing a concurrent late season cow hunt on the Idaho portion of the YP Desert.

No private lands conflicts were reported in 2018. One landowner participated in the private lands antlerless elk hunt in Unit 062, resulting in the harvest of several antlerless elk, reducing conflict with cultivated fields. Nevada Department of Wildlife continues to work with landowners to reduce conflicts with elk using private land.

In March 2019, an additional 9 elk were radio collared from the Owyhee Desert subherd of this population. Telemetry data continues to provide a better understanding of population demographics and seasonal movements. New collar deployments are intended to help Nevada Department of Wildlife biologists understand the cause of seasonal elk mortality.

## **Unit 065: Piñon Range, Cedar Ridge Area; Southwestern Elko and Eastern Eureka Counties** Report by: Tyler Nall

### **Hunt Results**

The 2018 hunting season was the sixth year of elk hunting in Unit 065. Two of 4 bull tags available for the September rifle bull season were used; only 1 hunter was successful. This is only the second year since 2015 that hunters were successful in the bull hunt. The reported antlerless hunt success of 22% was lower than last year's rate of 43%.

### **Survey Data**

Post-season elk surveys were conducted in January 2019. Twenty-eight elk were classified yielding ratios of 28 bulls:100 cows:28 calves. Survey conditions were good with cold temperatures and complete snow coverage. Due to the abundance of trees within this unit, it is difficult to survey in all but perfect conditions. At the time of the survey there were 2 radio collared elk in the unit, and both were observed in the same group.

### **Habitat**

The Cedar Ridge Wilderness Study Area, the Red Spring Wilderness Study Area, and the Huntington Creek corridor provide yearlong habitat for much of the elk herd. The mixture of recent burns and pinyon-juniper

forests provide adequate resources for the resident elk. To the west of the core population, an abundance of suitable habitat in the Piñon Range will allow for future herd expansion.

Snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 134-223% of the long-term average with water year-to-date precipitation at 116-142% of average (19 March 2019; [www.nrcs.usda.gov](http://www.nrcs.usda.gov)). The heavy winter should provide for better range conditions throughout the summer than the previous 2 years, but spring and summer rains are still important for optimal range productivity.

The 2017 Red Springs Fire burned about 4,600 acres of mixed-mountain shrub, perennial grasses, and pinyon and juniper habitat in the Cedar Ridge area of Unit 065. The burn area comprised a mixture of public and private land. The limited temporal loss of ecological function of these acres was mitigated with the application of a seed mix comprised primarily of sagebrush, perennial grasses, and some forbs. Radio telemetry data shows considerable use of the burn area in the summer and fall.

### **Population Status and Trend**

Three radio collared cow elk have died of unknown causes since 2017. In March 2019, 2 additional cow elk were radio collared near Cedar Ridge to identify the cause of unknown elk mortalities occurring since 2017. This population continues to be difficult to survey and, as a result, a realistic population size is difficult to estimate. Given the light harvest, the expectation would be to see the population growing steadily but all observations indicate this herd is stagnant or slightly decreasing and may be over-estimated. The radio collaring project will continue to aid in tracking new movements and mortalities.

### **Units 072, 073, 074: Jarbidge Mountains; Northern Elko County**

Report by: Kari Huebner

### **Hunt Results**

Hunter success was slightly lower during the early rifle hunt for antlered elk with a reported 40% success compared to 42% in 2017. Reported success during the late season decreased from 34% success in 2017 to 25% in 2018. Four separate rifle seasons for antlerless elk were offered to reduce the population. Hunters during the wilderness-only Any Legal Weapon hunt and the late antlerless Any Legal Weapon hunt continued to be the most successful.

### **Survey Data**

Surveys conducted in January 2019 resulted in the classification of 1,272 elk with observed ratios of 71 bulls:100 cows:36 calves. The observed bull ratio was considerably lower than the 2018 bull ratio of 176 bulls:100 cows and the observed calf ratio was also lower than the 2018 ratio of 43 calves:100 cows.

### **Habitat**

Several wildfires within the unit group have further enhanced habitat for elk. The recovery of perennial grasses and forbs has been remarkable in most burned areas. Vegetation communities affected by the most recent wildfires in Stud Creek and on winter range in Idaho received good winter moisture and are expected to recover well, providing productive forage to elk.

Vegetation monitoring conducted in 2010 and 2012 on lands managed by the US Forest Service documented use by elk in the majority of sampled aspen stands. The intensity of use, however, was minimal and not enough to reduce the productivity of sampled aspen stands. A similar pattern was documented in mountain mahogany stands. Aspen and mountain mahogany stands in areas affected by wildfire will continue to be monitored to determine if regeneration is limited by elk herbivory.

### **Population Status and Trend**

The population objective in the Jarbidge Mountains Elk Herd Management Plan has been established at 1,000 adult elk ( $\pm 10\%$ ) on the US Forest Service portion of Unit 072. The Wells Resource Area Elk Plan allows for an additional 220 elk in portions of Unit 072, 074, and the east side of 073 on lands managed by the Bureau of Land Management. The Western Elko County Elk Plan identifies an objective of 200 elk for the west side of Unit 073. Cumulatively, the population objective for elk in Units 072, 073, 074 is 1,420 adult elk. The herd is currently below population objective and tag quotas are expected to decrease as a result.

In recent years, data from radio collared elk has been used to differentiate elk from the Jarbidge and Bruneau herds that inhabit a shared wintering area on the Diamond A Desert. Additional radio telemetry data from the Inside Desert winter range has indicated that some elk reside solely in Idaho. This year, movement data was incorporated into the population model to more accurately estimate the amount of time elk spend in Units 072, 073, 074. Results indicate about 500 elk in this metapopulation reside outside of Nevada and are not included in the population estimate for Units 072, 073, 074.

### **Unit 075: Snake Mountains; Elko County** Report by: Kari Huebner

#### **Survey Data**

Surveys in January 2019 resulted in the classification of 122 elk yielding age and sex ratios of 57 bulls:100 cows:31 calves. Bull and calf ratios were lower than those observed in 2018 (98 bulls:100 cows:49 calves).

#### **Habitat**

Several fires have burned in the unit since 2006. Although initial effects on wildlife were not favorable, the elk herd is now using these areas due to the recovery of perennial grasses, forbs, and aspen stands.

The winter of 2018-2019 yielded considerable snow totals in the Snake Mountains and should provide a flush of forbs and grasses this spring and early summer. The drought-stricken sagebrush should benefit from the deep soil moisture as well.

### **Population Status and Trend**

The population objective for Unit 075 is 100 elk ( $\pm 10\%$ ) and was established by the Wells Resource Area Elk Plan. Quota recommendations for hunts of antlered and antlerless elk are intended to maintain herd size within population objective.

Due to the large amount of private land in the area (about 50% of the total area), this herd continues to be a management challenge. The Winecup Gamble ranch allows access to private lands on Loomis Mountain but restricted use of motorized vehicles. While other landowners permit access to hunters, elk seek refuge on private lands that do not permit access. The Nevada Department of Wildlife continues to work with these landowners to increase access for hunters.

### **Units 076, 077, 079, 081: Thousand Springs, Goose Creek and Pequop Mountains Area; Northern Elko County** Report by: Kari Huebner

#### **Hunt Results**

Success rates for the 2018 early and late rifle hunts for antlered elk increased to 63% and 65%, respectively. In 2012, 5 depredation hunts for antlerless elk were implemented for the northeast portion of Unit 081. Over 700 elk have been harvested in Unit 081 since institution of the depredation hunts.

**Survey Data**

Surveys conducted in January 2019 resulted in the classification of 927 elk yielding age and sex ratios of 40 bulls:100 cows:50 calves. Surveys were not conducted in 2018.

**Habitat**

Nearly 240,000 acres burned in this unit group during summer 2007. Since then, at least that many acres have burned again. This past summer, the Goose Creek Fire was 126,000 acres, extending into Utah. Extensive reseeding work was conducted to rehabilitate burned areas. The long-term outlook of this habitat for elk is favorable.

Most planned wildlife water developments have been built and are currently being used by elk. Increased water availability has improved distribution of elk throughout the unit group. Old cable fences around water developments have been replaced with pipe rail fences to more effectively exclude livestock.

**Population Status and Trend**

Elk spend a substantial amount of time on private lands in this unit group due to the number and distribution of private parcels. Thirteen landowners qualified for 48 elk incentive tags for allowing elk use on private rangeland during 2018.

Elk have been radio collared on Deadline Ridge in Unit 081 since 2017. Movement data indicates these migratory elk are not available to Nevada hunters during August through October antlerless elk hunts because they summer in Idaho. This data is being incorporated into the elk population model and tag quotas will more accurately reflect elk available for harvest in Nevada and count towards the population management objective.

The depredation hunts in Unit 081 were developed in response to low hunting pressure and increasing elk numbers. The goal of these hunts is to reduce elk numbers and alleviate pressure on private land. The depredation hunts have proven successful and are in place again in 2019.

**Unit 078, and portions of 104, 105 - 107, 109: Spruce Mountain; Elko County  
Report by: Scott Roberts****Hunt Results**

For the 2018 season, 32 tags were issued for bulls across all weapon and residency classes. The cumulative harvest resulted in a reported 82% of the bulls having 6 or more points and 68% of the bulls having main beams of 50 inches or greater. There were 9 spike-only tags available, of which 2 hunters were successful. Forty-three antlerless tags were allocated across the 3 weapon classes with an overall hunter success of 44%.

**Survey Data**

An aerial survey was conducted in January 2019, where 320 elk were classified yielding sex and age ratios of 67 bulls:100 cows:45 calves. A group of 178 elk were not included in the sample due to their proximity to the border of Unit 109 and Unit 121. It is presumed that this group represented elk from both units and the appropriate proportions assigned to each unit are unknown.

**Habitat**

Populations of feral horses well above Appropriate Management Levels continue to affect rangeland health and diversity. The relative aridness of this unit group makes the limited perennial springs and riparian vegetation very susceptible to overuse by horses. This unit group covers all or part of 4 Herd Management

Areas, and according to 2018 Bureau of Land Management population estimates these 4 Herd Management Areas ranged from 471-1,857% of Appropriate Management Levels ([www.blm.gov/programs/wild-horse-and-burro/](http://www.blm.gov/programs/wild-horse-and-burro/)).

The Spruce Mountain Restoration Project continues with about 6,800 acres of habitat treatments being completed since 2013. These treatments have been a combination of hand-thinning, mastication, and chaining of pinyon-juniper woodlands, weed abatement, and seeding. Up to 3,200 additional acres occurring near Spruce Mountain are scheduled to be treated within 5 years. In October 2018, contract crews completed a 1,100-acre hand-thinning project near Spud Patch Basin in Unit 078. This project is part of a mitigation package designed to offset habitat losses due to the Long Canyon Mine and is the first of many habitat enhancement projects that will be implemented in the area. These restoration and mitigation activities have the potential to benefit elk, deer, sage-grouse, and many other wildlife.

### **Population Status and Trend**

The population estimate is higher than previous years as the elk herd grows in neighboring units outside the historical core area of Unit 105. Elk use is increasing on private property, specifically on the Big Springs Ranch in Unit 078. Management of elk gets more difficult as the proportion of the herd available

### **Unit 091: Pilot Range; Eastern Elko County** **Report by: Kari Huebner**

#### **Hunt Results**

Fourteen bulls were harvested in Unit 091 during the 2018 hunting season (7 by Utah hunters and 7 by Nevada hunters). An additional 2 antlerless elk were harvested in a depredation hunt on the TL Bar Ranch in Utah. Two newly developed antlerless elk hunts are offered to Nevada residents for the 2019 hunting season.

Hunters who draw an 091 elk tag can hunt Pilot Mountain in both Nevada and Utah. Specialty tag holders are prohibited from hunting elk in Unit 091 due to low tag quotas and a cooperative agreement with the Utah Division of Wildlife Resources, which requires Nevada and Utah to evenly share the elk resource.

#### **Survey Data**

Surveys conducted in January 2019 resulted in the classification of 138 elk yielding age and sex ratios of 39 bulls:100 cows:34 calves. Surveys were not conducted in 2018.

#### **Habitat**

The Rhyolite Fire burned about 4,500 acres on the northeast portion of Pilot Mountain in 2013. Vegetation communities responded well to this disturbance and provide productive habitat for elk.

A wildlife water development south of Miners Canyon was recently upgraded. An old, saucer-style unit was replaced with a new metal apron collection surface with 4 storage tanks. The unit should benefit elk, as well as bighorn sheep.

### **Population Status and Trend**

The long-term trend for this elk herd is stable to slightly increasing. Calf ratios are usually lower than surrounding units. However, herds associated with private meadows exhibit considerably higher production and recruitment.

A population objective of 250 elk was established in the Wells Resource Area Elk Plan. The objective was based on the original Unit 079 boundary that has now been divided into Units 079 and 091 and included only

the Nevada portion of Pilot Mountain. The Unit 091 herd is predominately found on the Utah side of Pilot Mountain and remains below population objective in Nevada.

## **Units 101 - 103: East Humboldt and Ruby Mountains; Elko County**

**Report by: Scott Roberts**

### **Hunt Results**

The Nevada Department of Wildlife remains committed to limiting the elk population in Units 101-103. Since 1999, 621 elk have been harvested from the elk restricted zone in the Ruby Mountains. In 2014, the Nevada Department of Wildlife implemented its most aggressive hunt strategy since the inception of the first depredation hunts in 1999. This latest strategy included management hunts for antlerless elk coinciding with existing mule deer hunts and resulted in additional harvest.

For the 2018 hunting season, antlered quotas remained at 100 tags split between 2 seasons with a cumulative hunt success rate of 30%. The antlerless quota remained at 100 tags for the single 6-month season, which had an 8% hunt success rate. There were 418 antlerless elk management tags accepted by deer tag holders of all the various weapon classes and seasons. The cumulative success of the antlerless elk management hunts was 2%.

### **Survey Data**

Elk specific surveys were not conducted for this unit group but incidental observations during the fall aerial deer survey classified 14 elk yielding ratios of 43 bulls:100 cows:57 calves. Landowner reports of elk damage have been minimal the last 10 years, with one documented problem area scheduled to be fenced in 2019. The low number of recent elk issues affirms that hunt strategies have been successful at achieving management goals.

### **Population Status and Trend**

The current hunt strategy is to keep elk numbers low and to prevent or reduce depredation on agricultural lands. This aggressive harvest strategy of liberal tag quotas will continue to be used and will be bolstered by actively working with landowners should any elk issues arise.

## **Units 111 - 115: Schell Creek, Antelope, Kern and Snake Ranges; Eastern White Pine and Northern Lincoln Counties**

**Report by: Kody Menghini**

### **Survey Data**

The 2019 post-season composition survey for elk was combined with spring deer surveys. A sample of 1,226 elk was collected yielding sex and age ratios of 44 bulls:100 cows:38 calves. Sex and age ratios have averaged 26 bulls:100 cows:35 calves over the previous 5 years.

### **Habitat**

The National Weather Service recorded 80% of normal precipitation at the Ely Airport in 2018. Habitat conditions were poor for most of 2018 with a dry, hot summer and fall. Many wildlife water developments were empty by late summer and elk were observed traveling long distances to water. The 2018-2019 winter has been cool and snowy, with the National Weather Service recording 149% of normal precipitation between December 2018 and February 2019. The Berry Creek SNOTEL site received 126% of the long-term average snowpack during the 2018-2019 winter (accessed 18 March 2019, [www.nrcs.usda.gov](http://www.nrcs.usda.gov)). At the time of this writing, spring storms have continued to be cool and wet. Forage conditions should improve in 2019.

The long-term habitat potential for elk is slowly declining due to the encroachment of pinyon-juniper trees into mountain brush and grassland habitats and declining range conditions from feral horse numbers well above Appropriate Management Levels in some areas. Some subdivision and sale of private parcels in quality habitat is occurring as well. Nevertheless, elk are benefiting from thousands of acres of pinyon-juniper thinning, thinnings, and other tree removal projects recently completed by Bureau of Land Management and US Forest Service. Future projects are planned in the north Schell Creek Range, Kern Mountains, and Duck Creek Basin. The Bureau of Land Management Ely District Office signed a NEPA document in fall 2018 approving the construction of new guzzlers and the rebuild of existing guzzlers. One new guzzler was constructed in fall 2018 in Unit 112 in the Antelope Range. These guzzlers provide reliable water sources and reduce competition with feral horses.

Between 2012 and 2014, over 50,000 acres have burned in 7 different wildfire events throughout the area. Much of the affected acreage was formerly dominated by pinyon and juniper woodlands. Elk are beginning to expand into the burns as vegetation begins to recover. In 2016, the Strawberry Fire burned 4,600 acres on the north end of Unit 115. Much of this burn occurred on Great Basin National Park where hunting is prohibited. This burn could make future elk management challenging by providing productive habitat for elk and a refuge from hunting pressure.

### **Population Status and Trend**

Area 11 and Area 22 elk herds were modeled as separate populations for the first time in 2019. Previously, there was a great deal of movement between the 2 areas, but that has decreased over time. Bull quotas have been split since 2012. This change should allow Nevada Department of Wildlife to carry out more specific management actions for each area.

The current population estimate is stable to slightly decreasing relative to last year's estimate.

### **Unit 121, 104 and a portion of Unit 108<sup>A</sup>: Cherry Creek, North Egan, Butte, Maverick Springs and Medicine Ranges; Northern White Pine and Southern Elko Counties** Report by: Tyler Nall

#### **Hunt Results**

There were 76 bull tags issued across all weapon classes in 2018, with a 66% success rate. Of the 50 bulls harvested in this unit group, 70% had 6 or more points.

Given the growth of this herd, a substantial increase in harvest was recommended for the 2018 hunting season. One hundred and forty-two antlerless tags were issued across all weapon classes with a 61% success rate. Three antlerless depredation hunts were held to limit elk use on private lands in Steptoe Valley, Unit 121. There were 44 combined tags issued for the depredation hunts from August 1, 2018-January 5, 2019, with a reported 39% success rate.

#### **Survey Data**

Aerial surveys were conducted in January 2019. Biologists classified 563 elk yielding ratios of 23 bulls:100 cows:44 calves. Survey conditions were good, with cold temperatures and near complete snow coverage. This was the largest sample size on record for this unit group. Due to the abundance of trees, the bull segment continues to be difficult to survey. Of the bulls classified, 53% were yearlings.

#### **Habitat**

Pinyon-juniper tree encroachment occurs across a substantial portion of this unit group. Several large-scale habitat enhancement projects are proposed for Unit 121. The Egan and Johnson Basin Restoration Project would treat roughly 24,000 acres of pinyon-juniper trees in sagebrush communities. The Combs Creek project, concluded in 2016, reduced pinyon-juniper encroachment on 7,000 acres in the southern portion of Unit 121.

Snowpack recorded at SNOTEL sites in water basins located within and adjacent to this unit group ranged from 135-229% of the long-term average with water year-to-date totals at 136-155% of average (accessed 19 March 2019, [www.nrcs.usda.gov](http://www.nrcs.usda.gov)). The heavy winter should provide for better range conditions than those experienced the previous 2 years, but spring and summer rains are still important for optimal forage productivity. The Goshute Cave fire of 2018 burned about 31,000 acres of prime elk habitat in Unit 121. A coordinated effort was made to reseed the area during winter 2018-2019 using Bureau of Land Management funds. The elk use in the area will likely increase in the years following the burn and subsequent reseeding.

### **Population Status and Trend**

This year's population estimate is slightly higher than the 2018 estimate despite the increase in antlerless tags last fall. This is a result of the rapidly increasing population and last year's elevated cow:calf ratio. Nevada Department of Wildlife is committed to maintaining this elk herd below the population objective. As a result, a more aggressive approach to cow harvest has been adopted with the addition of late season antlerless seasons for both residents and non-residents.

The Nevada Department of Wildlife is committed to reducing private land damage in Steptoe Valley while still providing opportunity to sportsmen to hunt elk. Future depredation tag quota recommendations will be designed to reduce elk presence on private lands in the valley.

### **Units 131, 132 and portion of Unit 108<sup>B</sup>: White Pine, Grant and Quinn Canyon Ranges; Southern White Pine and Eastern Nye Counties** Report by: Clint Garrett

#### **Hunt Results**

Hunts in Unit 131 were first offered for antlered elk in 1995 and antlerless elk in 2007. Antlered and antlerless hunts in Unit 108 and 132 were added successively, until the current unit group was established in 2013. Total harvest in 2018 was 38 bulls and 39 cows and is above last year's harvest of 29 bulls and below last year's harvest of 41 cows. In 2018, the Antlerless Elk Management Hunts associated with archery, muzzleloader and rifle deer seasons accounted for 46% of the total harvest in the unit group compared to 34% in 2017. Antlerless elk accounted for 51% of the total harvest in the area compared to 59% in 2017. The percent of 50 inch or greater main beam length for antlered elk was 39% and identical to 2017 harvest.

#### **Survey Data**

An aerial survey was conducted in January 2019. During this survey, 175 elk were classified yielding ratios of 48 bulls:100 cows:29 calves. In comparison, the survey in 2018 totaled 244 elk with observed ratios of 119 bulls:100 cows:65 calves. The previous 5-year average calf ratio is 41 calves:100 cows.

#### **Weather and Habitat**

As of March 2019, lower elevations have received above-normal precipitation for the 2018 calendar year according to data collected by the Western Regional Climate Center at the Blue Eagle Ranch site. The White River watershed snowpack analysis has increased from 23% to 115% of median for 2019 (March 2019, Nevada Water Supply Outlook Report, NRCs). Although these units have recently experienced drought conditions and soil moisture levels in March 2019 were below normal, improved snowpack and above-normal precipitation at lower elevations should lead to more grasses and forbs available in spring and early summer compared to 2018.

On-going removal of pinyon-juniper trees encroaching into bunchgrass and sagebrush communities is led by US Forest Service and Bureau of Land Management. These projects promote the production of grasses and forbs benefiting elk, as well as other wildlife. Increasing numbers of feral horses are degrading habitat in the Mt. Hamilton area where a large herd has established. Mineral exploration is ongoing in the Green Springs area of Unit 131 and, if developed, will affect sage-grouse, mule deer, and elk.

**Population Status and Trend**

The White Pine County Elk Management Plan established a population objective of 300 adult elk ( $\pm 20\%$ ) for Units 131 and 132. The elk herd is currently within population objective. The observed cow to calf ratio is well below the previous 5-year average and possibly due to this year's above normal snowpack coupled with last year's abnormally dry to moderate drought conditions.

**Units 144, 145: Diamonds, Fish Creek Range, Mahogany Hills and Mountain Boy Range; Southern Eureka and Western White Pine Counties.**

Report by: Clint Garrett

**Hunt Results**

Depredation hunts for antlered and antlerless elk in Units 144 and 145 were initiated in 2012 to prevent the establishment of a viable elk population in accordance with the Central Nevada Elk Plan. Due to thick tree cover, low elk densities, hunting pressure, and dispersed movement patterns, elk hunting conditions are difficult. Since 2012 there have been 48 bulls and 35 cows harvested. For the 2018 season there were 7 hunts offered with a combined quota of 70 tags. Overall harvest success during the 2018 season was the lowest on record at 4% compared to 12% in 2017.

**Survey Data**

Elk numbers are extremely low in this unit group and no formal composition survey was conducted during the reporting period. Total incidental observations of elk for 2016-2017, 2017-2018 and 2018-2019 are 10, 12 and 0 respectively.

**Population Status and Trend**

A formal population model is not maintained for this population due to the lack of an established herd and limited availability of data. Units 144 and 145 are transition zones and are seasonally used by elk. Current harvest management practices have been successful as elk numbers remain low.

**Units 161 - 164: North-Central Nye and Southern Lander and Eureka Counties**

Report by: Joe Bennett

**Survey Data**

A post-season aerial composition survey of elk was conducted in Area 16 during January 2019. The aerial survey yielded a sample size of 524 elk comprising 105 bulls, 312 cows, and 107 calves. Above-average snow conditions had elk dispersed at lower elevations in large herds during survey. Elk were primarily observed in Unit 162. In comparison, the February 2018 survey observed a sample of 321 elk containing 77 bulls, 179 cows, and 65 calves.

**Habitat**

According to precipitation data collected in February 2018 to February 2019 by the Community Environmental Monitoring and Planning, central Nevada received 87% of the 30-year average. Spring precipitation (March, April, and May) resulted in 16% of the 2018-2019 precipitation total. Winter precipitation (December, January, and February) for 2018-2019 resulted in 24% of the precipitation total. The one SNOTEL site located in central Nevada measured snowpack levels at 148% in March 2019. The above-average winter precipitation should improve some forage quality and water availability issues from the spring-early summer 2018 drought. Increased browse vigor and grass species growth may improve after the above-average winter snow pack during the winter of 2018-2019.

Multiple US Forest Service pinyon-juniper removal projects have been conducted in Little Fish Lake Valley, Unit 162. In 2017, 717 acres of pinyon-juniper were removed near Clear Creek. In 2018, pinyon-juniper was removed on 500 acres near Horse Canyon and about 2,400 acres south of Danville Canyon via lop and scatter techniques. The removal of these trees will allow the herbaceous understory to regenerate providing good forage and habitat to elk at certain times of the year.

### **Population Status and Trend**

In January 2004, the Board of Wildlife Commissioners approved the revised Central Nevada Elk Plan. The plan included updated elk population objectives, which allowed for modest increases in elk numbers in Area 16. More than 14 years later, the Area 16 elk population has reached the population objective of 850 adult elk in Units 161-164. A substantial increase in the Area 16 elk tag quotas from 2014-2017, particularly for the antlerless hunts, was intended to stop herd growth and begin a slight reduction in elk numbers. The population estimate in 2019 is about 760 adult elk, warranting a slight reduction in harvest. Recent harvest strategies have this population slightly decreasing.

### **Units 171 - 173: North-Western Nye and Southern Lander Counties** **Report by: Joe Bennett**

#### **Survey Data**

No formal surveys were conducted in 2019. The survey usually includes portions of Unit 184 along the east side of the Desatoya Range where the core herd of elk typically winters. This survey can be challenging under the best conditions, and typically results in a sample size of 40-50 animals.

#### **Habitat**

According to precipitation data collected from February 2018 to 2019 by the Community Environmental Monitoring and Planning, central Nevada received 87% of the 30-year average. Spring precipitation (March, April, and May) resulted in 16% of 2018-2019 precipitation total. The one SNOTEL site located in central Nevada measured snowpack levels at 148% in March 2019. The above-average winter snowpack in central Nevada should allow plant species to increase browse vigor and grass species growth. This should allow animals to enter the calving and winter periods in better condition than recent years.

Although the snowpack for the winter of 2018-2019 is above-average, it is following an extremely dry spring-early summer 2018. The above-average winter snowpack in 2019 should increase the quality and quantity of forage species during the critical birthing period when female ungulates are most in need of quality forage.

### **Population Status and Trend**

For many years, small numbers of elk were sporadically reported in Units 171-173. Presumably, these elk were moving between Unit 173 and adjacent Units 161 and 162. By the early 2000s, reports became more frequent, and a small resident herd had permanently established itself in the southern portion of Area 17.

In 2007, several cow elk were fitted with radio collars in Units 172 and 173 to aid in understanding seasonal use patterns and estimate herd size more accurately. Telemetry data collected from the radio collars indicated that the core elk population was inhabiting the southern portions of the Toiyabe and Shoshone Ranges during summer and fall and transitioning to Units 171 and 184, in Lone and Smith Creek Valleys, during the winter and spring periods. These movements have remained consistent.

Currently, the Area 17 elk herd is considered stable or increasing at low levels. Herd size has not increased despite substantial recruitment.

## **Units 221 - 223: Egan and Schell Creek Ranges; Northern Lincoln and Southern White Pine Counties**

**Report by: Kody Menghini**

### **Survey Data**

The most recent composition survey for elk was conducted in January 2019. A sample of 877 elk was obtained yielding sex and age ratios of 37 bulls:100 cows:34 calves. Sex and age ratios have averaged 42 bulls:100 cows:39 calves over the previous 5 years.

### **Habitat**

The National Weather Service recorded 80% of normal precipitation at the Ely Airport for 2018. Habitat conditions were poor for most of 2018 with a dry, hot summer and fall. Many wildlife water developments were empty by late summer and elk were observed traveling long distances to water. The 2018-2019 winter has been cool and snowy, with the National Weather Service recording 149% of normal precipitation between December 2018 and February 2019. The Ward Mountain SNOTEL site received 148% of the long-term average snowpack during the 2018-2019 winter (accessed 18 March 2019, [www.nrcs.usda.gov](http://www.nrcs.usda.gov)). At the time of this writing, spring storms have continued to be cool and wet. Habitat conditions should improve in 2019.

In fall 2018, the Bureau of Land Management conducted a feral horse gather in the Silver King Herd Area removing 996 horses. This should improve habitat in coming years and reduce competition with wildlife on limited water sources. Since 2014 the Bureau of Land Management has conducted approximately 27,000 acres of habitat enhancement projects in south Steptoe Valley. Future habitat projects are planned in Steptoe Valley, Jakes Valley, and Cave Valley on Bureau of Land Management and US Forest Service lands. The Bureau of Land Management Ely District signed a NEPA document in fall 2018 approving both the construction of new guzzlers and the rebuild of existing guzzlers.

### **Population Status and Trend**

This is the first year that Area 11 and 22 elk herds are modeled as two separate populations. In the past, there was a great deal of movement between the 2 areas, but that has decreased over time. Bull quotas have been split since 2012. This change should allow Nevada Department of Wildlife to carry out more specific management actions for each area.

The current population estimate is stable to slightly decreasing relative to last year's estimate.

## **Unit 231: Wilson Creek Range; Lincoln County**

**Report by: Cooper Munson**

### **Survey Data**

Aerial surveys conducted during January 2019 classified 351 elk consisting of 103 bulls, 179 cows, and 69 calves. These yield a ratio of 58 bulls:100 cows:39 calves. Half of the bulls were classified as spikes to 4-points, while the remaining were 5-points or greater. A fresh snow on the ground during survey efforts assisted in locating groups of elk over the course of 8.5 hours of survey. Elk were encountered in White Rock, Wilson, and Fortification mountain ranges with the highest concentration in lower elevations between Wilson and the White Rock Mountains.

### **Habitat**

According to precipitation data acquired from Community Environmental Monitoring Program, this portion of Lincoln County received about 89% of the 10-year average and 79% of the 20-year average annual precipitation during 2018. The US Drought Monitor states that the US Seasonal Drought Outlook is predicting drought conditions in this area may decrease for the coming year. Feral horse numbers are high with large herds observed during elk surveys. Invasion of pinyon-juniper vegetation continues to reduce both quality and quantity of elk habitat. Prescribed fire would facilitate transition of dense pinyon-juniper stands to

grasses and shrubs. Habitat enhancement projects could potentially provide more elk habitat but are costly due to both planning and use of mechanized equipment. The Bureau of Land Management and Nevada Department of Wildlife have completed another major project that removed pinyon-juniper and re-seeded native plant seeds. Many of the areas that have burned in the past few decades are still providing the bulk of the elk habitat in Unit 231. Recent installation and upgrades of water developments, by Nevada Department of Wildlife and local sportsmen, are allowing elk to use habitat to reduce conflicts with livestock operators and private landowners. Two water developments were rebuilt in mid-2018 to add storage capacity and upgrade the current system to a more reliable water source for elk and other wildlife. Shed antler hunter numbers have decreased this year due to new regulations, which reduced disturbance that previously forced elk and other wildlife to retreat to less desirable habitat.

### **Population Status and Trend**

One-hundred and eighty-seven elk were harvested from Unit 231 during the 2018 season. These included 105 cows and 82 bulls. This represents a 5% increase in harvest from the 2017 season, when 178 elk were harvested and 17% decrease in harvest from the 2016 hunting season with 226 elk harvested. The number of elk in Unit 231 has decreased due to efforts to maintain the herd at management objective in the Lincoln County Elk Management Plan. Elk move between Unit 231 and Area 22 and Utah. Area 22 and Utah have higher densities and populations of elk than Unit 231. Many of the elk in Unit 231 use private property, predominately on agriculture fields which Nevada Department of Wildlife addresses through the elk damage or incentive tag program. Recent telemetry data confirm that many of elk move between Unit 231 and Utah, which may account for high harvests despite the decreasing population estimates in Unit 231.

## **Unit 241 - 242: Delamar and Clover Mountains; Lincoln County**

**Report by: Cooper Munson**

### **Survey Data**

Aerial surveys were conducted during February 2019 and classified 21 elk as 9 bulls, 8 cows, and 4 calves. Three hours of survey were spent along the state line with Utah and throughout the Clover Mountains to locate elk in the area. Fresh snow prior to survey provided fair conditions for locating elk. Elk have been observed in Unit 241 in the Delamar Mountains as well as the South Pahroc Mountain range.

### **Habitat**

Habitat conditions decreased over the last year in much of Area 24 due to above average temperatures and below average precipitation. Feral horse numbers are high in Units 241 and 242, where the Appropriate Management Level is zero. The Bureau of Land Management and Nevada Department of Wildlife have accomplished multiple habitat projects for the benefit elk and other wildlife in the central portions of this unit. Recently burned habitat from summer 2016 appears to be recovering well due to restoration efforts despite limited precipitation. Other projects have removed pinyon-juniper from hundreds of acres to increase forage for wildlife.

### **Population Status and Trend**

A population model has yet to be developed for elk in Area 24 due to the variable, low elk numbers. Elk are observed moving across the Nevada-Utah border, and among Units 231 and 242. Hunter harvest data indicates that 1 cow and 3 bulls were harvested in Area 24 in 2018. The 2018 survey combined with incidental observations suggest there may be up to 150 elk in Area 24. The division of this unit from Unit 231 should reduce hunter congestion and increase hunter opportunity.

**Unit 251: Kawich Range; Nye County**  
**Report by: Joe Bennett**

There has been an increased number of reported elk sightings in Unit 251 in recent years. The revised 2004 Central Nevada Elk Plan designated this area as a non-establishment area for elk. In February 2018, a formal aerial survey was conducted. Although no elk were observed, tracks of elk were seen in the snow at upper elevations. No formal surveys occurred in January 2019. Trail camera data, along with ancillary sightings, indicate that elk occur in Unit 251 year long. To comply with the Central Nevada Elk Plan, an elk hunt was established. The Kawich Range comprises mainly pinyon-juniper woodlands at low to mid-elevations and open mountain sagebrush and mahogany communities at higher elevations. To date, elk densities in the Kawich Range are low. Dense tree cover coupled with low elk densities makes this a challenging hunt. Ancillary elk observations by hunters indicated 20-30 bulls and additional cows are residing in Unit 251.

**Unit 262: Spring Mountains; Clark and Southern Nye Counties**  
**Report by: Patrick Cummings**

**Survey Data**

In January 2019, an aerial survey conducted over the Spring Mountains yielded a sample of 77 elk. The sample comprised 9 bulls, 58 cows, and 10 calves. Most elk were encountered in and below the sagebrush and pinyon-juniper ecotone in lower Macks Canyon, in the vicinity of Cold Creek and in the Willow Creek Drainage. Further south, elk were encountered in the Lovell Summit area. In February 2017, an aerial survey conducted over the Spring Mountains yielded a sample of 146 elk. The sample comprised 33 bulls, 87 cows, and 26 calves.

**Habitat**

Severely degraded vegetative conditions on the McFarland Burn were noted in 16 aerial surveys conducted between 2002 and 2019 and may be the reason that few elk were encountered in the area. Degraded habitat is largely the result of feral horses and aggravated by the effects of periodic drought conditions. The US Forest Service disengaged from a process to produce a comprehensive feral horse Herd Management Plan. As of April 2019, no progress in producing a comprehensive Herd Management Plan has been reported.

In May 2018, in the absence of a comprehensive Herd Management Plan, Bureau of Land Management and US Forest Service officials engaged in an emergency roundup of feral horses in and near Cold Creek. In total, 148 horses were captured and removed. Due to depleted forage resources, 17 of the horses were deemed too emaciated to be nursed back to health and were euthanized. Likewise, in 2015, by the end of an emergency gather in the Cold Creek area, Bureau of Land Management removed 234 horses and euthanized 28. The Appropriate Management Levels for horses and burros in the Wheeler Pass Joint Area are 47-66 and 20-35, respectively.

In July 2013, the Carpenter 1 Fire was ignited by lightning. The fire burned vegetation across 27,869 acres. The 43.5-mi<sup>2</sup> fire burned along a 5,560-ft elevation gradient.

In recent years, recreational use of off-highway vehicles in the Cold Creek area and on the McFarland Burn has increased substantially, which likely influences elk distribution in the area.

**Population Status and Trend**

The population estimate for elk inhabiting the Spring Mountains reflects a minor reduction compared with last year. The population model was last adjusted in 2015.

The quality of elk habitat throughout most of Unit 262 is marginal. Elk have existed on a relatively low nutritional plane limiting recruitment. Calf recruitment for many years has been low. Previously, the McFarland Burn afforded quality early-seral forage. Soon, meaningful efforts to improve elk habitat must involve management of horse and burro numbers and completion of habitat improvements. Elk habitat in the Spring Mountains can be enhanced by seeding recently burned areas, increasing water availability, and eliminating newly created roads and trails.

## DESERT BIGHORN SHEEP

### Units 044,182: East and Stillwater Ranges; Pershing and Churchill Counties

Report by: Jason Salisbury

#### Survey Data

A ground survey was conducted in September 2018, sampling 203 desert bighorn sheep classified as 46 rams, 115 ewes, and 42 lambs. The resulting ratio is 44 rams:100 ewes:37 lambs.

#### Habitat

Above average precipitation was received in fall 2018 and continued into spring 2019. This increased moisture will allow for excellent range conditions going into the summer 2019.

Pinyon-juniper encroachment continues to plague the upper elevations of the Stillwater Mountains. Prescribed fires and/or natural occurring fires are needed in most of the northern half of the Stillwaters to allow for new occupation by desert bighorn sheep.

Desert bighorn sheep continue to deal with high populations of feral horses located in the Stillwater Range. Feral horse and bighorn sheep competition routinely occurs on limited water sources. Pipe-rail fences need to be erected to protect the water sources which will encourage use by desert bighorn sheep.

#### Population Status and Trend

The most recent disease surveillance was initiated in fall 2017 in the Stillwater and east mountain ranges. Seventeen desert bighorn sheep were captured for sampling of which 12 were fitted with GPS-VHF collars to track seasonal distribution of the bighorn herd as well as ram forays. All 17 samples were negative for *Mycoplasma ovipneumoniae* (*M. ovi.*) for both blood antibodies and presence of the organism on Polymerase Chain Reaction (PCR). As of this report no significant movements have been observed by collared animals.

Desert bighorn sheep continue to do well in the Stillwater Range. This year's modeled population estimate is 600 bighorns and represents a 20% increase from what was reported last year. Aerial surveys tend to be less than 3 hours long. A more thorough and extended search time is needed to truly understand the size of this growing population. The lamb recruitment rate of 37 lambs:100 ewes will allow for an increasing population trend.

### Units 045,153: Tobin Range and Fish Creek Mountains; Pershing and Lander Counties

Report by: Kyle Neill

#### Survey Data

Ground surveys were conducted in August 2018 over a 3-day period in Unit 045. Areas surveyed included Cottonwood Canyon south to Indian Caves. Eighty desert bighorn sheep were counted with a ratio of 74 rams:100 ewes:37 lambs. The ram ratio mirrors its 5-year average, while the observed lamb ratio is considered above maintenance level. No surveys were conducted in Unit 153.

#### Population Estimate and Trend

Collar data from 2018 (one ram in Unit 045 and one ewe in Unit 153) showed the following: the Unit 045 ram used habitat around Miller Basin in the summer months with short forays to Little Miller Basin. This ram ventured south of Miller Basin in the Tobin Range during the fall and winter months. This collar has now failed. The collared ewe in Unit 153 utilizes Jersey Canyon and Mount Moses in the spring, summer and fall and winters in Unit 183, south of the Home Station Wash Road.

The Unit 045 desert bighorn herd is considered stable at this time. Bighorns have been observed as far north as Pollard Canyon and approximately 6 miles south of Miller Basin in the southern end of the Tobin Range. The 2019 population estimate for the Tobin herd is 260.

The Unit 153 herd was established from desert bighorns that dispersed from Unit 045 from the 2003 and 2008 augmentations. This small population of approximately 20 desert bighorn sheep is thought to be stable.

## **Units 131 and 164: Duckwater Hills, White Pine Range and North Pancake Range; Southern White Pine and Eastern Nye Counties**

Report by: Clint Garrett

### **Hunt Results**

Three tags were issued in 2018 with 100% harvest success. Tag holders averaged 8 days hunting. For specific 2018 harvest results, please refer to the Appendix section.

### **Survey Data**

No aerial desert bighorn sheep surveys were conducted in Units 131 or 164 for this reporting period. The most recent aerial survey occurred in September 2017, and an additional ground survey was conducted in March 2018. Biologists classified 45 total desert bighorn sheep with age and sex ratios of 27 rams:100 ewes:11 lambs. During the most recent surveys, Units 131 and 164 both had low observed lamb recruitment rates at 11 lambs:100 ewes and 9 lambs:100 ewes, respectively. In January 2019, during elk surveys in Unit 131, incidental observations of 2 bighorn groups totaling 23 individuals yielded a ratio of 9 lambs:100 ewes.

### **Weather and Habitat**

As of March 2019, the Western Regional Climate Center's Blue Eagle Ranch site on the southern end of the units showed well above normal precipitation at the lower elevations for the 2018 calendar year. As of March 2019, the US Drought Monitor shows both units as abnormally dry with a very small portion of Unit 131 exhibiting moderate drought conditions. Soil moisture is still below normal and has not changed for March 2019 at 21% saturation for eastern Nevada. The White River watershed snowpack analysis has increased from 23% to 115% of median for 2019, according to the Nevada Water Supply Outlook Report by NRCS for March 2019. Although both units are still abnormally dry, snowpack has improved and the current above normal precipitation at the lower elevations should lead to more grasses and forbs available this spring and early summer compared to last year.

Desert bighorn sheep in Unit 131 can be found in a variety of habitat types and at a range of elevations depending on the snow conditions in a given year. Animal distribution can range from the top of Currant Mountain at over 11,000 feet in elevation to the toe slopes near Currant at 5,300 feet in elevation. Due to wilderness designations, management options in this area are limited, but burns in the mid to upper elevations would be favorable to desert bighorn sheep. In past surveys desert bighorn sheep have also been found in the Duckwater Hills. In Unit 164, the desert bighorn sheep seem to prefer the hills around Big Round Valley where water is also a limiting factor and increasing feral horse numbers continue to compete with desert bighorn sheep for available resources. There are 5 wilderness areas in Unit 131.

### **Population Status and Trend**

There have been 3 Rocky Mountain bighorn rams harvested in Unit 131, the last which was in 2010, and 1 ram confirmed to be a Rocky Mountain-desert bighorn hybrid harvested in 2011. All 3 sub-populations in this unit group, Currant Mountain, Duckwater Hills and the North Pancakes have been exposed to the bacterial pathogen *Mycoplasma ovipneumoniae* (*M. ovi.*). All 3 sub-populations have a high risk of further exposure and interaction with domestic sheep. Stray domestic sheep have been seen in 2011, 2014, 2016, 2017 and 2018. Reduced lamb survival starting in 2012 is likely due to the bacterial infection which has resulted in a declining population. The 2019 incidental observations would suggest continued low lamb survival in Unit

131. The population was once estimated at a high of 180 desert bighorn sheep in 2011-2012 and for 2019 the model shows a declining population with an estimate of about 100 desert bighorn sheep.

## **Unit 132: Grant Range and Quinn Canyon Range; Eastern Nye County**

Report by: Clint Garrett

### **Hunt Results**

Four tags were issued, and 1 tag was returned in 2018. Two of the 3 tag holders harvested for a 67% harvest success rate. Two of the 3 tag holders reported hunting and averaged 2.5 days hunting per tag holder. For specific 2018 harvest results, please refer to the Appendix section.

### **Survey Data**

No aerial desert bighorn sheep survey was conducted in Unit 132 for this reporting period. The most recent aerial survey in September 2017 resulted in the classification of 85 desert bighorn sheep with sex and age ratios of 87 rams:100 ewes:58 lambs. The 2017 survey is the highest sample obtained to date in this unit and the observed lamb ratio was well above the previous 5-year-average of 34 lambs:100 ewes.

### **Weather and Habitat**

As of March 2019, the Western Regional Climate Center's Hiko site, the closest to the southern end of the unit, and the Blue Eagle Ranch site at the northern end of the unit both show above normal precipitation at the lower elevations for 2019. Well above normal precipitation was recorded at both sites in February and is currently above normal for March. However, both sites recorded very little precipitation for 2018 starting in spring and continuing through summer and into early fall. The United States Drought Monitor currently shows the unit as abnormally dry. Soil moisture for 2018 is still below normal at 21% saturation in eastern Nevada according to the Nevada Water Supply Outlook Report by NRCS for March 2019. Even though this unit is still abnormally dry, the current above normal precipitation should lead to more grasses and forbs available this spring and early summer compared to last year.

Desert bighorn sheep have been found mainly on the west side of this unit from Blue Eagle to Troy and on the southern end around Red Bluff and are limited by available grasses, forbs and water. The burn at Troy provides the best habitat in the area and is used by desert bighorn sheep due to its flush of grasses and forbs with available water nearby. Tree removal along with spring enhancement or guzzlers in this unit would be beneficial to desert bighorn sheep. The Basin and Range National Monument encompasses a small portion of Unit 132. There are 2 wilderness areas in Unit 132.

### **Population Status and Trend**

The desert bighorn sheep in the Grant Range have been exposed to and have tested positive for the bacterial pathogen *Mycoplasma ovipneumoniae* (*M. ovi.*). In 2015 a sick lamb was reported in the Troy Canyon area and lab testing determined it had died from bacterial pneumonia. Since then no other desert bighorn sheep have been reported or observed with signs of pneumonia.

Origins of the Quinn Canyon Range desert bighorn sheep are unclear. The first aerial survey in the Quinn Canyon Range was conducted in February 2014 in which 10 adults and 5 newborn lambs were classified. The Quinn Canyon population appears to have little or no connectivity with the Grant Range herd as biological samples were collected for genetics and disease testing with results being negative for *Mycoplasma ovipneumoniae* (*M. ovi.*).

The 2019 population estimate is 120 desert bighorn sheep which is above the previous 5-year average of 105 and is currently the highest recorded population estimate. Currently the model is showing an upward trend for this population.

**Unit 133, 245: Pahrnagat and Mount Irish Ranges; Lincoln County**  
**Report by: Cooper Munson**

**Survey Data**

Aerial surveys were conducted September 2018 in Units 133 and 245. Three and a half hours were dedicated to survey in Unit 245 and 1.5 hours in Unit 133. A record survey of 140 desert bighorn sheep were classified with a composition of 36 rams, 77 ewes, and 27 lambs resulting in a ratio of 47 rams: 100 ewes: 35 lambs. Many of the desert bighorn sheep were observed near water developments which were being rapidly depleted while habitat conditions appeared to be good despite limited precipitation.

**Habitat**

Spring habitat conditions in the area had slightly improved from previous years with help from July and August 2018 precipitation events. According to Community Environmental Monitoring Program precipitation data, the annual precipitation received in Alamo in 2018 was approximately 86% of the previous 10-year average. Most of the water developments in the North and East Pahrnagats were nearly dry during early fall but were still being utilized by desert bighorn sheep throughout most of the year. Multiple water developments were repaired and maintained by the water development crew out of Las Vegas with the assistance of local volunteers. Heavy precipitation events in early 2019 should have increased water stored in developments throughout this range and will increase the quality of spring habitat.

**Population Status, and Trend**

This population has shown a static trend for the past few years. The record survey in 2018 is likely due to a small influx of desert bighorn sheep from surrounding areas not accessible to the public. Mild winters and improving habitat may increase lamb survival in both units for the coming years. The 2019 population estimate is like previous estimates of 150 adult desert bighorn sheep. In 2016, 10 desert bighorn sheep (8 in the Pahrnagat range and 2 in the Mount Irish area) were captured and tested for various pathogens that cause pneumonia. Test results showed none of the desert bighorn sheep were actively shedding the primary pathogen, *Mycoplasma ovipneumoniae* (*M. ovi.*), but 4 had titers for *M. ovi.*, indicating previous exposure.

**Unit 134: Pancake Range; Nye County**  
**Report by: Joe Bennett**

**Survey Data**

No aerial surveys were conducted in Unit 134 during 2018. The most recent aerial survey was conducted in September 2017. The survey covered Palisade Mesa, Lunar Cuesta, Little Lunar Cuesta, Black Beauty Mesa, Citadel Mountain, Twin Springs, Echo Reservoir, and Big Fault Mesa. During the survey, 68 desert bighorn sheep were classified as 22 rams, 36 ewes, and 10 lambs

**Habitat**

In 2018 central Nevada received 87% of its 30-year average precipitation (CEMP). Spring precipitation made up 16% of 2018's total accumulation. In early 2019, much-needed precipitation was received. A SNOTEL site in central Nevada measured snowpack levels at over 148% in early March 2019. Above-average precipitation in early 2019 should lead to improved rangeland conditions. Desert bighorn sheep habitat in Unit 134 has benefitted from recent years' moisture and grass and forb species experienced good production during the growing season.

**Population Status and Trend**

In 2011 a pneumonia disease event related to the presence of *Mycoplasma ovipneumoniae* (*M. ovi.*) is believed to have caused upwards of 20% adult and 90% lamb mortality. Lamb mortality continued at a rate

of near 90% for 3 consecutive years through 2013. An increase in lamb survival has been documented from 2014-2017, but further monitoring of the herd will be necessary to determine if it indicates the beginning of a recovery. As a result of the disease event, the Unit 134 desert bighorn sheep population is still depressed and well below the estimate prior to the 2011 disease event.

Recent ancillary sightings in Unit 251 have indicated a small number of desert bighorn sheep residing on Fang Ridge and Goblin Knobs. However, desert bighorn sheep densities in these areas are extremely low.

### **Unit 161: Toquima Range; Northern Nye County** Report by: Joe Bennett

#### **Survey Data**

The last survey conducted in Unit 161 was in 2017 that classified a record 387 desert bighorn sheep as 108 rams, 198 ewes, and 81 lambs.

#### **Population Status and Trend**

Unit 161 desert bighorn sheep population was re-established with 22 animals in 1982 and has fared so well that it has provided 123 desert bighorn sheep for 5 transplant events (2002-2007). The core Unit 161 herd inhabits the area on and around Mount Jefferson in the Alta Toquima Wilderness during summer and fall. Most of these animals move to lower elevations in the surrounding area during the winter and spring months. A smaller herd was established several years ago further north in the Northumberland area.

The recent detection of *Mycoplasma ovipneumoniae* (*M. ovi.*) and the presence of pneumonia in several central Nevada desert bighorn sheep populations has raised concerns that Unit 161 desert bighorn sheep population is at risk of suffering the same fate. Beginning in 2017 the Nevada Department of Wildlife, in conjunction with the US Forest Service, began the process of developing all appropriate National Environmental Policy Act documents including the Minimum Requirements Decision Guide (MRDG) to capture, collar, and test up to 25 desert bighorn sheep in the Alta Toquima Wilderness. Data from these collaring efforts showed the herd had been previously exposed to *Mycoplasma ovipneumoniae* (*M. ovi.*). Despite the exposure to *Mycoplasma ovipneumoniae* (*M. ovi.*) presence of disease, recent years' aerial survey data indicates good lamb recruitment and an increasing population.

### **Units 162 - 163: Monitor and Hot Creek Ranges; Nye County** Report by: Joe Bennett

#### **Survey Data**

An aerial survey was conducted in September 2018 in Units 162 and 163. The survey yielded a sample size of 173 desert bighorn sheep which were classified as 49 rams, 97 ewes, and 27 lambs. The most recent aerial survey in 2016 yielded a sample size of 136 desert bighorn sheep which were classified as 44 rams, 65 ewes, and 27 lambs. The survey covered the southern portion of Unit 162, Warm Springs, Morey Peak, and Hot Creek Canyon.

#### **Population Status and Trend**

A small number of desert bighorn sheep occurred in the Hot Creek Range prior to the 1990s, but the population remained static at very low levels. Augmentations conducted in 1994 and 1995 resulted in stimulating herd growth. An ever-increasing number of animals continue to utilize the southern extent of the Hot Creek Range in the Warm Springs area, and movement between the Hot Creeks and the Kawich Range has increased concurrently. Bighorn had pioneered Hunts Canyon in Unit 162 prior to 2005 and has remained relatively static. Pioneering has also occurred in the southern portion of Unit 162 over the past several years.

There is some concern that the pathogen that resulted in an epizootic pneumonia outbreak in adjacent Unit 134 in 2011 could find its way to Unit 163. Lamb recruitment in 2016 and 2018 is not indicative of a population that is being drastically affected by bacterial pneumonia. Currently, the 163 desert bighorn sheep population is considered to be slightly increasing. A population model for Unit 162 has yet to be developed, but data indicates the population remains stable to increasing, at low levels.

## **Unit 173: Toiyabe Range; Northern Nye County**

**Report by: Joe Bennett**

### **Survey Data**

An aerial survey was conducted in September 2018. The survey yielded a sample size of 43 desert bighorn sheep which were classified as 15 rams, 18 ewes, and 10 lambs. The 2018 survey only covered the San Antonio Range. In 2017, a survey of the Toiyabe Range and portions of the San Antonio Range yielded a sample size of 53 desert bighorn sheep which were classified as 9 rams, 31 ewes, and 13 lambs. Areas surveyed included Peavine Canyon, Seyler Peak, areas adjacent to Toiyabe Dome, North Twin River and portions of the San Antonio Mountains near Liberty Mine and Spring.

### **Habitat**

The largest portion of the Unit 173N desert bighorn sheep population occurs in and around the Peavine Canyon and Seyler Peak area of the Toiyabe Range, although animals can regularly be found along the eastern side of the Toiyabes as far north as Ophir Canyon. In recent years there have not been any ancillary reports of desert bighorn sheep utilizing the lush meadow habitat in Peavine Canyon, contrary to historical distribution. Majority of the Unit 173S population resides in the north end of the San Antonio Mountain Range near Liberty Spring. Due to lack of water sources in the San Antonio Mountains the Nevada Department of Wildlife, coupled with the Bureau of Land Management, has initiated National Environmental Policy Act approval to build a big game water development in late 2019 or early 2020.

### **Population Status and Trend**

The Toiyabe desert bighorn sheep population is one of only a few remnant desert bighorn sheep herds that exist in central Nevada. This population was nearly extirpated along with many other desert bighorn sheep herds in the state and had been reduced to an estimated 50 animals by the early 1980s. During 1983 and 1984, 21 desert bighorn sheep were captured in southern Nevada and transplanted into the Toiyabe Range. In 1993, an additional 9 rams were released. The releases were intended to augment and stimulate the existing herd. In 1988 the desert bighorn sheep hunting season, which had been closed since 1969, was reopened.

Although most of the Unit 173 desert bighorn sheep population inhabits the southern reaches of the Toiyabe Range, a growing number of animals also inhabit the San Antonio Mountains just north of the town of Tonopah. This expansion has become apparent based on ancillary data and harvest. The Toiyabe and San Antonio Mountains have been separated into 2 distinct units. Occasional reports of desert bighorn sheep in the Bunker Hill-Big Creek area just south of US Route 50 are received as well. The Big Creek area currently contains an active domestic sheep allotment, and expansion of this small portion of the herd will not be encouraged until the risk of contact is eliminated.

The recent detection of *Mycoplasma ovipneumoniae* (*M. ovi.*) and the presence of pneumonia in several central Nevada desert bighorn sheep populations has raised concerns that the Unit 173 may contract the disease. During fall 2018 the Nevada Department of Wildlife, in conjunction with the US Forest Service, conducted all appropriate National Environmental Policy Act approval to capture and collar 15 desert bighorn sheep in the Arc Dome Wilderness and adjacent areas. Data from these collaring efforts identified that *Mycoplasma ovipneumoniae* (*M. ovi.*) is present in this population. Data obtained from these collaring efforts will generate movement, resource selection, and home range data that will be essential to the management of this population. Despite the detection of *Mycoplasma ovipneumoniae* (*M. ovi.*), lamb

recruitment in this population is good. The Unit 173 desert bighorn sheep population is experiencing a static to slightly increasing trend due to higher lamb recruitment.

### **Unit 181: Fairview Peak, Slate Mountain, and Sand Springs Range; Churchill County**

Report by: Jason Salisbury

#### **Survey Data**

In September 2018, a 1-day ground survey was conducted on Fairview Peak classifying 119 individuals. The observed sex and age ratios were 37 rams:100 ewes:24 lambs.

#### **Habitat**

In 2017, a fire started on the Bravo-17 bombing range within Unit 181. The fire consumed 27,000 acres of habitat on Fairview and Slate Mountains. Some of the fire occurred in the old fire scar but a large portion of it burned native habitat on Slate Mountain. The Nevada Department of Wildlife was able to seed about 3,500 acres of critical habitat with forage kochia and snowstorm kochia. These non-native but non-invasive plants will provide high crude protein to the desert bighorn sheep herd and can withstand heavy grazing and fire. To date the most successful seedling establishment occurred in the north facing slopes of the pinyon-juniper woodland.

The US Navy is in the planning process to withdraw additional public land north and southeast of the current Bravo-17 bombing range. The area may potentially encompass the Sand Springs Range, the Monte Cristo Mountains, Fairview Mountain, and Slate Mountain. The Nevada Department of Wildlife is currently working with the US Navy to maintain hunting activities on the bombing range if these expanded areas are granted. Nevada Department of Wildlife, sportsmen's groups, and land managing agencies have invested substantially in this desert bighorn sheep resource.

In March 2018, the Nevada Department of Wildlife and Nevada Bighorns Unlimited rebuilt the South Rail Fence water development. To safeguard it from future flash flood events, the water development was tucked away from the main flow of the wash. Large boulders were then placed as rip-rap to protect the tanks as well as provide a needed storm flow channel. The site should be functional for many years to come. An additional big game water development was cleared for a new build up the canyon from the South Rail Fence. This unit will serve as a backup system which relies on precipitation where the South Rail Fence relies on natural ground water.

#### **Population Status and Trend**

The Unit 181 desert bighorn sheep herd continues to trend upward. The current population estimate is 500 animals and is a modest increase from last year.

### **Unit 183: Clan Alpine Range; Churchill County**

Report by: Jason Salisbury

#### **Survey Data**

In March 2019, a 3-hour aerial survey was conducted in the Clan Alpine Mountains. This survey classified 177 desert bighorn sheep, consisting of 52 rams, 108 ewes, and 17 lambs. These numbers provide a ratio of 48 rams: 100 ewes: 16 lambs.

#### **Habitat**

In the last 2 years, the Crown Peak and Little Angel water developments were rebuilt. Both units incorporated a self-leveling drinker, a steel collection apron, and 12,000 gallons of storage capacity.

In summer 2017, two large fires consumed thick stands of pinyon pine on the east face of the Clan Alpine Mountains. The Nevada Department of Wildlife seeded about 3,500 acres of the Tungsten Fire. The Draw Fire was seeded by Nevada Department of Wildlife and the Bureau of Land Management. Both fires burned about 28,000 acres, but only a small portion of important drainages were seeded. The pinyon pine that burned had understory still intact in some areas. These areas should respond well to the new burns. These areas will likely support desert bighorn sheep into the future.

Desert bighorn sheep continue to compete with feral horses in the Clan Alpine Mountains. Feral horse and desert bighorn sheep competition occurs routinely on limited water sources. In the future pipe rail fences need to be erected to protect the water sources which will encourage use by desert bighorn sheep.

### **Population Status and Trend**

In late October 2018 while conducting a ground survey, the biologist observed a lack of lambs. After studying individual desert bighorn sheep groups, it became evident that the Clan Alpine herd was going through a disease event. This was evident by a lack of lambs and clinical signs associated with adul head shaking, nasal discharge, and deep coughing. In mid-September near the same location, lambs were observed with a normal lamb ratio (>35:100). This disease event gained momentum between mid-September and late-October 2018 at the southern end of the Clan Alpines. Biologists observed the fast progression of the pathogen moving south to the north. High lamb to ewe ratios were recorded in various areas in the northern portion of the range. Subsequent weeks later some desert bighorn sheep were observed coughing among the larger subgroups (>35 animals). As coughing became rampant, some of the population began to succumb within 2 weeks. A few of the deceased individuals were in poor body shape with severe muscle atrophy while other individuals were in decent body condition with good internal fat reserves on their organs.

The timing of the desert bighorn sheep rut can also lead to a fast progression of the pathogen. The rut occurs in late August continuing into early October for this mountain range. The ewe segment of the population is imprinted to water sites or canyons. The rams can travel large distances during the rut among the ewe subgroups which could possibly spread the disease at a faster rate. Noticeable adult mortality lasted until late December 2018. The bulk of the die-off occurred between October and November of 2018. As of this writing the estimated loss is at 33% of the modeled desert bighorn sheep population. We would like to thank all the ram tagholders for their cooperation in collecting samples from their harvested rams that were important in assessing pathogens involved in the pneumonia disease event and to document the geographic extent of the die-off.

A survey will be conducted in September 2019 to reassess additional losses and number of desert bighorn sheep remaining in this unit.

## **Unit 184: Desatoya Range; Churchill and Lander Counties**

### **Report by: Jason Salisbury**

### **Survey Data**

In October 2018, a 1-day ground survey yielded a sample of 62 desert bighorn sheep. The observed sex and age ratios were 85 rams: 100 ewes: 44 lambs. Desert bighorn sheep were encountered in the Eastgate Hills and the Bald Mountain fire scar.

### **Habitat**

Fire is an important tool which allows desert bighorn sheep new areas to forage and occupy. Over the past 4 years fire has burned 8,900 acres of mainly pinyon-juniper woodlands within Unit 184. This habitat conversion will enable the desert bighorn sheep herd to thrive in these newly created early successional-stage plant communities. These newly created foraging areas will also draw in feral horses. Feral horses need to be kept within Appropriate Management Levels to allow for successful establishment of plants and a thriving desert bighorn sheep herd.

**Population Status and Trend**

The 2018 lamb ratio of 44 should allow for the Desatoya Range desert bighorn sheep population grow.

**Unit 195: Virginia Range; Storey County**

Report by: Carl Lackey

**Survey Data**

An aerial survey was not completed in 2018, however a ground survey was conducted in September 2018. The survey yielded a sample of 66 desert bighorn sheep with a ratio of 68 rams:100 ewes:11 lambs. Sheep were observed on Clark Mountain in the vicinity of the lower water development and throughout the Eagle-Picher Mine area.

**Habitat**

Habitat conditions in this unit are marginal to poor, due in large part to the feral horse population in the Virginia Range, estimated at 3,000 by the Nevada Department of Agriculture which has management responsibilities for this private-land feral horse population. Management actions to remove many of these feral horses would be necessary if habitat conditions are going to improve. The winter 2018-2019 was above average for precipitation, with heavy snowfall occurring in February and March 2019. This will prove favorable for spring grass green-up and for filling of water developments, but it could be detrimental to recruitment, considering the timing of the storms. Sheep inhabit Clark Mountain, the Gooseberry Hills, the Derby Dam Cliffs and the area around the Eagle-Picher Mine.

**Population Status and Trend**

With so few lambs recorded on this year's ground survey, the population estimate declined slightly. Trail camera photos from water developments show increasing numbers of untagged desert bighorn sheep in various age classes indicating good recruitment into the population since the initial releases in 2011 and 2012. The population has more than doubled since the reintroduction. This population is not hunted. Nevada Department of Wildlife is working with private landowners to allow management actions to be completed that would allow desert bighorn sheep to remain in this area and be observed by wildlife enthusiasts.

**Unit 202: Wassuk Range; Mineral County**

Report by: Jason Salisbury

**Survey Data**

No aerial desert bighorn sheep surveys were conducted in Unit 202 in 2018. The last survey occurred September 2017 and yielded a sample of 122 desert bighorn sheep. The sample yielded a sex and age ratio of 41 rams:100 ewes:35 lambs.

**Habitat**

A new water development will be constructed on the Army Depot north of the Cottonwood Drainage. This new water development should provide desert bighorn sheep the ability to utilize the upper cliff area more regularly which may reduce highway collisions.

Fires are an important management tool that is needed in Type 2 and 3 pinyon canopies. The higher elevation pinyon woodland zones of the Wassuk Range are limiting desert bighorn sheep occupation. Areas like Cat Canyon have adequate desert bighorn sheep habitat at the bottom and mid-slope elevations but need prescribed fires to open habitat for desert bighorn sheep use.

Future plans that will aid the desert bighorn sheep herd include working with the Hawthorne Army Depot to develop water along the pipeline in Cottonwood Canyon. This would allow desert bighorn sheep to utilize a higher elevation water source. Providing a water source in open terrain could reduce predation and possibly allow for increased distribution of the desert bighorn sheep herd.

### **Population Status and Trend**

Over the past 5 years desert bighorn sheep vehicle collisions on US Route 95 have been increasing in the cliff area just north of the town of Walker Lake. Over 40 desert bighorn sheep have died because of vehicle collisions in that time. Residents in the town of Walker provide water to the desert bighorn sheep herd. The desert bighorn sheep spend a lot of time in the town of Walker Lake during the summer months. Desert bighorn sheep get accustomed to the water and feel comfortable around the houses, partly attributable to predator avoidance. The residents of Walker who provide the water are doing the desert bighorn sheep a disservice. Throughout the summer months desert bighorn sheep will venture away from the town to forage. These foraging forays increase the chances that they will cross the highway resulting in additional desert bighorn sheep deaths.

Two separate meetings were held among Nevada Department of Transportation, Nevada Highway Patrol, and Nevada Department of Wildlife to discuss what could be done to reduce collisions between vehicles and desert bighorn sheep. Ideas included reducing speed limits, installing highly visible signage in conjunction with rumble strips, possible wildlife crossings, reducing or eliminating the population, installation of fencing, aversive conditioning, and herbicide treatment along the highway. In the spring of 2018, Nevada Department of Transportation applied herbicide to reduce grasses along the roadside. It is hoped that this will reduce the green foliage and therefore reduce the amount of time desert bighorn sheep spend along the highway corridor. This is just one step in a series of actions that may be used to reduce desert bighorn sheep and vehicles collisions. To date, only new signs have been installed.

The population estimate for Unit 202 is 200 animals, the same reported last year. This population continues to experience a stable population trend despite the high losses to vehicle collisions.

### **Unit 204: East Walker River; Lyon County** **Report by: Jason Salisbury**

#### **Survey Data**

No aerial desert bighorn sheep surveys were conducted in Unit 204 in 2018. A 1.5-hour aerial composition survey was conducted in September 2017 with 21 desert bighorn sheep classified as 3 rams, 13 ewes, and 5 lambs in the East Walker drainages.

#### **Habitat**

The Flying M Ranch was purchased and has been given to Nevada State Parks. Plans are being developed on how the property will be managed. Fencing on the ranch along the East Walker River is restrictive to desert bighorn sheep. A potential project that could benefit desert bighorn sheep includes removing barbwire or raising the bottom wire of the fence to at least 20 inches. This would allow desert bighorn sheep to cross under it to access the Walker River.

The torrential downpours and monsoonal activity that occurred in 2015 along the Walker River corridor created large debris dams within the river corridor. These debris dams created lakes and ponds and leveled willows and trees which will allow desert bighorn sheep the ability to access water in open terrain.

### **Population Status and Trend**

The East Walker River population appears to be doing well considering the small geographic area it occupies. Increased precipitation has occurred in 2019 allowing favorable environmental conditions. The 2019 population level approximates last year's estimate.

### **Unit 205,207: Gabbs Valley Range, Gillis Range, Pilot Mountains; Eastern Mineral County Report by: Jason Salisbury**

#### **Survey Data**

In October 2018, a 2-day ground survey yielded a sample of 100 desert bighorn sheep. The observed sex and age ratios were 33 rams:100 ewes:33 lambs. Desert bighorn sheep were encountered in the Sante Fe Mine area, Gillis, Paymaster, and Chukar Ridge.

#### **Habitat**

Natural water is severely affected by horses and livestock within Units 205 and 207. Currently, Nevada Department of Wildlife, Bureau of Land Management and the permittee are working together to fix numerous degraded springs in the area. Improving natural waters is one of the most important things that can be done in this unit.

In the spring 2017, the Sante Fe water development was rebuilt with a 50 feet x 90 feet metal apron and can store 12,000 gallons. This unit receives heavy use by desert bighorn sheep and has dried up in the past few years. Small apron size prior to the rebuild may have caused the development not to perform adequately.

In 2018, the Lower Paymaster water development located in the Gillis Range was rebuilt. The newly improved unit will have 12,000 gallons of storage capacity, a drinker, and an increased apron size to keep up with the water demands of the desert bighorn sheep herd.

### **Population Status and Trend**

The current modeled population estimate for this herd is 750 animals. The Unit Group 205, 207 herd continues to grow at a steady pace. The outlook for this herd is good and ample mature rams are available for harvest.

### **Unit 206, 208: Excelsior Range, Candelaria, Garfield and Miller Mountain; Mineral County Report by: Jason Salisbury**

#### **Survey Data**

No aerial desert bighorn sheep surveys were conducted in Unit 206 in 2018. The last aerial surveys were completed in September 2017 and resulted in the observation of 88 desert bighorn sheep classified as 20 rams, 45 ewes, and 23 lambs. The observed lamb ratio of 51 lambs:100 ewes indicates an increasing population trend.

#### **Habitat**

Range conditions in the Excelsior Mountain Range may be characterized as excellent. Increased moisture received in 2019 will allow for greatly improved range conditions.

Two of the biggest challenges the Excelsior herd face are expansion of pinyon pine and competition from burros. Both limit desert bighorn sheep from occupying habitat that would otherwise be suitable.

### Population Status and Trend

The Unit 206, 208 desert bighorn sheep population continues to exhibit good production rates in the newly created desert bighorn sheep herds located primarily in the Garfield Hills and the Candelaria's. The main Excelsior herd still suffers from increased predation from mountain lions. Projects addressing predation may allow this portion of the herd to expand.

### **Unit 211: Silver Peak Range and Volcanic Hills; Esmeralda County** Report by: Joe Bennett

#### Survey Data

No aerial surveys were conducted in Unit 211 during 2018. The most recent aerial survey in September 2017 yielded a sample size of 294 desert bighorn sheep and classified as 89 rams, 156 ewes, and 49 lambs. Areas surveyed include Nivloc Mine, Argentine Canyon, Rhyolite Ride, Mineral Ridge, Emigrant Pass, and the Volcanic Hills.

#### Habitat

From February 2018 to February 2019, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 87% of the 30-year average. Spring precipitation (March-May) resulted in 16% of 2018's precipitation accumulation and winter precipitation (December-February) resulted in 24% of the 2018-2019 accumulation with the majority in the form of snow. Drought conditions in spring through early summer 2018 plausibly caused reduced forage vigor and decreased forage quality earlier in the year. Drought conditions necessitated a water haul this past summer to the Robb and Beko guzzlers. In order to alleviate the need for future water hauls the Nevada Department of Wildlife plans on rebuilding the Robb and Beko guzzlers and increase holding capacity during the summer 2019.

### Population Status and Trend

The Unit 211 desert bighorn sheep herd is one of only a few remnant herds in west-central Nevada. Historically, desert bighorn sheep movement occurred regularly between the Silver Peak Range, Unit 211 and the Monte Cristo Range, Unit 213. The Monte Cristo Range served primarily as winter range for many of the desert bighorn sheep in the Silver Peaks. Over the years this movement has slowed considerably, and while some movement still takes place, each of the 2 ranges now supports what are considered distinct populations. Some movement also occurs between the Silver Peak Range and Lone Mountain, Unit 212.

Much of the desert bighorn sheep inhabiting Unit 211 occurs in the Silver Peak Range and the Volcanic Hills. However, some incidental use does occur on the Nevada portion of the White Mountains in the general area of Boundary Peak. Seasonal movements also occur between the Volcanic Hills and Miller Mountain and the Candelaria Hills portions of western Esmeralda and eastern Mineral Counties, Unit 208.

The presence of *Mycoplasma ovipneumoniae* (*M. ovi.*), a bacterium related to pneumonia outbreaks in desert bighorn sheep, was documented in a ram harvested in Unit 211 during the 2013 desert bighorn sheep hunting season. During October 2014, a disease surveillance and radio marking effort was conducted in Unit 211. GPS collars were placed on 4 rams in Unit 211 during the effort, including 2 in the Silver Peak Range and 2 in the Volcanic Hills. During the operation, biological samples were obtained from 13 desert bighorn sheep. Results indicate that *Mycoplasma ovipneumoniae* (*M. ovi.*) is present in both the Silver Peak portion of the unit, as well as the Volcanic Hills. In addition, a lamb showing clinical signs of disease was collected in the Silver Peak Range in July 2017. Tests revealed the presence of *Mycoplasma ovipneumoniae* (*M. ovi.*) as well as severe pneumonia which would have likely resulted in the death of the lamb. Recent additional samples also indicate the presence of sinus tumor and lungworm in this population.

While the observations of comparatively good numbers of lambs during the 2014-2017 aerial surveys are encouraging, it is still unclear what impacts the “White Mountain” strain of *Mycoplasma ovipneumoniae* (*M. ovi.*) will have on the herd moving forward. Based on the apparent absence of pneumonia-related adult mortality and fair lamb recruitment, the Unit 211 desert bighorn sheep population is stable to slightly increasing.

## **Unit 212: Lone Mountain; Esmeralda County**

**Report by: Joe Bennett**

### **Survey Data**

The early September 2018 aerial survey for Unit 212 yielded 254 desert bighorn sheep classified as 94 rams, 127 ewes, and 33 lambs. In comparison, the 2016 aerial survey yielded a sample size of 350 desert bighorn sheep, which were classified as 118 rams, 162 ewes, and 70 lambs.

### **Population Status and Trend**

The Unit 212 desert bighorn sheep population is one of only a few remnant central Nevada herds that survived extirpation during the 19<sup>th</sup> and 20<sup>th</sup> centuries due to a variety of anthropogenic causes. Once regulations that provided reasonable protections to desert bighorn sheep were put into place, the Lone Mountain herd began increasing steadily. By the late 1980s the estimated population was over 200 animals. This population served as transplant stock during two successive years in the late 1980s. Immediately following these captures, the herd experienced a sharp decline, and by 1991 the herd’s estimated population was less than fifty animals. The exact cause of this decline is uncertain. In November 2012 the Lone Mountain population was once again utilized as a source of transplant stock. During the 2013 aerial composition survey, a very low observed lamb ratio raised disease concerns. Then, in late March 2014, the test results of a 2013 hunter-harvested ram from Lone Mountain were found to be positive for *Mycoplasma ovipneumoniae* (*M. ovi.*). In April 2014, 2 adult ewes and a young ram were collected for sampling and necropsy. Results confirmed the presence of *Mycoplasma ovipneumoniae* (*M. ovi.*) in the Unit 212 desert bighorn sheep herd. Additionally, in 2014, as part of a larger disease monitoring effort, several desert bighorn sheep were captured and sampled and 2 rams were collared to assess movements. Despite the presence of *Mycoplasma ovipneumoniae* (*M. ovi.*) and observations of animals showing clinical signs of disease, no significant adult mortality has been documented to date. Moreover, strong observed lamb ratios from 2014 to present fall surveys indicate the lamb segment of the herd only experienced one year of high mortality in 2013.

In 2014, an ewe hunt was established in Unit 212 to help reduce desert bighorn sheep densities on Lone Mountain. Since we have met our population objective, the Nevada Department of Wildlife has removed the ewe hunt at this time.

In January 2016, 34 ewes were captured for a University of Nevada, Reno, research project. Of these 34 desert bighorn sheep, 18 ewes were translocated to the Garfield Hills. The purpose of this project is to describe the ewe selection of lambing and lamb rearing habitat sites and cause-specific mortality of lambs. In January 2017, 14 of the previous 15 ewes were recaptured along with 4 additional ewes as a continuation of this study. In January 2018, as part of the last field season, 26 additional ewes were captured on Lone Mountain. The adult ewes that were determined pregnant were fitted with Vaginal Implant Transmitters in order to obtain lambing locations. During fall 2018, in an effort to generate population estimates with appropriate variation, a mark-resight aerial survey was conducted in Unit 212. This exploration in survey design was possible due to the number of radio collars that are deployed throughout Unit 212. By noting when a collar is observed while on a survey we can make inferences on the population by estimating the sightability of known/marked animals while on the survey.

As a result of ewe harvest strategies, lamb recruitment, and translocation efforts the Lone Mountain herd is currently showing a decreasing trend.

**Unit 213: Monte Cristo Range; Esmeralda County**  
**Report by: Joe Bennett**

**Survey Data**

The early September 2018 aerial survey for Unit 213 yielded 379 desert bighorn sheep classified as 111 rams, 217 ewes, and 51 lambs. In comparison, the 2016 aerial survey yielded a sample size of 397 desert bighorn sheep, which were classified as 100 rams, 201 ewes, and 96 lambs. This survey covered Shovel Spring Basin, South Gilbert, Trough Spring, Devils Gate, and the hills north of Monte Cristo one guzzler.

**Habitat**

In 2018, central Nevada received 87% of its 30-year average precipitation (CEMP). Spring precipitation resulted in 16% of 2018's precipitation accumulation. Drought conditions during the spring/early summer 2018 caused the Monte Cristo one guzzler to not recharge. Lack of recharge caused the Nevada Department of Wildlife to initiate a water haul in June 2018. To alleviate the need for future water hauls the Nevada Department of Wildlife, coupled with the Bureau of Land Management, completed appropriate National Environmental Policy ACT approval to rebuild and expand the capacity of the Monte Cristo one guzzler in July 2019.

**Population Status and Trend**

The Monte Cristo desert bighorn sheep population is one of only a few remnant desert bighorn sheep herds in central Nevada. Before implementation of the ewe hunt in 2014, this population exhibited steady growth to a point where it warranted concern over animal densities. During fall 2011, 34 desert bighorn sheep were removed from the Monte Cristo Range for translocation to the Virginia Range, Unit 195 to reduce animal densities.

During late 2013 and early 2014, bacteria that cause pneumonia in desert bighorn sheep, *Mycoplasma ovipneumoniae* (*M. ovi.*), was documented in adjacent herds in Units 211 and 212. As expected, it was not long before the pathogen was detected in the Unit 213. As part of a larger disease surveillance effort for the metapopulation in Esmeralda and Mineral Counties, 10 desert bighorn sheep were captured from various parts of the Monte Cristo Range for pathogen testing. Four rams were also fitted with GPS collars. Current hunter harvest data indicate the *Mycoplasma ovipneumoniae* (*M. ovi.*) is still present in this population and sinus tumor was recently detected in this herd.

Currently, desert bighorn sheep densities in the Monte Cristo Range are considered to be overpopulation objective. Since *Mycoplasma ovipneumoniae* (*M. ovi.*) has been documented in Unit 213, translocating animals to reduce densities is currently not an option. Due to ewe harvest, the current population model for Unit 213 shows a slightly decreasing trend for this herd but this herd is still above the population objective of 400.

**Unit 221, 223, 241: Hiko, Pahroc, South Egan, and Delamar Ranges; Lincoln County**  
**Report by: Cooper Munson**

**Survey Data**

Aerial surveys were conducted in September 2018 in Units 223 and 241. A relatively high number of desert bighorn sheep were classified during these flights consisting of 37 rams, 103 ewes, and 25 lambs which provide a ratio of 36 rams:100 ewes:24 lambs. This survey was more successful in locating desert bighorn sheep in the Delamar Mountains than in previous years with a total of 62 desert bighorn sheep observed. No surveys were conducted in Unit 221, although recent observations have been made as well as images captured of desert bighorn sheep in the area.

**Habitat**

Habitat conditions throughout this area were reported as excellent during September 2018 described by ample green grasses and other vegetation appearing healthy throughout a range of elevations. Water development surveys show several of the sheep guzzlers were at or near capacity, but some units fell well below average levels during the hot summer months. One water development was rebuilt in the North Hiko Range to increase efficiency and storage capacity in 2017. Desert bighorn sheep in these units are faced with a host of varied issues including OHV races and rock-crawling courses, new power lines, development, and domestic sheep interaction. In late 2015 disease sampling efforts resulted in the detection of *Mycoplasma ovipneumoniae* (*M. ovi.*) within the herd. Staff will be monitoring this population in attempt to detect the progression of the disease.

**Population Status and Trend**

The last translocation of desert bighorn sheep was completed in the Delamar and South Pahroc Ranges in fall 2011, where 75 desert bighorn sheep were released into these areas. Desert bighorn sheep released in these areas have been observed to commonly move to adjacent ranges. It appears that some of the desert bighorn sheep from the south Pahroc release have possibly even moved some 60 miles northwest to the Grant-Quinn Range, while others have taken up residency within the 223, 241, and 243 units. The computer-generated population estimate for 2019 is similar to the estimate for 2018 of 200 adult individuals. Nevada Department of Wildlife biologists determined that the inclusion of Unit 221 would allow for hunters to harvest legal rams if found in the South Egan Range although density and distribution of individuals is not known at this time. There was a noticeable decrease in lambs observed in 2018 compared to 2017, although the cause of this drop is not yet determined.

**Unit 243: Meadow Valley Mountains; Lincoln County**  
**Report by: Cooper Munson**

**Survey Data**

No aerial surveys were conducted in Unit 243 during 2018. A total of 123 desert bighorn sheep were observed in 2017 being the second highest survey conducted in this unit. A total of 29 rams were observed with 27% being classified as 6+ years old, as well as 68 ewes and 28 lambs. This provided a ratio of 43 rams:100 ewes:38 lambs. Desert bighorn sheep appeared to be in healthy condition and utilizing nearly all suitable portions of the unit.

**Habitat**

According to Community Environmental Monitoring Program (CEMP), this area should have received about 84% of the 10-year average annual precipitation during 2018. The lack of summer precipitation may have resulted in reduced habitat conditions across the landscape. Some water developments were observed to be holding fair amounts of water while others were dry in February 2019. While maintenance and repairs have been accomplished on most of these developments, keeping them functional and reliable water sources for wildlife is dependent upon weather. One water development unit was rebuilt to increase efficiency and capacity on the southern portion of the unit. Natural water sources seemed to provide reliable water throughout the year despite minimal precipitation. Wilderness, private land issues, and limited roads make access into the Meadow Valley Mountains very difficult for sheep hunters resulting in lower success. There is currently a threat of disease transmission between domestic sheep and goats with the wild sheep population in this area. Nevada Department of Wildlife is addressing this issue by monitoring the potential areas of contact between domestic livestock and wildlife.

**Population Status and Trend**

Previous releases of desert bighorn sheep into the Meadow Valleys and Delamars, combined with poor to moderate habitat conditions have resulted in a static trend in the population. Population estimates have

been consistent during the last 3 years and the estimate for 2019 is slightly above the 5-year average at 165 adult individuals. There has been no disease detected in the Meadow Valley desert bighorn sheep herd at this point, although it has been detected in nearby ranges as well as stray domestic sheep near occupied desert bighorn sheep habitat.

### **Unit 244: Arrow Canyon Range; Northern Clark County**

Report by: Pat Cummings

#### **Survey Data**

In October 2018, a 4.8-hour aerial survey over the Arrow Canyon Range and Battleship Hills yielded a sample of 123 desert bighorn sheep. The sample was comprised of 44 rams, 59 ewes, and 20 lambs. Desert bighorn sheep were primarily encountered east of the crest of the range, throughout the Battleship Hills and most were within 3 linear miles of available water.

#### **Habitat**

Overall, environmental conditions in 2018 were fair in terms of precipitation receipts, range conditions, and water availability. In contrast, precipitation receipts in the first quarter of 2019 were well above average. By late February 2019, 5 of 6 water developments were fully recharged and Full Curl was noted at 71% capacity. Thus, in early spring 2019, annual grasses and forbs are green, lush and ubiquitous.

#### **Population Status and Trend**

Based on population data collected in October 2018, lamb representation (34 lambs:100 ewes) was sufficiently high to reflect no change in the desert bighorn sheep population estimate. Disease surveillance efforts in 2015 in the Arrow Canyon Range entailed the capture and sampling of 6 ewes. Subsequent Polymerase Chain Reaction (PCR) and enzyme-linked immunosorbent assay (ELISA) tests confirmed *Mycoplasma ovipneumoniae* (*M. ovi.*) infection in the desert bighorn sheep herd. Recent population data collected in late 2016 and 2018 are somewhat encouraging in that the earlier likely population decline apparently abated.

### **Unit 252: Stonewall Mountain; Nye County**

Report by: Joe Bennett

#### **Survey Data**

The early September 2018 aerial survey for Unit 252 yielded 117 desert bighorn sheep classified as 24 rams, 83 ewes, and 10 lambs. Areas surveyed included Stonewall Mountain, NE Hills, Pack Rat Canyon, Little Grand Canyon and the hills south of Vitavich. In comparison, the 2017 survey yielded 91 desert bighorn sheep classified as 28 rams, 58 ewes, and 5 lambs.

#### **Habitat**

To alleviate congestion issues during the hot dry summer months at Vitavich Spring and Stonewall Spring a new big game water development will be constructed in April 2019 on the west side of Stonewall Mountain.

#### **Population Status and Trend**

Before disease prevalence was detected in 2014, lamb recruitment allowed herd density to increase steadily on Stonewall Mountain. To decrease densities of desert bighorn sheep in the Stonewall Mountain area, 28 animals were successfully removed in fall 2011 to augment the Excelsior Range and to reintroduce desert bighorn sheep back into the Virginia Range, Unit 195. Unfortunately, recent *Mycoplasma ovipneumoniae* (*M. ovi.*) exposure to Stonewall Mountain and surrounding Nevada Testing and Training Range (NTTR) sub herds

has caused high lamb mortalities and some level of adult morbidity for 5 consecutive years, 2014-2018. To assess connectivity, movement, and disease transmission of desert bighorn sheep populations throughout the NTTR, a satellite collaring and disease surveillance project was initiated in fall 2015 and continues to present. Nineteen desert bighorn sheep in 2015 were collared to help give insight into movements of desert bighorn sheep populations throughout the NTTR. An additional 6 desert bighorn sheep were captured in November 2016 and 12 desert bighorn sheep in October 2017. Coupled with the disease, the Unit 252 desert bighorn sheep herd experienced additive predation mortality near Vitavich Spring in 2017.

Modeling of the Stonewall Mountain population is challenging due to the continual movement of desert bighorn sheep between Stonewall Mountain and areas further within the NTTR. Currently, Nevada Department of Wildlife and NTTR personnel are coordinating to conduct further monitoring of the herd. Based on the disease, past predation and lack of recruitment into the population, Unit 252 is experiencing a decreasing trend.

### **Unit 253: Bare Mountain; Southern Nye County** Report by: Pat Cummings

#### **Survey Data**

In early November 2018, an aerial desert bighorn sheep survey over Bare Mountain yielded a sample of 148 sheep. The sample reflected the gender and age ratios of 110 rams:100 ewes:4 lambs. In comparison, in October 2014, a record aerial survey yielded a sample of 265 desert bighorn sheep. The largest recorded sample reflected the gender and age ratios of 58 rams:100 ewes:54 lambs.

#### **Habitat**

Desert bighorn sheep continue to cope with environmental effects brought about by excess burros. The northern half of Bare Mountain lies within the Bullfrog Herd Area. The town of Beatty, Nevada, is centrally located within the Herd Management Area, and US Route 95 divides the Herd Management Area into eastern and western portions. The Bureau of Land Management established an Appropriate Management Level for feral burros in the Herd Area at 58-91.

In July 2018, 404 burros including 59 foals were gathered and removed from the Bullfrog Herd Area. Burro gather efforts were focused on the US Route 95 corridor, Sterling Mine area, the mouth of Fluorspar Canyon and the Bullfrog Hills. After the gather, Bureau of Land Management estimated 268 burros remain in the Herd Management Area.

Dry conditions in fall and winter months of 2017-2018 resulted in insufficient recharge of 2 water developments. In May 2018, an aerial water haul operation was undertaken to augment water storage at Charles and Buzzworm water developments. In the course of two days, Charles was filled with the addition of nearly 2,000 gallons, and Buzzworm was recharged to approximately 40% of capacity. In total, roughly 4,450 gallons were added to the water developments. Thus far in the first quarter of 2019, precipitation receipts were above normal and sufficient to fully recharge Charles, Buzzworm, and Keli. Surprisingly, the Tungsten water development near Keli, although basically decommissioned, was partially recharged and is holding 3,300 gallons.

#### **Population Status and Trend**

Evidence suggests the desert bighorn sheep herd was exposed to *Mycoplasma ovipneumoniae* (*M. ovi.*) in 2014. Since that time, indications are the desert bighorn sheep population continues to contract. Important factors contributing to the population decline include ewe removals and reduced recruitment. The exceedingly low lamb encounter rate was not anticipated, and it will contribute substantially to further contraction of the desert bighorn sheep population.

In 2015, ewe hunt seasons were implemented to reduce the desert bighorn sheep population and address concerns primarily about water resource limitations. In the last 4 hunt seasons, a total of 55 ewes was harvested. Based on apparently negligible recruitment in 2019 and population model simulation, the present year population estimate is below the target population level that was to be achieved through ewe harvest. Thus, a 2019 ewe harvest season was neither recommended to nor authorized by the Nevada Wildlife Commission.

Desert bighorn sheep movements through the Beatty Wash-west Yucca Mountain area serve to maintain connectivity between desert bighorn sheep population segments on Bare Mountain and in adjacent mountains on Department of Defense and Department of Energy lands. The area may be characterized as hills bisected by washes. Due to relatively low topographic relief and lack of water, desert bighorn sheep use of the area is reasoned to be primarily seasonal (late fall-winter-spring). The Beatty Wash-west Yucca Mountain area is an important movement corridor and should be recognized in land use planning.

## **Unit 254: Specter Range; Southern Nye County**

**Report by: Pat Cummings**

### **Survey Data**

In November 2018, a 4.1-hour aerial desert bighorn sheep survey conducted over the Specter Range yielded a sample comprised of 41 rams, 84 ewes, and 8 lambs. A year earlier, an aerial survey yielded the largest sample recorded (66 rams, 104 ewes, and 20 lambs).

### **Habitat**

Despite overall dry conditions in 2018, storms in the first quarter of 2019 produced precipitation in amounts sufficient to partially and fully recharge all 6 water developments. Viewed collectively, water storage capacity was recharged to 78% (approximately 40,260 gallons).

Increasingly, Nevada Department of Wildlife personnel have encountered feral burros or sign of feral burros (i.e., scat and prints) in the Specter Range. It is thought these feral burros ventured south over 30 miles from the Bullfrog Herd Area. Google imagery portrays burro trails that link the pond at the Sterling Gold Mine to Cinder Cone Pit along US Route 95 and intermittent trail segments that reach and emanate from Lathrop Wells. Burro presence in the Specter Range is a violation of the Wild Horses and Burros Act of 1971 and is concerning due to easily accessible, unfenced wildlife water sources.

### **Population Status and Trend**

The fall 2017 aerial survey yielded a sample that was well above all previous survey results. In early 2018, it was deemed imprudent to force the population model to completely account for and be entirely consistent with demographic metrics of the survey sample. Thus, the 2018 population estimate reflected a modest increase relative to the estimate reported in 2017. The most recent population data collected in fall 2018 lends support to population expansion. The survey sample obtained in 2018 was intermediate in total desert bighorn sheep encountered and encounter rate relative to samples obtained in 2015 and 2017. The 2019 estimate again reflects an increase relative to the estimate reported last year. The modeled population increase reflects desert bighorn sheep immigration in fall and winter months in 2015-2016 and 2016-2017. Notwithstanding the modeled population increase due to immigration, it is important to note that lamb representation in the 2017 and 2018 survey samples was low and likely indicative of low lamb survivorship as a result of the disease. The low lamb representation may signal a resurgent bacterial pneumonia process.

In fall 2015, desert bighorn sheep capture activities were carried out over a broad area that included locations within the Nevada Test and Training Range and Nevada National Security Site, and on Stonewall Mountain, Bare Mountain and Specter Range. In the Specter Range, 2 ewes and 4 rams were captured and sampled. Subsequent lab diagnostic tests revealed active *Mycoplasma ovipneumoniae* (*M. ovi.*) infection by Polymerase Chain Reaction (PCR) in one ewe and definitive prior exposure in 2 rams by enzyme-linked immunosorbent assay (ELISA).

In the Specter Range, events beginning as early as fall 2002 indicated the population was suffering from the disease. Available evidence suggested bacterial pneumonia may have been a factor in high mortality among lambs. Recruitment during 6 consecutive years, 2002-2007, was low to negligible.

### **Unit 261: Last Chance Range; Southeastern Nye County**

Report by: Pat Cummings

#### **Survey Data**

In October 2018, an aerial survey over the Last Chance Range yielded a sample of 82 desert bighorn sheep. The sample reflected the sex and age ratios of 49 rams:100 ewes:33 lambs. Desert bighorn sheep were distributed throughout the northern third of the mountain complex and on the southern prominent ridge immediately north of Pahrump.

#### **Habitat**

Range conditions in 2018 in the Last Chance Range were fair. In contrast, wet conditions prevailed in the first quarter of 2019. Based on inspections of all 7 water developments in the Last Chance Range in early March 2019, 5 units were fully recharged and of the remaining 2 units, recharge amounts were approximately 60% and 22%. Presently, it is anticipated the nearly depleted water development (Nineman) may have a yet detected maintenance issue. Available water stores inclusive of Point of Rocks Springs will be sufficient to meet desert bighorn sheep demand throughout upcoming summer and early fall months.

A consequence of the expanding human population in the Pahrump Valley is habitat degradation resulting from dispersed recreational use of off-highway vehicles and permitted off-highway vehicle races.

#### **Population Status and Trend**

The 2019 desert bighorn sheep population estimate approximates the estimate reported last year. Desert bighorn sheep inhabiting the Last Chance Range are likely coping with the respiratory disease. In mid-October 2014, 5 desert bighorn sheep were captured in the central portion of the Last Chance Range, sampled, and released. Results from enzyme-linked immunosorbent assay (ELISA) of blood and Polymerase Chain Reaction (PCR) test of nasal swab samples indicated *Mycoplasma ovipneumoniae* (*M. ovi.*) exposure and infection. In furtherance of respiratory disease surveillance, 3 ewes and 5 rams were captured and sampled in early November 2016. The more recent lab diagnostic test results were similar to results obtained from the fall 2014 desert bighorn sheep capture contingent, and portray a herd still coping with infection.

### **Unit 262: Spring Mountains (La Madre, Red Rock and South Spring Mountains) and Bird Spring Range; Western Clark County**

Report by: Pat Cummings

#### **Survey Data**

In mid-October 2018, aerial survey efforts involved 11.6 hours of flight time over the following areas: La Madre Mountain, Brownstone Basin, Calico Hills, Red Rock Escarpment, Potosi Mountain (east and south), Shenandoah Peak complex, Little Devil Peak and Devil Peak. The survey yielded a sample of 152 desert bighorn sheep. The sample was comprised of 35 rams, 89 ewes, and 28 lambs. Desert bighorn sheep were encountered in many of the areas covered. Animals were not detected in Brownstone Basin, Calico Hills and higher elevations on La Madre Mountain. The few desert bighorn sheep detections along the Red Rock Escarpment may have been related to reduced visibility in a pronounced vertical environment. Visibility was diminished due to the aircraft doors. The doors prevented observers from scanning under and behind the aircraft, and into shaded areas due to substantial glare and light refraction.

**Habitat**

Unit 262 generally receives more precipitation than other areas in Clark County. Desert bighorn sheep benefit from adequate range conditions on a consistent basis; however, due to proximity to Las Vegas, recreational pursuits (e.g., off highway vehicle and mountain bike use, proliferation of roads and trails, rock climbing), feral horses and burros and suburban sprawl serve to degrade habitat.

In June 2005, lightning strikes in the higher elevations near Potosi Peak ignited the Goodsprings Fire. The Goodsprings Fire consumed plants across 33,484 acres along a 3,940 foot elevation gradient and within 3 vegetative associations: creosote-bursage flats, Mojave Desert scrub, and pinyon-juniper woodland. Landmark areas within the Goodsprings Fire included: northern portion of the Bird Spring Range, Double up Mine canyon, Ninety-nine Spring canyon, Cave Spring canyon, and Shenandoah Peak.

**Population Status and Trend**

Desert bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. Based on fall aerial surveys over several years, the herd has experienced a considerable contraction marked by negligible lamb survival and reduced adult survivorship. A chronology of relevant events that were reported in recent years may be found in the 2014-2015 Big Game Status book. The 2018 population estimate approximates the estimate reported last year.

In early November 2016, continued disease surveillance measures entailed captures of 3 rams and 8 ewes in the south Spring Mountains. Subsequent lab diagnostic tests revealed active *Mycoplasma ovipneumoniae* (*M. ovi.*) infection among 2 desert bighorn sheep by Polymerase Chain Reaction (PCR) and definitive prior exposure among 6 individuals through enzyme-linked immunosorbent assay (ELISA).

Desert bighorn sheep in the Spring Mountains face challenges with respect to habitat degradation, fragmentation and loss. In the La Madre Ridge area, human encroachment in the form of suburban sprawl and off highway vehicle use has degraded desert bighorn sheep habitat. Increasingly, land management emphasis in the Red Rock area accommodates human recreational pursuits that often compromise habitat and wildlife conservation.

In the late 1990s, the Bureau of Land Management Las Vegas Office administratively designated a large area (approximately 3,641 acres) east of La Madre Ridge as the Lone Mountain Community Pit. The intent of the designation was to accommodate local demand for an additional source of sand and gravel to support development in southern Nevada. In the 1960s, the Bureau of Land Management identified much of the area now within the boundary of Lone Mountain Community Pit as seasonally important for desert bighorn sheep.

**Unit 263: McCullough Range and Highland Range; Southern Clark County**

Report by: Pat Cummings

**Survey Data**

In October 2018, aerial desert bighorn sheep surveys were conducted over the northern portion of the McCullough Range and the Highland Range. Desert bighorn sheep were encountered throughout much of the area covered over the McCullough Range. In the Highland Range, desert bighorn sheep were encountered in the north half. The McCullough Range sample was comprised of 49 rams, 146 ewes and 9 lambs. Nearby in the Highland Range, 4 rams, 11 ewes and 7 lambs were encountered.

**Habitat**

In 2018, environmental conditions overall were fair in terms of precipitation receipts, range conditions and water availability. In contrast, precipitation receipts in the first quarter of 2019 were well above average. Based on inspections of all 6 water developments in the McCullough Range in early March 2019, 4 units were fully recharged and of the remaining 2 units, recharge amounts were approximately 81% and 94%. Collectively,

the approximately 56,000 gallons of water noted in storage equated to 96% of total capacity. In early spring 2019, annual grasses and forbs are green, lush and abundant.

In spring 2015, two new water developments were constructed to augment water availability in the northern half of the McCullough Range. The McCullough #5 water development (aka Rance) was constructed between the 2 existing northeastern most projects, Penny and Roy. McCullough #6 (aka Rogers) was situated to the south east of Hidden Valley near the crest of the range between Linda and Roy. The new projects were designed as equilibrium systems (i.e. no float valve), and round out a total of 6 desert bighorn sheep water developments north of McCullough Pass.

In February 2013, the Poppy water development was reconstructed. Situated in the North McCullough Wilderness, the existing 3 upright poly tanks were replaced with low profile IRM tanks. The old drinker and float valve were replaced with a new drinker to complete the leveled system. Water storage capacity increased from 4,650 gallons to 8,800 gallons.

Several projects to construct recreation trails in desert bighorn sheep habitat are underway or completed. The City of Henderson is constructing trails on the north end of the McCullough Range and the Bureau of Land Management will ultimately complete a network of linking trails in Sloan Canyon National Conservation Area and in 2 wilderness areas.

### **Population Status and Trend**

Desert bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. The herd has experienced a considerable contraction marked by low lamb survival. A chronology of relevant events that were reported in recent years may be found in the 2014-2015 Big Game Status book. In November 2015, continued disease surveillance measures entailed captures of 1 ram and 6 ewes in the McCullough Range, and 1 ram and 1 ewe in the Highland Range. Subsequent laboratory diagnostic tests detected the “Mojave” National Preserve strain of *Mycoplasma ovipneumoniae* (*M.ovi.*) in the McCullough-Highland desert bighorn sheep herd.

Desert bighorn sheep in the northern portion of the McCullough Range face a variety of challenges in the near future. On the west flank of the range, suburban sprawl and flood control measures have already claimed much of the lower elevation habitat. To the north, the movement corridor between the River Mountains and the McCullough Range has been effectively eliminated with completion of the I-11 (formerly US Route 93 and 95) segment at Railroad Pass. Additional urban sprawl southward along I-15 is expected to degrade desert bighorn sheep habitat in the Hidden Valley area.

## **Unit 264: Newberry Mountains; Southern Clark County**

**Report by: Pat Cummings**

### **Survey Data**

In October 2018, a 4.7-hour aerial survey over the Newberry Mountains yielded a sample of 30 desert bighorn sheep. The sample was comprised of 5 rams and 25 ewes. The largest recorded aerial survey sample was in 2012 (Table 1).

**Table 1. Bighorn sheep herd composition obtained through aerial surveys in the Newberry Mountains.**

Year	Rams	Ewes	Lambs	Total	Rams:100 Ewes: Lambs
2000	12	18	5	35	67:100:28
2003	11	16	14	41	69:100:88
2006	22	19	4	45	116:100:21
2008	23	17	11	51	135:100:65
2010	34	54	11	99	63:100:20
2012	40	65	23	128	62:100:35
2016	13	48	3	64	27:100:6
2018	5	25	0	30	20:100:0

### **Population Status and Trend**

Desert bighorn sheep inhabiting the Newberry Mountains are surrounded by nearby desert bighorn sheep populations that are coping with bacterial pneumonia. Although herd health profile information is lacking, it is reasoned the Mojave National Preserve strain of *Mycoplasma ovipneumoniae* (*M. ovi.*) is endemic in the Newberry Mountains desert bighorn sheep population. The lack of lamb representation coupled with low animal encounter rate in the recent aerial survey was consistent with adjacent desert bighorn sheep herds struggling with *M. ovipneumoniae* (*M. ovi.*). The Mojave strain of *M. ovipneumoniae* (*M. ovi.*) has been associated with desert bighorn sheep die-offs marked by not only low lamb survival, but also substantial adult morbidity and mortality. The 2019 population estimate reflects a continued contraction.

### **Unit 265: South Eldorado Mountains; Southeastern Clark County** Report by: Pat Cummings

#### **Survey Data**

No aerial survey was conducted in the southern portion of the Eldorado Mountains in 2018. In October 2010, 19 rams, 9 ewes and 1 lamb were observed during a 2.4-hour survey (Table 2). The next aerial desert bighorn sheep survey in the south Eldorado Mountains is scheduled for fall 2019.

**Table 2. Bighorn sheep herd composition obtained through aerial surveys in the south Eldorado Mountains.**

Year	Rams	Ewes	Lambs	Total	Rams:100 Ewes: Lambs
2002	3	2	2	7	150:100:100
2003	2	6	4	12	33:100:67
2010	19	9	1	29	211:100:11

Since 1969, survey sample sizes have varied widely; samples have ranged from 0 to 50 animals. In some years, aerial Survey Data portray a disproportionate number of rams in the unit. In many of the 21 aerial surveys conducted since 1969, the number of rams observed either equaled or far exceeded the number of ewes.

### **Population Status and Trend**

Desert bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. The herd has experienced a considerable contraction marked by high lamb mortality. A chronology of relevant events that were reported in recent years may be found in the 2014-2015 Big Game Status book. In 2015, the “Mojave” National Preserve strain of *Mycoplasma ovipneumoniae* (*M. ovi.*) was detected in desert bighorn sheep in the Eldorado Mountains. The Mojave strain of *M. ovipneumoniae* (*M. ovi.*) has been associated with desert bighorn sheep die-offs marked by not only negligible lamb survival, but also substantial adult morbidity and mortality.

**Unit 266: North Eldorado Mountains; Southeastern Clark County**  
**Report by: Pat Cummings**

**Survey Data**

No aerial survey was conducted in the northern portion of the Eldorado Mountains in 2018. In October 2017, a 4.5-hour aerial desert bighorn sheep survey was conducted over the northern section of Unit 266. The survey yielded a sample of 61 desert bighorn sheep. The sample was comprised of 16 rams, 36 ewes and 9 lambs. Most encounters were east and northeast of Boulder City. Four desert bighorn sheep carcasses were noted during the survey.

**Habitat**

The desert bighorn sheep herd in the Eldorado Mountains has and will continue to face challenges. Two massive highway projects intended to divert traffic from Hoover Dam and Boulder City were completed. The Hoover Dam Bypass Bridge and new US Route 93 alignment (later replaced by I-11) was opened to traffic in October 2010. The bridge spans the Colorado River approximately 1,500 feet downstream of the dam.

The second bypass project was designated I-11. The new interstate highway courses south and east of Boulder City, and links with the already completed western end of Hoover Dam Bypass project. The Boulder City Bypass was constructed through desert bighorn sheep habitat in the northwest portion of the Eldorado Mountains. Several federal and state agencies were involved in and coordinated on numerous design and construction aspects including wildlife monitoring. The new alignment incorporates several crossing structures to accommodate wildlife movements and enhance highway permeability. The newly constructed section of I-11 was opened in August 2018.

Since January 2015, 3 desert bighorn sheep capture operations were accomplished in and near Phase 2 of the Boulder City Bypass project area. The primary intent of the capture activities was to affix GPS collars on ewes and rams to assess movements and trans-highway movements, and to measure and evaluate highway permeability during construction and post construction.

**Population Status and Trend**

See the report from Unit 265, Population Status and Trend section for details on disease detection and surveillance in both the north and south Eldorado Mountains. The 2019 population estimate reflects a continued contraction.

The latest desert bighorn sheep captures and disease surveillance associated with Phase 2 of the Boulder City Bypass were conducted in late October 2017. As anticipated, *Mycoplasma ovipneumoniae* (*M. ovi.*) was detected by Polymerase Chain Reaction (PCR) test in a proportion of the nasal swab samples. The PCR detection prevalence of *M. ovipneumoniae* (*M. ovi.*) among desert bighorn sheep captured in 2017 was 12% and was substantially lower than the 54% *M. ovipneumoniae* (*M. ovi.*) detection rate from the 2015 capture contingent. The apparent notable reduction in *M. ovipneumoniae* (*M. ovi.*) by PCR may signal a reduction in infection rates at the population level. This pattern is consistent with the chronic shedder model that postulates following the wave of initial infections about 5-20% of the herd will be chronic carriers. Two adult rams that were *M. ovipneumoniae* (*M. ovi.*) positive by PCR in 2015 were recaptured in 2017 and again found to be shedding *M. ovipneumoniae* (*M. ovi.*).

**Unit 267: Black Mountains; Eastern Clark County**  
**Report by: Pat Cummings**

No aerial survey was conducted in 2018. In October 2017, a 7.6-hour aerial desert bighorn sheep survey over the Black Mountains yielded a sample of 271. The observed sex and age ratios were 55 rams:100 ewes:16 lambs. In the course of the 2-day survey, desert bighorn sheep were found to be broadly distributed. No aerial desert bighorn sheep survey was conducted in Unit 267 in 2016.

**Habitat**

In 2018, environmental conditions were fair due to prevailing dry conditions. In contrast, precipitation receipts in the first quarter of 2019 were well above average. Native and invasive annual forbs and grasses have responded to the wet conditions and are noticeably ubiquitous. The National Weather Service, Climate Prediction Center forecast for the second quarter in 2019, does not reflect onset of drought conditions.

**Population Status and Trend**

Desert bighorn sheep occupying the Black Mountains and Muddy Mountains comprise a single population given the high degree of movement between ranges; however, environmental conditions and local population dynamics have differed markedly. Over the long term, aerial survey data portray a decline in the number of desert bighorn sheep inhabiting the Black Mountains and an increase in desert bighorn sheep numbers in the adjacent Muddy Mountains. The 2019 population estimate for desert bighorn sheep inhabiting the Black Mountains and Muddy Mountains approximates the estimate reported last year.

**Unit 268: Muddy Mountains; Clark County**  
**Report by: Pat Cummings****Harvest**

The fifth desert bighorn sheep ewe hunt in Unit 268 was held in October 2018. Fifty tags were apportioned to the resident hunt and 6 tags were allotted to the nonresident hunt. Overall, 33 ewes were harvested in 2018. Since the inaugural hunt season in 2014, 136 ewes were harvested.

**Survey Data**

No aerial survey was conducted in 2018. In October 2017, 9.8 hours of flight time were expended to conduct an aerial desert bighorn sheep survey over the Muddy Mountains. The survey was accomplished over 3 days and yielded a sample of 648 desert bighorn sheep, of which 6 were unclassified. The observed sex and age ratios were 94 rams:100 ewes:42 lambs.

**Habitat**

Overall in 2018, environmental conditions were fair due to prevailing dry conditions. In contrast, precipitation receipts in the first quarter of 2019 were well above average. Wet conditions have spurred rapid growth of annual native and invasive forbs and grasses across the landscape. In the first quarter of 2019, ample precipitation receipts served to fully or near fully recharge 5 of 6 water developments. The remaining project (Flipper) centrally located in the Muddy Mountains was noted at 62% of capacity. Collectively, the 6 artificial water sources were recharged to 97%. However, in the absence of an active monsoon season, it is anticipated water developments on Muddy Peak and in the central Muddy Mountains will be depleted by late July 2019.

In late January 2019, the Five Ram water development was upgraded increasing water collection efficiency and storage capacity. The upgrades involved augmentation to the collection surface (metal apron), removal of 2 older 1,800-gallon tanks and installation of 3 new 2,300-gallon tanks.

In March 2018, maintenance work to avoid serious component failures was undertaken at White Basin and Flipper water developments. At White Basin, the existing heavily oxidized drinker and float valve assembly were replaced with new stainless-steel drinker and float valve box. In addition, a new 32' x 75' hypalon collection apron was unfurled over the existing, tattered 23-year-old apron. Work at Flipper entailed replacement of cracked low profile tanks with 4 new 2,300-gallon IRM tanks. The tanks were plumbed together and to the new drinker with stainless steel fittings.

### **Population Status and Trend**

In mid-October 2017, 15 ewes and 4 rams were captured, sampled (i.e., blood, tonsil and nasal swabs) and released in furtherance of disease surveillance. One ewe was sampled and subsequently euthanized. All animals were negative for *Mycoplasma ovipneumoniae* (*M. ovi.*) by Polymerase Chain Reaction (PCR) and enzyme-linked immunosorbent assay (ELISA). Near the same time, capture activities for the purpose of furnishing desert bighorn sheep to Utah Division of Wildlife Resources were decidedly canceled, as northern and southern segments of the recipient population in the San Juan River area tested positive for *M. ovipneumoniae* (*M. ovi.*) by PCR.

Desert bighorn sheep occupying the Black and Muddy Mountains comprise a single population given the high degree of movement between ranges; however, environmental conditions and local population dynamics have differed markedly. Over the long term, aerial survey data portray a decline in desert bighorn sheep inhabiting the Black Mountains and an increase in desert bighorn sheep occupying the adjacent Muddy Mountains. The recent population expansion in 2018 is due to high recruitment in the desert bighorn sheep population segment in the Muddy Mountains. The 2019 population estimate for desert bighorn sheep inhabiting the Black Mountains and Muddy Mountains approximates the estimate reported last year.

### **Unit 269: River Mountains; Clark County** Report by: Pat Cummings

#### **Survey Data**

In mid-October 2018, a 4.6-hour aerial desert bighorn sheep survey was conducted over the River Mountains. The survey yielded a sample of 178 desert bighorn sheep. The observed sex and age ratios were 38 rams:100 ewes:7 lambs.

#### **Habitat**

Overall, environmental conditions in 2018 were fair in terms of precipitation receipts, range conditions and water availability. In contrast, precipitation receipts in the first quarter of 2019 were well above average. Thus, in early spring 2019, annual grasses and forbs are green, lush and ubiquitous. The National Weather Service, Climate Prediction Center forecast for the second quarter in 2019, does not reflect onset of drought conditions.

The River Mountains are not only surrounded by major roadways but also adjacent to large suburbs. Human impacts throughout the range are readily discernable and, in some cases, extensive.

### **Population Status and Trend**

Since at least 1952, there has been no regulated desert bighorn sheep hunt in the River Mountains. The desert bighorn sheep herd has the special distinction of contributing over 800 animals for purposes of in-state reintroductions and augmentations. In addition, desert bighorn sheep captured in the River Mountains were furnished to Utah and Colorado in support of desert bighorn sheep conservation programs.

In fall 2013, *Mycoplasma ovipneumoniae* (*M. ovi.*) was detected in a female lamb captured in Hemenway Park, Boulder City. Subsequently, in spring 2015, the more virulent Mojave National Preserve strain of *M. ovipneumoniae* (*M. ovi.*) was confirmed. Thus since 2015, desert bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. A chronology of relevant events that correspond to adjacent desert bighorn sheep herds may be found in the 2014-2015 Big Game Status book.

**Unit 271: Mormon Mountains; Lincoln County**  
**Report by: Cooper Munson**

**Survey Data**

Desert bighorn sheep surveys were conducted in the Mormon Mountains in September 2018. A total of 176 desert bighorn sheep were observed, composed of 49 rams, 101 ewes, and 26 lambs providing a ratio of 49 rams:100 ewes:26 lambs. Sheep were observed within close vicinities of natural water sources, livestock tanks, and guzzlers, many of which need repairs and maintenance. The bulk of the sheep were observed on the Mormon Mountains with other groups located on the East Mormons and southern portions of the Tule Hills.

**Habitat**

Habitat conditions in the Mormon Mountains were exceptionally dry and remained so throughout most of the year due to lack of precipitation events and receiving only 76% of 10-year average resulting in just over 4 inches of annual precipitation. Only 2 of the 5 water developments appeared to be holding reasonable amounts of water as of February 2019. Four of the 5 water developments are in need of upgrades that are slated to be accomplished in the coming years but are still being utilized by wildlife. Bighorn seem to prefer some of the areas that have burned within the last decade and are showing signs of vegetation regeneration. Rams have been observed in a wide range of elevations in the area throughout the year. According to the US Drought Monitor, the US Seasonal Drought Outlook is predicting that the drought conditions in this area may subside for the coming year due to exceptional precipitation in early 2019.

**Population Status, and Trend**

The Mormon Mountains desert bighorn sheep population appears to be stable although a decrease in lambs was observed. Following a run of static population growth, the 2019 population estimate is showing to be stable and trending with the 10 years of steady population levels.

**Unit 272: Virgin Mountains and Gold Butte; Northeastern Clark County**  
**Report by: Pat Cummings**

**Survey Data**

No aerial survey was conducted in 2018. In October 2017, an aerial desert bighorn sheep survey was conducted over Lime Ridge, Tramp Ridge, Bitter Ridge, the southern portion of the Virgin Mountains, Whitney Ridge, Bunkerville Ridge and Black Ridge. The 8.8-hour survey was conducted over 2 days and yielded a sample of 20 rams, 46 ewes and 15 lambs.

**Habitat**

In 2018, environmental conditions overall were fair in terms of precipitation receipts, range conditions and water availability. In contrast, precipitation receipts in the first quarter of 2019 were well above average. In early spring 2019, annual grasses and forbs are green, lush and abundant. It was noted on a water development maintenance flight conducted in February 2019 that Virgin #1 and #2 were recharged to 100% and 87%, respectively.

**Population Status and Trend**

Since 2005, some of the ewes released in the Virgin Mountains dispersed and created home ranges in the northern portion of the Gold Buttes. Much of the precipitous desert bighorn sheep habitat in the Gold Buttes consists of ridges interspersed by areas of moderate terrain. Desert bighorn sheep released in the Virgin Mountains and Gold Buttes since 2005 have inhabited the south Virgin Mountains, Whitney Ridge, Lime Ridge,

Tramp Ridge, Bitter Ridge and the Cockscomb (Arizona). Presently, there is a lack of information on the distribution and abundance of desert bighorn sheep in Iceberg Canyon, Indian Hills and Azure Ridge.

The 2019 population estimate for desert bighorn sheep inhabiting the Virgin Mountains and Gold Buttes approximates the estimate reported last year. Disease surveillance undertaken in fall 2015 entailed capturing, sampling and releasing 5 ewes in the Gold Buttes and 1 ram in the Virgin Mountains. Subsequent Polymerase Chain Reaction (PCR) and enzyme-linked immunosorbent assay (ELISA) positive lab results indicate *Mycoplasma ovipneumoniae* (*M. ovi.*) is present in the desert bighorn sheep herd inhabiting the northeast portion of Clark County east of the Virgin River.

## Unit 280: Spotted Range; Northwestern Clark County

Report by: Pat Cummings

### Survey Data

In early September 2018, a 4.5-hour aerial survey yielded a sample of 164 desert bighorn sheep. Two desert bighorn sheep encountered in the course of the survey were not classified. The sample was the largest recorded and was comprised of 47 rams, 90 ewes and 25 lambs (Table 3). Desert bighorn sheep were well dispersed and encountered throughout much of the survey area. Most desert bighorn sheep encounters were within 2 linear miles of water sources.

**Table 3. Desert bighorn sheep herd composition obtained through aerial surveys in the Spotted Range.**

Year	Rams	Ewes	Lambs	Total	Rams:100 Ewes: Lambs
2010	33	57	11	101	58:100:19
2011	28	58	10	96	48:100:17
2012	23	36	6	65	64:100:17
2014	20	67	16	103	30:100:24
2015	28	49	17	94	57:100:35
2016	20	57	18	95	35:100:32
2017	33	56	20	109	59:100:36

### Habitat

Overall in 2018, environmental conditions were fair due to prevailing dry conditions. In contrast, precipitation receipts in the first quarter of 2019 were well above average. Wet conditions have spurred rapid growth of annual native and invasive forbs and grasses across the landscape. In the first quarter of 2019, precipitation-producing storms have served to fully recharge 5 of the 6 water developments in the Spotted Range.

On a water development inspection flight circuit conducted in March 2019, plumbing component failures were noted at Spotted #4 (aka Foggy). At the time, the project was 50% recharged. Due to the nature of the manifold leaks and delay in ability to access the Nellis Test and Training Range to effect repairs, the project may further slowly discharge approximately 2,400 gallons of water. In closing the 1 properly functioning valve of 3 valves in the manifold, about 1,200 gallons should be salvaged. Presently, the water development is offline.

In the 2015-2016 status report, it was noted that on the fall 2015 aerial survey there were indications of increased military training activity. Many spent flares, associated parachutes and other debris were encountered. Some existing target areas were expanded with additional military vehicle targets.

## **Population Status and Trend**

The 2019 desert bighorn sheep population estimate reflects an expansion relative to the estimate reported last year.

In November 2018, 11 ewes and 10 rams were captured, sampled and marked with GPS collars in support of a Legislative Environmental Impact Statement (LEIS) being prepared by the US Air Force. Distribution and movement data will be analyzed and modeled to assess potential impacts to desert bighorn sheep given the land withdrawal alternatives identified in the LEIS. Additional desert bighorn sheep that were captured and sampled (not collared) included 2 ewes, of which 1 was euthanized due to apparent extensive back injury. Subsequent desert bighorn sheep mortality that was deemed consequential to capture myopathy involved a second ewe. Three additional desert bighorn sheep mortalities due to apparent predation events involved 2 ewes and 1 young ram.

Laboratory diagnostic test results reflected 1 desert bighorn sheep was positive for *Mycoplasma ovipneumoniae* (*M. ovi.*) by Polymerase Chain Reaction (PCR) and enzyme-linked immunosorbent assay (ELISA). Two desert bighorn sheep were positive for *M. ovipneumoniae* (*M. ovi.*) by PCR and negative by ELISA. Eleven desert bighorn sheep were positive for *M. ovipneumoniae* (*M. ovi.*) by ELISA. Initial genetic analysis portrays similarity in the variant of *M. ovipneumoniae* detected in the Spotted Range to the *M. ovipneumoniae* (*M. ovi.*) detections corresponding to desert bighorn sheep captured on the Nevada Test and Training Range in 2017.

## **Unit 281: Pintwater Range; Northwestern Clark County** **Report by: Pat Cummings**

### **Survey Data**

In early September 2018, a 5.3-hour aerial survey conducted over the Pintwater Range yielded a sample of 101 desert bighorn sheep. The sample included 3 desert bighorn sheep that were not classified. The observed sex and age ratios were 71 rams:100 ewes:22 lambs. Most of the animals encountered were within 2 miles of water sources. In fall 2016, the survey sample over the Pintwater Range was the largest recorded since the initial aerial survey undertaken in 1973. The 2016 survey sample included 153 desert bighorn sheep and reflected 58 rams:100 ewes:43 lambs.

### **Habitat**

Environmental conditions in 2018 were poor. In spring 2018, water and spring developments on the Pintwater Range were not sufficiently recharged to meet upcoming desert bighorn sheep demand in summer months. Of the 2 water sources in the southern portion of the range, Dain Peak was fully depleted and Heavens Well was insufficiently charged to 17%. In April 2018, it was deemed necessary to undertake an aerial water haul operation to augment the limited water availability at Heavens Well. In mid-June 2018, a Nevada Department of Wildlife pilot and aircraft (Eagle 407HP) delivered approximately 1,540 gallons of water to Heavens Well to achieve 62% recharge.

In contrast, wet conditions prevailed in the first quarter of 2019. In early spring 2019, annual grasses and forbs are green, lush and ubiquitous. Upon inspection in March 2019, the majority of the water sources in the Pintwater Range were fully to near fully recharged.

The maintenance status of the several water sources ranges from very poor to good, and in some cases, near future critical component failures are anticipated. Sand Spring and De Jesus Spring need extensive maintenance. The questionable reliability of De Jesus Spring may be related entirely on or in part to inadequate recharge.

## **Population Status and Trend**

The 2019 desert bighorn sheep population estimate for the Pintwater Range reflects a modest contraction relative to the estimate reported last year.

In November 2016, 11 ewes and 10 rams were captured, sampled and marked with GPS collars in support of a Legislative Environmental Impact Statement (LEIS) being prepared by the US Air Force. Distribution and movement data will be analyzed and modeled to assess potential impacts to desert bighorn sheep given the land withdrawal alternatives identified in the LEIS. Additional desert bighorn sheep that were captured and sampled (not collared) included 3 ewes and 2 rams.

## **Unit 282: Desert Range and Desert Hills; Northwestern Clark County** **Report by: Pat Cummings**

### **Survey Data**

In early September 2018, an aerial survey yielded a sample of 53 desert bighorn sheep. The sample was comprised of 9 rams, 35 ewes, 5 lambs and 4 individuals that were not classified. Generally, desert bighorn sheep during summer months are distributed in proximity to water sources. Thus, in aerial surveys conducted in early September, most desert bighorn sheep are encountered within 2 miles of water sources. At the time of the survey, it was not known that water was not available at Black Top, Tommy or Brent Seep. Consequently, unproductive survey time was expended in areas that desert bighorn sheep vacated in their pursuit of water.

### **Habitat**

Environmental conditions in 2018 were poor. In spring 2018, water and spring developments on the Desert Range were not sufficiently recharged to meet desert bighorn sheep demand in 2018 summer months. On the south end of the range, it is thought the Black Top development was fully depleted by mid-July 2018, and that many desert bighorn sheep in that area moved east to the Sheep Range. In contrast, substantial storm activity in the first quarter of 2019 has promoted growth of native and invasive annual forbs and grasses. Ample precipitation receipts also served to recharge water sources. As of early March 2019, fully recharged projects included: White Sage Gap, Chuckwalla and Tommy. Black Top was recharged to 73%.

In April 2018, the Chuckwalla water development was finally rebuilt. The old project was obsolete and inadequate in areas of water storage capacity, design specifications and reliability. Upon completion of the new project, water storage capacity was boosted from about 4,500 gallons to slightly over 8,000 gallons.

There are no known reliable natural water sources on the Desert Range. The Black Top water development in the southern portion of the range receives heavy desert bighorn sheep use, and in many years often becomes fully depleted in the height of summer. As is the case elsewhere on the Desert National Wildlife Refuge, Tommy and Black Top are obsolete and unreliable and should be rebuilt. In recent months, Nevada Department of Wildlife personnel were informed by civilian liaison affiliated with the US Air Force that all access to Brent's Seep is restricted indefinitely. Due to the imposed access restriction, Brent's Seep situated on the north end (37.100426° N, -115.500037° W) of the range cannot be maintained. Since construction in 2002, Brent's Seep has been a liability in that it is unreliable, and it is an outlier project. Thus, there is no known reliable alternate water source for wildlife near Brent Seep. Nevada Department of Wildlife personnel have made the assertion to the civilian liaison that federal officials need to take responsibility and arrange to render Brent's Seep inoperable before ambient temperatures rise and desert bighorn sheep use of and reliance on the project becomes established in late spring 2018.

In March 2011, a new water development was constructed in White Sage Gap. The new unit was situated less than 400 yards west of the older, smaller water development and was constructed to better ensure water availability on the south end of the range.

### **Population Status and Trend**

The 2019 population estimate for desert bighorn sheep inhabiting the Desert Range approximates the estimate reported last year. Greater attention and commitment to installing and maintaining reliable water sources is necessary to initiate and sustain a population growth trajectory.

Historically, many desert bighorn sheep occupying the Desert Range are fall and winter migrants from the adjacent Sheep Range. Over the long term, the observed proportion of lambs to ewes obtained through aerial surveys has been low.

### **Unit 283, 284: East Desert Range and Sheep Range; Northern Clark County** Report by: Pat Cummings

#### **Survey Data**

No aerial survey was conducted over the Sheep Range in 2018. In early September 2018, aerial desert bighorn sheep surveys were conducted over the Black Hills and the East Desert Range. During the brief survey over the Black Hills, 3 rams, 7 ewes, and 2 lambs were encountered. To the north, the survey effort over the East Desert Range yielded 5 rams, 12 ewes, and 4 lambs.

#### **Habitat**

In mid-March 2019, the Woody water development situated on the north end of the Sheep Range was rebuilt. The new equilibrium system (i.e., no float valve) boosts water storage capacity from about 6,750 gallons to roughly 10,500 gallons. The actual total capacity of new equilibrium systems may only be determined once the project is full and the tank pad has compacted.

Environmental conditions in early spring of 2019 are favorable. Precipitation receipts were well above normal and have promoted establishment and growth of native and invasive forbs and grasses across the landscape.

In a 3-year period, 2004-2006, wildland fires ignited by lightning strikes during summer months burned vegetation along thousands of acres on the east side of the Sheep Range. In desert bighorn sheep habitat, fires consumed vegetation at low, mid and high elevations. Much of the fire damage occurred at low elevations. Present concerns relate to the likely establishment of fire-adapted invasive and exotic annual grasses at low and mid-elevations.

### **Population Status and Trend**

The 2019 desert bighorn sheep population estimate approximates the estimate reported last year. Based on the results of fall 2017 aerial surveys, the population estimate in 2018 reflected a contraction. The decline was the result of low lamb representation encountered during the survey. Poor lamb representation is a strong indicator of reduced recruitment in 2018. Many desert bighorn sheep populations in southern Nevada were exposed to *Mycoplasma ovipneumoniae* (*M. ovi.*) in recent years. Through disease surveillance measures, several strains of *M. ovipneumoniae* (*M. ovi.*) were identified in southern herds. It is possible that desert bighorn sheep inhabiting the Sheep Range and the greater Desert National Wildlife Range are in a recovery stage.

To hasten recovery of the desert bighorn sheep population in the Sheep Range and in conformance with the Nevada Department of Wildlife's Big Game Release Plan, 35 desert bighorn sheep captured in late October 1998 from the Muddy Mountains, Arrow Canyon Range and Specter Range were released at the mouth of Joe May Canyon. Subsequent monitoring efforts and aerial survey data suggest the release was not effective in achieving the objective.

**Unit 286: Las Vegas Range; North Clark County**  
**Report by: Pat Cummings**

**Survey Data**

In October 2018, a 7.6-hour aerial survey over the Las Vegas Range yielded a sample of 114 desert bighorn sheep (one individual was not classified). The sex and age ratios were 49 rams: 100 ewes:42 lambs. Desert bighorn sheep were well distributed throughout the range. In comparison to the largest sample recorded a year earlier, the 2017 survey yielded a sample of 230 desert bighorn sheep. The sex and age ratios were 45 rams:100 ewes:42 lambs.

**Habitat**

Overall, environmental conditions in 2018 were fair in terms of precipitation receipts, range conditions, and water availability. In contrast, precipitation receipts in the first quarter of 2019 were well above average. In early spring 2019, annual grasses and forbs are green, lush and abundant. Precipitation amounts were enough to fully recharge Juniper Peak, New Hidden Valley, and Frozen Toe water developments. Upon inspection in late February 2019, the Quail Spring development was noted at 76% capacity. The inspection revealed that debris was impeding water flow through an overflow pipe from the fully recharged spring-fed 1,100-gallon tank to 2 adjacent 1,100-gallon tanks. The blockage was cleared, and the flow of water was restored. The maintenance action undertaken at Quail Spring should substantially increase the likelihood that water will remain available at the source throughout the upcoming summer and early fall.

In April 2016, a new water development was constructed to eventually replace the Old Hidden Valley unit. The new guzzler incorporates 4 low-profile 2,300-gallon tanks and is a leveled system (i.e., no float valve).

The Las Vegas Range is situated immediately north of the Las Vegas Valley, and suburban development has recently approached the southern boundary of the Desert National Wildlife Range. Increasingly, off-highway vehicle (OHV) use has resulted in the proliferation of unauthorized roads and trails. Despite federal regulation prohibiting the use of unlicensed vehicles on the refuge, the newly established network of roads and trails allows OHV users access to formerly undisturbed desert bighorn sheep habitat.

**Population Status and Trend**

The 2019 desert bighorn sheep population estimate approximates the estimate reported last year. The fall 2017 aerial desert bighorn sheep survey yielded a sample that was well above all previous survey results. It was deemed imprudent to force the population model to completely account for and be entirely consistent with the 2017 survey data. It was reasoned that additional surveys need to be conducted to accurately portray the degree of population expansion.

## CALIFORNIA BIGHORN SHEEP

### **Unit 011: Massacre Rim, Coleman Rim; Northern Washoe County** Report by: Chris Hampson

The original release on the Massacre Rim (also known as the Long Valley Rim) occurred in March 1995 with a release of 21 California bighorn sheep on the west side of the Little Sheldon in Unit 033. The small population never thrived, and numbers of sheep observed in the area slowly diminished over the next 15 years. Between 2012 and 2014, Nevada Department of Wildlife released two different complements of bighorn totaling 44 California bighorn sheep on the south end of the Massacre Rim and an additional 20 California bighorn sheep on the Nevada side of the Coleman Rim.

Prior to the release on Coleman Rim, a big game guzzler was built on the southern end of the rim in Nevada. The newly constructed water development has created a reliable water source on the Nevada side of the line for this population of California bighorn sheep. The Coleman Rim in both Oregon and Nevada now supports a viable population of California bighorn sheep estimated at between 80 and 100 animals.

Following the releases, telemetry data showed California bighorn sheep movements east onto the Guano Rim on the Sheldon as well as west and southwest onto the Horse Lake Rim and Vya Rim. After a few months of exploration, most of the California bighorn sheep returned to the release sites; however, it is believed that a few California bighorn sheep released on both the Coleman and Massacre Rims have become established within the borders of the Sheldon. This dispersal of California bighorn sheep may have been to avoid predation by mountain lions. The long-term drought dried up many springs on the Massacre Bench and may have contributed to changes in distribution.

In mid-to-late December 2014, five of the collared ewes from the various releases were killed by mountain lions. Three were killed along the Massacre Rim, 1 on Guano Rim on the Sheldon and 1 near Bitner Table that lies to the east of the Massacre Rim. A contract to remove lions from Units 011 and 013 was initiated and coincided with the first release in 2012. Following the December 2014 predation events, 9 lions were removed from Unit 011 between June 2015 and mid-January 2016. Lion removal continues for the protection of bighorn sheep in Units 011 and 013. Sport harvest for mountain lions also takes place throughout all Northwestern Nevada, except for Unit 033.

On January 31, 2019, 19 California bighorn sheep were captured from the Double H Mountains in Humboldt County, Nevada and released near Big Point on the Massacre Rim in Unit 011. Twelve telemetry collars were attached to adult ewes to aid biologists in monitoring the movements and survival of the newly release California bighorn sheep. All but 1 of the 13 collared California bighorn sheep appears to have remained in the general area of the release site as of late February 2019. It is hoped that the augmentation to the Massacre Rim sub-population will help the California bighorn sheep to thrive and increase in number to the point that the herd reaches a sustainable level. It will be several more years before enough older age class rams are available in the population to allow for a hunting season. Current estimates for the Massacre and Coleman Rim areas of Unit 011 following the most recent augmentation in late January 2019, is between 45 and 55 California bighorn sheep. This number can fluctuate as bighorn move back and forth between Oregon and Nevada.

### **Unit 012: Calico Mountains and High Rock Canyon; Western Humboldt and Washoe Counties** Report by: Chris Hampson

#### **Harvest Results**

All 4 of the hunters reported being successful and harvested rams aged at 3, 6, 6 and 7 years of age. The Boone and Crocket green scores for the 4 harvested rams ranged from a low of 117 inches to a high of 163.5 inches.

Large portions of this hunt unit are in designated Wilderness Areas and the remoteness of these roadless areas can make it more difficult for hunters to access some portions of the hunt unit. Some of these more remote areas are also where densities of bighorn are the highest, thus making it more challenging for hunters to locate bighorn sheep.

In 2017, hunters expended an all-time high of 10 days hunting this hunt unit. This year the average number dropped to 5.5 days and compares well with the long-term average of 5.8 days.

### **Survey Data**

Composition surveys were conducted beginning the second week of August 2018. Biologists classified a record 144 California bighorn sheep on the late summer survey. The average ratio from the sample provided a ratio of 48 rams:100 ewes:34 lambs. This compares with the 2017 survey that located 131 California bighorn sheep and had a computed composition ratio of 39 rams:100 ewes:43 lambs.

In January 2018, 12 California bighorn sheep were captured and collared on the southern half of the Calico Mountains in Unit 012. The research project was in cooperation with the Bureau of Land Management and is helping to document movement patterns and important seasonal use areas for California bighorn sheep that live on the southern half of the Calico Mountains. Monitoring of the herd will also help to identify any potential issues with bighorn being near existing domestic sheep trailing routes. Very little recent data has been collected on this herd and the information gained from this study will help managers to better understand current movements and seasonal use areas for this herd.

### **Habitat**

Significant moisture has been received throughout northwestern Nevada between January and the end of March 2019. The much-needed moisture followed a very dry summer and fall 2018. The Great Basin Outlook Report shows the Northern Great Basin which encompasses northwestern Nevada is currently sitting at between 110 and 145% of average as of March 1, 2019.

Recently, the Lost Fire burned within Units 012 and 013. The fire impacted habitat in the west central portion of the unit near Little Mahogany and Mahogany Mountains.

### **Population Status and Trend**

The recruitment rate observed this year is slightly above maintenance levels and will allow the herd to experience a static to slight increasing trend in 2019. Better moisture receipts over the past few years have generally allowed this herd to prosper. This follows many years of static to decreasing trends during the long-term drought that lasted between 2007 and 2015.

The 2018 lamb ratio of 34 lambs:100 ewes is just above maintenance level recruitment and will result in a static to slightly upward trend for this population of California bighorn sheep this year. In 2016 and 2017, the population experienced a strong increasing trend with above average lamb recruitment.

## **Unit 013: Hays Canyon Range; Washoe County** **Report by: Chris Hampson**

### **Survey Data**

Sixty-five California bighorn sheep were classified in Unit Group 011, 013 during the summer 2018. The sample provided a composition ratio of 15 rams:100 ewes:51 lambs. Surveys were conducted in the Hays Canyon Range, Massacre Rim (including on the Little Sheldon) and Coleman Rim areas in Nevada.

Lamb ratios appeared to be strong despite the dry summer but may be biased a little on the high side due to surveys taking place early in mid-summer 2018. Hence, lamb ratios may have been a bit lower than the ratio of 51 lambs:100 ewes at the end of the summer.

### **Habitat**

Habitat conditions are expected to be very good this spring and summer due to the above average precipitation received thus far during the winter of 2018-2019. The months of January through March have been extremely productive as storm front after storm front has pushed through northwestern Nevada dropping significant snowfall throughout the region. Average precipitation totals are 120+% of normal in Northwestern Nevada as of late February 2019.

### **Population Status and Trend**

Several years after a catastrophic all age, all sex, die-off of bighorn (pop estimate of 110-120 California bighorn sheep) in the Hays Canyon Range in 2007, a second attempt at establishing a California bighorn sheep population was undertaken in early 2013. Before this could happen, however, nearly 5 years of monitoring including countless aerial flights, ground surveys and trail camera monitoring of guzzlers was undertaken to locate any potential survivors from the disease event. No survivors of the disease event were discovered.

Thirty California bighorn sheep were released in January 2013 into Hays Canyon in Unit 013. A mountain lion management control project was started prior to the release to assist the bighorn sheep to once again become established in the Hays Canyon Range. Telemetry data and observations from both the ground and the air indicate that the released California bighorn sheep have become established in the release site in Hays Canyon. Movements of the California bighorn sheep have generally been within 7 miles to the north of Hays Canyon and within 2 miles south of the release site. Two of the young collared rams from the most recent release did take a 1-week long foray to the south end of the Hays Canyon Range and then continued southeast towards Wall Canyon Reservoir and Cherry Mountain. Within 1 week, the 2 rams had reversed course and returned to the release site in Hays Canyon. No other long distant forays or movements have been observed since that initial exploration.

In November 2017, five new telemetry collars were placed on California bighorn sheep in the Hays Canyon Range to help monitor survival and movement of California bighorn sheep in this herd. All five of the bighorn sheep are alive and well as of February 2019. The collars life expectancy is 3 years and the information gained will provide valuable data to help manage this California bighorn sheep population into the future.

Aerial and ground surveys showed good recruitment for this herd and current numbers in Unit 013 are estimated at between 45 and 55 animals. Mountain lion removal efforts and hunter harvest have reduced lion densities and allowed the population of bighorn to slowly increase. Four lions were removed from Unit 013 between July 1, 2017 and June 30, 2018. Hunter harvest has also taken place within the unit. It will be a few more years before enough mature rams exist in the population to once again provide additional bighorn hunting opportunity in the Hays Canyon Range of Unit 013.

## **Unit 014: Granite Range; Washoe County**

**Report by: Chris Hampson**

### **Harvest Results**

All 3 tagholders reported harvesting their rams in 2018. Ram ages were 4, 4, and 5 years of age. Hunters reported expending an average of just 4.3 days during their hunts. Boone and Crocket scores ranged from a low of 113 inches to a high of 145 3/8 inches. Two of the 3 rams were taken near Buckhorn Peak and one ram was harvested from the southern portion of the unit near Granite Peak.

**Survey Data**

The 2018 survey located similar numbers to what was classified in 2017. A total of 31 California bighorn sheep were classified with a resulting ratio of 43 rams:100 ewes:79 lambs. The sample sizes for the late summer composition survey have steadily declined over the past few years; however, during the last few weeks of October, significantly more California bighorn sheep tend to move into the Buckhorn Peak area once rutting behavior begins.

Lamb ratios appear to be strong this year for the Granite California bighorn sheep population; however, hunters continue to report having difficulty in locating mature rams. The mature rams are scattered out more than the ewe-lamb groups and can be much harder to locate.

**Habitat**

Habitat conditions are expected to be very good this coming spring and summer due to the above-average water year. As of March 1, 2019, the Northern Great Basin sits at between 110% and 145% of average for both snowfall accumulation and total precipitation. This is good news for wildlife following a drier year in 2018. Wildfires over the past decade or more have consumed considerable habitat on the mid to lower elevation slopes of the Granite Range. These fires have reduced the overall carrying capacity for all wildlife living in the range.

**Population Status and Trend**

The average lamb ratio from this year's sample was a very strong 79 lambs:100 ewes but may be skewed high due to the smaller overall sample obtained. Sample sizes from aerial surveys have decreased within the Granite Range in recent years. Hunters also continue to report having difficulty locating mature rams in this hunt unit.

Hunters report observing more sheep towards the latter portion of the hunting season as the start of the rut begins; however, where the bighorn come from is difficult to assess. Some of the rams could be moving in from adjacent Unit 012 that lies to the east of the Granite Range or from other more remote areas within the Granite Range.

Nevada Department of Wildlife began a California bighorn sheep collaring project in late 2017 through early 2019 to learn more about California bighorn sheep movements within the Granite Range. Eight California bighorn sheep were captured to help biologists better understand the connectivity of the herd to adjacent Unit 012 and to help better define seasonal use areas. The data collected will also provide biologists with important information on where there may be potential for interactions with trailing or grazing domestic animals. This new information will help managers have real time data and lead to better bighorn management into the future.

**Units 021, 022: Virginia Mountains; Washoe County  
Report by: Chris Hampson****Harvest Data**

One tagholder from each of the 2017 and 2018 hunting seasons reported being unsuccessful. They only expended 2 and 3 days each hunting bighorn during the 2-month long season. The two successful tagholders harvested rams that were aged at 6 and 8 years of age. The hunters averaged 5 days hunting and their B&C green scores were measured at 144.5 and 150.625 inches.

**Survey Data**

Composition surveys were conducted in August 2018. The resulting ratio from the small sample was 64 rams:100 ewes:27 lambs. Firefighting activities along with the fire itself helped to scatter and push California bighorn sheep away from their typical use areas.

The lamb ratios within this unit group appear to be lower this year and recent wildfires that have burned considerable amount of sheep habitat over the past few years is thought to be partially to blame.

**Habitat**

The Great Basin Outlook Report shows basins within northwestern Nevada to be above average for both total precipitation and snow water content. The significant moisture will help ensure good water availability this coming summer and help to provide bighorn with good quality forage.

Access for hunters has also been severely limited to portions of the Virginia Mountains with the closure of the Cottonwood Canyon Road by a private landowner.

In 2018, the Paiute Fire burned over 50,00 acres in the Pah Rah Mountains within the Units 021, 022. Wildfires have burned a tremendous amount of habitat over the past few years in the Virginia Mountains, Dogskin Mountains, Pah Rah Mountains, Seven Lakes Mountain, and Stateline Peak areas.

Restoration of the burned area will be conducted during the fall and winter of 2018 and 2019. Partners include Bureau of Land Management, Nevada Division of Forestry as well as other agencies and Nevada's sportsmen's groups.

**Population Status and Trend**

Over the past few years, sample sizes obtained on surveys have dropped off considerably because of the ongoing firefighting activities and the expansive amount of burned habitat. California bighorn sheep have been forced to move away from these burned areas and the activity and noise associated with fighting these fires. Following fires, bighorn will also move out into the burned areas to seek out high quality forage.

The lower lamb ratio observed on survey and the tremendous amount of habitat lost in the recent fires, may result in a more conservative approach to the population estimation process this year. The number of tags recommended for this unit may also be reduced.

**Unit 032: Pine Forest Range and McGee Mountain; Humboldt County**  
**Report by: Ed Partee****Survey Data**

In mid-August aerial surveys were conducted in Unit 032. Occupied habitat in this unit has expanded over the years and now requires additional survey time to cover the entire unit. The Pueblo Mountains and the Pine Forest Range were flown this year, while McGee Mountain was flown in conjunction with the Sheldon California bighorn sheep survey. The Pine Forest Range continues to make up the bulk of the survey for this unit. During this survey period the weather conditions were very hot with smoke in the area from existing wildland fires. During this survey 109 California bighorn sheep were classified, which is lower than the 115 classified in 2017. Fewer rams and lambs were observed in 2018. Both the total number of California bighorn sheep and the lamb ratio are down compared to the 5-year average; however, the ram ratios are right in line with the 5-year average with 54 rams:100 ewes.

**Habitat**

Habitat conditions were favorable going into the winter months. Precipitation received differed from that experienced in winter 2017-2018 with much deeper snow pack. Fires that occurred in the area last year have responded well with the rehab efforts and the amount of precipitation received. Higher elevations remain in good condition which should support bighorn sheep throughout the summer. The precipitation received in March 2019 brought the yearly total to above 115% of average.

**Population Status and Trend**

With the last few years of good recruitment into the population this population was used for a source stock for a release in the Bloody Run Mountains in Humboldt County. Disease monitoring was conducted in this unit prior to the removal of any sheep. With the removal of sheep for the translocation, we should see a productive lamb crop once again this year. The population estimate for this herd has dropped in direct relation to the removal of California bighorn sheep for the translocation. California bighorn sheep are well dispersed throughout this unit. Animals remain healthy in this population. Age distribution of rams remains stable with many age classes observed.

**Unit 033: Sheldon National Wildlife Refuge; Washoe and Humboldt Counties**

Report by: Chris Hampson

**Harvest Results**

Both hunters from the 2018 California bighorn sheep hunting season on the Sheldon were successful in harvesting a ram. The harvested rams were aged at 5 and 7 years of age and the Boone and Crockett scores were measured with green scores of 145 and 153 inches. The hunters expended 5 and 7 days hunting for their rams.

**Survey Data**

Helicopter surveys for California bighorn were conducted in August of 2018. The surveys located 74 California bighorn sheep and the sample provided a ratio of 94 rams:100 ewes:42 lambs.

The sample provided a good look at the ram age classes within the population as 29 rams were observed. Only 4 mature rams 6-years of age or older were observed but showed that good numbers of 5-year old and younger rams were present in the population. Lamb ratios have improved in recent years as more winter moisture has been received. The 42 lambs:100 ewes is strong recruitment but was 3 lambs:100 ewes lower than the 2017 sample.

Numbers of California bighorn sheep in the Alkali Peak and Hell Creek areas remain low when compared with a decade ago. Major use areas today include Guano Rim, Big Mountain and Thousand Creek Gorge. Drought conditions may have played a role in changing distribution of bighorn sheep on the Sheldon.

**Habitat**

Northwestern Nevada suffered through numerous drought years between 2007 and 2015, the Sheldon was impacted by the drought as much as any other area in northwestern Nevada. In recent years we have had a few good winters that have helped to dampen the effects of the long-term drought, but habitat conditions on the Sheldon had not fully recovered in 2018.

Summer 2018 was also one of the driest summers on record and conditions heading into fall 2018 were very dry. Fortunately, winter 2018-2019 has been above average and as of March 1, 2019 sits between 110% and 145% of average for Median Snowpack and Water Year Precipitation. The amount of water available on the upper elevation summer ranges should be much better this coming summer.

The pinyon-juniper removal projects that have been implemented by the Sheldon over the past few years will continue this coming year with additional removal efforts planned on the western portion of the Little Sheldon. There are also plans to include more tree removal work being done in the more rugged bighorn sheep habitat.

### **Population Status and Trend**

In 2018, in cooperation with the US Fish and Wildlife Service, 12 California bighorn sheep were collared on the Sheldon to learn more about movements and to determine connectivity between sub-herds. California bighorn sheep were collared in the Guano Rim, Big Mountain, and Thousand Creek Gorge areas on the Sheldon. The collaring work is in preparation for potential augmentations planned on the Sheldon.

The Sheldon California bighorn population has experienced improved recruitment rates over the past few years. Improved moisture receipts from above average winters have helped to at least partially improve conditions on the Sheldon. Improved water availability and forage has helped the herd to rebound from the very tough conditions brought on by the extended drought. The 42 lambs:100 ewes recruitment rate observed this year will allow the herd to continue an upward trend.

### **Unit 034: Black Rock Range; Humboldt County**

Report by: Ed Partee

### **Survey Data**

Surveys in this unit took place in mid-August 2018. A total of 110 animals were classified. The survey yielded a ratio of 30 rams:100 ewes:42 lambs. These ratios are both up from what was observed the previous year. Age class of rams remain well distributed in this unit. Lamb ratios observed on recent surveys may indicate an increasing trend in the population.

### **Habitat**

Habitat conditions remain favorable within this unit. The moisture received during the 2017-2018 winter has been much better than what was experienced the prior year and will result in improved forage conditions. Water and forage were abundant this year with plenty of green grass in the upper elevations. As of March 1, 2019, precipitation received was 115% of average. With better than average conditions, these herds should have good recruitment and body conditions. Feral horses competing with wildlife will continue to be an issue in this area.

Hunter access has been altered by the designation of the Black Rock-High Rock Immigrant Trail National Conservation Area (NCA) and Wilderness Areas within the NCA. The Bureau of Land Management has marked most of the restricted access points and hunters who apply for this area need to understand these restrictions. Despite access issues in this area, hunter success has been high in this unit.

### **Population Status and Trend**

Lamb ratios have increased from last year and are now slightly above the 5-year average. Over the past several years, this herd has expanded into previously unused areas. Ram age class remains well distributed with good numbers of older age class rams in the unit.

The population estimate for this herd is showing a slight increase compared to the 2018 estimate.

**Unit 035: Jackson Mountains; Humboldt County**  
**Report by: Ed Partee**

**Survey Data**

This survey was conducted in mid-August 2018 with hot and smoky conditions. Survey numbers dropped significantly with reduced survey effort expended. Only 18 California bighorn sheep were classified during this survey period. With such a low number of animals surveyed the ratios for both rams and lambs were extremely skewed.

**Habitat**

Habitat conditions for this unit looked good during survey with an above-average snow pack. Vegetation appeared to be in good condition in the upper elevations with water still available. Habitat conditions in this unit are like those throughout Humboldt County. Wildlife in this unit continue to compete with high numbers of feral horses. Favorable precipitation received during the past three years should favorably influence vegetation growth this spring.

Hunter access has been influenced by the designation of the Black Rock-High Rock Immigrant Trail National Conservation Area and Wilderness Areas (NCA). The NCA boundaries encompass bighorn sheep concentration areas of King Lear Peak and Parrot Peak. The Bureau of Land Management has marked most of the restricted access points and hunters who apply for this area need to understand these restrictions.

**Population Status and Trend**

This population has shown a steady increase over the last couple of years. In January 2019 an additional 30 animals were released into this unit in the Bloody Run Mountains. Most of the animals released were ewes except for 3 young rams. This portion of this unit will probably not have harvestable rams for several years. Within the Jackson Range, Nevada Department of Wildlife has documented movement of sheep into previously unoccupied areas. With continued precipitation and favorable forage conditions, this population should continue to increase. Ram harvest on average continues to be stable with no major changes in horn size.

The population estimate is higher than the 2018 estimate directly due to the translocation efforts in this unit.

**Unit 041: Sahwave Mountains; Pershing County**  
**Report by: Kyle Neill**

**Survey Data**

Trail cameras were placed on known use areas within the Sahwave Mountains during October 2018. Eighteen California bighorn sheep were identified. Resulting ratios were 88 rams:100 ewes:38 lambs. The 2018 recruitment rate is below the long-term mean value of 45 lambs:100 ewes.

**Population Estimate and Trend**

Monitoring data from the 5 California bighorn sheep collared in 2017 (3 ewes and 2 rams) is as follows: 2 ewes were killed by mountain lions in January and February 2018. Wildlife Services was contacted for predator control efforts as a result of these mortalities and two mountain lions were removed during 2018. The remaining collared ewe spent most of her time southeast of Juniper Mountain and in the area around Bob's Spring. Monitoring of the 2 collared rams indicates that one collar has failed, while the other collared ram spends most of its time south of Cottonwood Canyon and travelling to the area around Bob's Spring during the rut, October-November.

The Sahwave herd had demonstrated an upward population trend since 2012; however, recent increases in predation and lower-than-average recruitment rates have resulted in a static growth trend. The 2019 Unit 041 California bighorn sheep herd is estimated at 50 animals. This pioneering herd has been documented since 1990 with little or no interaction with domestic sheep. Although an augmentation would help to overcome lack of growth from predation and increase genetic diversity, it may not be possible due to the proximity of this herd to existing domestic sheep grazing permits. Periodic predator removal will be utilized in this area in response to predator-caused mortality events.

**Unit 051: Santa Rosa Range; Humboldt County**  
**Report by: Ed Partee**

**Survey Data**

This herd was not surveyed in 2018.

**Habitat**

Habitat conditions are in good condition after the last two years of moisture. As of March 1, 2019, snow pack was 141% of normal with the precipitation at 115% of normal. These values are up from last year at the same time. The upper elevations remained green throughout the year with plenty of free water available. This area should remain in good condition throughout this year.

**Population Status and Trend**

The 2019 modeled population estimate for this unit is slightly lower than the 2018 estimate, mainly due to low lamb recruitment over the past 4 years. This range now has four main areas that are surveyed. The north end, the south end, the east side or Hinkey Summit side, and now the addition of the Capitol Peak area in the Calicos are all areas that are surveyed. Continued monitoring efforts are taking place in this unit and currently there are 17 California bighorn sheep marked to follow movements and monitor lamb recruitment. This population has remained relatively constant over the last 5 years. With the lack of aerial survey in this unit last year, ground observations will be the focus with the collared animals in the coming year.

**Unit 066: Snowstorm Mountains; Western Elko County**  
**Report by: Matthew Jeffress**

**Hunt Results**

Since 2015, 1 ram tag has been offered annually. In 2015 and 2016 hunters each harvested 6.5-year-old rams. The 2017 tag holder was unsuccessful, and the 2018 tag holder harvested a 10-year-old ram.

**Survey Data**

As of spring 2019, 21 ewes, 8 lambs and about 12 rams occupy the Snowstorms. 2018 lamb production was slightly lower than expected, specifically with respect to the Kelly Creek subherd, however this could be attributed to an aging adult ewe population. A combination of marked animals well distributed throughout occupied range, weeklong summer ground surveys and a March deer survey over the Snowstorms has resulted in a reliable estimate of the current population.

**Habitat**

Above average winter snowpack forced bighorn to use lower elevation winter ranges last winter. Many of these winter ranges are comprised of rehabbed species, including non-native grasses and semi-shrubs. The

use of non-native fire tolerant species, such as forage kochia, is of benefit to bighorn in such a fire prone landscape.

Bureau of Land Management indicates a significant portion of horses occupying the area between Units 066 and 051 in the vicinity of the Dry Hills were removed following the historic 2018 Martin Fire. Many of these horses were not in an Herd Management Areas and spilled over onto the Snowstorms. In addition, horses were also gathered and removed from the Owyhee Complex last fall. The reduction of feral horses on the landscape should improve range conditions and give fire rehabbed lands time to respond. Bureau of Land Management in coordination with Nevada Department of Wildlife seeded a 5,000-acre block of land along the South Fork Little Humboldt River with wheatgrass, immigrant forage kochia and snowstorm forage kochia. The area seeded provides valuable year-round habitat for a subherd of California bighorn ewes residing along the lower reaches of the South Fork Little Humboldt River.

Mining exploration on and around the Snowstorms has increased the past few years. A new road was created to facilitate exploration in a previously unroaded area on the southwest portion of the Owyhee Bluffs. Plans for future drilling are currently unknown.

### **Population Status and Trend**

Spring and summer lamb surveys conducted on the Snowstorms last year indicate the removal of super-shedder ewes (*M. ovi* positive ewes) seems to have improved lamb recruitment again for a second year. As of early 2019, there are 8 lambs and 21 ewes in 3 sub-herds on the Snowstorms. Six of the 21 ewes are yearling ewes that had not had lambs in 2018. The 8 lambs and 15 adult ewes represent a lamb to adult ewe ratio of 53:100. While the increased lamb ratio is favorable, increased recruitment must be observed over a series of years to document the efficacy of removing *Mycoplasma ovipneumoniae* (*M. ovi.*) carrier ewes.

## **Unit 068: Sheep Creek; Northern Lander and Eureka Counties**

Report by: Jeremy Lutz

### **Hunt Results**

All 6 of the 2018 California ram tag holders in the Sheep Creeks were successful harvesting a ram. Additionally, a California Bighorn Sheep Heritage tag holder harvested a ram in Unit 068 this past year. The average age of harvested rams was 7 years and the average unofficial score was 152 inches. Both harvest metrics reflect an increase over 2017. One of 2 ewe tag holders harvested in 2018 as well.

### **Survey Data**

The most recent aerial California bighorn sheep composition survey to take place in Unit 068 occurred on July 26, 2018. During that survey, a total of 108 California bighorn sheep were classified as 27 rams, 54 ewes and 27 lambs. The observed lamb ratio of 50 lambs:100 ewes is above average

### **Habitat**

In July 2017, a lightning-caused fire started on the north end of the Sheep Creeks and in 4 days the Roosters Fire consumed over 200,000 acres, burning over 75% of the known California bighorn sheep habitat in the Sheep Creeks. The fire was stopped around Battle Creek but burned everything to the east along the north facing rim as well as 90% of the Rock Creek Gorge and Black Mountain. This area typically held most of this population and was classified as year-round habitat. Both big game guzzlers were burnt over but were modified after the fire to function and provide water until they could be rebuilt. By fall both units were rebuilt and fully functional.

In July 2018, another fire occurred in the Sheep Creeks, primarily burning along the top and western edge of the range, however a portion of the fire burned in the Battle Creek area on the east side in a very

important sheep use area. These reoccurring fires continue to impact not only year-round sheep habitat, but also seasonal antelope habitat and crucial mule deer habitat.

**Population Status and Trend**

Since 2012, the Nevada Department of Wildlife has actively managed this herd through relocation efforts and ewe harvest to maintain the population within sustainable management levels. As this herd has expanded, California bighorn sheep have shown an increased propensity to wander, drifting north towards a domestic sheep trailing route. Maintaining this herd at current levels is important in order to reduce the risk associated with these movements. Additionally, the area serves as crucial winter range for hundreds of deer, as well as providing important seasonal habitat for antelope, elk, and livestock.

## ROCKY MOUNTAIN BIGHORN SHEEP

### Unit 074: The Badlands; Elko County

Report by: Kari Huebner

#### Harvest Results

Due to a disease event that occurred in 2014, the hunting season has been closed in this unit since 2015. Currently, the herd appears to be recovering, so one ram tag will be offered for the 2019 hunting season.

#### Survey Data

In March 2019, in conjunction with aerial spring deer surveys, 18 Rock Mountain bighorn were classified as 9 rams, 5 ewes, and 4 lambs. Three of the rams observed were yearlings further indicating recent increases in recruitment.

#### Habitat

An environmental assessment is being analyzed by the Bureau of Land Management Wells Field Office for many vegetation treatments within this unit group. Once the environmental assessment is completed, possible treatments may include herbicide application where necessary, and creating fuel breaks with the intent of reducing large acreage wildfires. All treatments should increase the health of the sagebrush ecosystem. The environmental assessment is expected to be completed by summer 2019.

#### Population Status and Trend

This herd experienced an all age die-off during fall 2014. Necropsies found bighorn sheep to be suffering from severe chronic pneumonia. One ewe tested positive for *Mycoplasma ovipneumoniae* (*M. ovi.*) for both blood antibodies and presence of the organism on Polymerase Chain Reaction (PCR).

Targeted mountain lion removal is ongoing in this area. Five additional Rocky Mountain bighorn sheep (4 ewes and 1 ram) were collared in October 2017 to aid in bighorn sheep distribution mapping and to identify areas for mountain lion removal. Three male lions have been removed since the initiation of the project. One collared ewe appeared to have died from mountain lion predation in mid-October 2016. No predator related deaths were documented in 2018.

The disease event seems to have subsided as lamb survival continues to increase and younger age classes have been documented throughout the herd.

### Unit 091: Pilot Range; Elko County

Report by: Kari Huebner

#### Harvest Results

One Utah resident tag was offered in this unit for the 2018 season. The hunter was successful in harvesting a 9-year-old ram. One tag will be offered to a Nevada resident for the 2019 hunting season.

#### Survey Data

An aerial survey was conducted in August 2018 and 35 Rocky Mountain bighorn were classified as 1 ram, 29 ewes, and 5 lambs. Several other rams were observed through use of motion cameras on water sources.

**Habitat**

The construction of an artificial water development was recently completed on the mid elevation slopes of Pilot Mountain. The placement of the unit at mid slope, rather than the lower elevation benches, is intended to reduce the probability that Rocky Mountain bighorn sheep may come into contact with domestic sheep that use the valley. There are active domestic sheep allotments and trailing routes on the east side of Pilot and in the Leppy Hills, so the risk of disease transmission remains high.

**Population Status and Trend**

In 2010, the presence of bacterial pneumonia was documented in the population. The disease event severely affected lamb survival. There are currently believed to be about 40-45 Rocky Mountain bighorn sheep in the population.

In 2012, 3 Rocky Mountain bighorn sheep (2 ewes and 1 ram) were radio collared with the objectives of learning more about movement patterns and potential contact with domestic sheep. The 2 ewes moved little from where they were first captured. One of the ewes spent her time exclusively in the Silver Islands which is where an active winter allotment of domestic sheep is located. Two satellite collars were deployed on the young ram, but both failed, so little information was obtained from that animal. Rocky Mountain Bighorn sheep tested during the collaring operation all had antibodies for *Mycoplasma ovipneumoniae* (*M. ovi.*) and 1 was still actively shedding the organism. Even though lamb recruitment is slowly increasing, this herd is continuously at risk.

**Unit 101: East Humboldt Range; Elko County**

Report by: Scott Roberts

**Hunt Results**

In the winter of 2009-2010, a pneumonia outbreak occurred in the Unit 101 Rocky Mountain bighorn sheep herd resulting in an estimated 90% mortality. No tags have been issued for Unit 101 since the 2009 season.

**Survey Data**

Following the 2009-2010 pneumonia outbreak, comprehensive aerial and ground surveys have been conducted annually. In January 2019, an aerial survey classified 20 sheep consisting of 3 rams ( $\leq 4$  years of age), 11 ewes, and 6 lambs.

**Weather and Habitat**

The winter of 2018-2019 was above average in all respects with April 1, 2019 local water basin reports showing 127-134% of average for total precipitation and 153-178% of median for present snowpack. The snowpack conditions should sustain favorable conditions throughout the coming summer. The small overall population and the abundance of available resources should minimize competition for forage resources in the future.

**Population Status and Trend**

Monitoring suggests mortality rates attributable to the pneumonia outbreak were about 90% across all age classes. This was the first measurable disease event in Unit 101 since the sheep were released in 1992. During the 1995-1996 winter, the adjacent Rocky Mountain bighorn sheep population in Unit 102 experienced considerable loss from a similar pneumonic die-off. The Unit 101 herd had been showing a strong growth trend from the original 31 animals released in 1992 to an estimated 180 animals in the fall 2009. By 2012, the herd had dropped to 15 individuals consisting of 4 rams, 10 ewes and 1 lamb. The Nevada Department of Wildlife removed the remaining 15 sheep from Unit 101, transplanting the 10 ewes and 1 lamb to Unit 102 and taking the rams to Washington for disease research at the Washington Animal Disease Laboratory.

After removing the remaining diseased sheep in 2012, the Nevada Department of Wildlife waited a year to bring in other Rocky Mountain bighorn sheep. In 2013, the Nevada Department of Wildlife reintroduced 20 sheep from Alberta, Canada into Unit 101. The complement of sheep included 17 pregnant ewes, and 3 rams. From 2013 to fall 2015, the Rocky Mountain bighorn sheep herd grew to about 42 animals. During late-fall 2014 and early winter 2015, the Rocky Mountain bighorn sheep again suffered a pneumonic disease event involving a new disease “spillover” of *Mycoplasma ovipneumoniae* (*M. ovi.*), potentially transmitted from the extant, sympatric mountain goat herd. Since that time, the herd has stabilized around 20 animals. Winter observations of lamb recruitment the past 2 years have been positive with a lamb ratio of at least 30:100 ewes.

In March 2019, 8 satellite collars were deployed on adult ewes found utilizing the historic winter range on the north end of Unit 101. The objective of the project is to sample the pathogens present in the individual sheep and potentially remove any individuals that are chronically shedding. This project is designed to work in tandem with the continued sampling and collaring effort of the Unit 101 mountain goats.

## **Unit 102: Ruby Mountains; Elko County**

**Report by: Scott Roberts**

### **Tag Quotas and Harvest Results**

In the winter of 2009-2010, a pneumonia outbreak occurred in Unit 102 bighorn sheep resulting in an estimated 90% mortality. No tags have been issued for Unit 102 since the 2009 season.

### **Survey Data**

Following the 2009-2010 pneumonia event, comprehensive aerial and ground surveys have been conducted annually. In concert with the unit’s aerial mountain goat survey in January 2019, 27 Rocky Mountain bighorn sheep were classified yielding age and sex ratios of 58 rams:100 ewes:67 lambs. This is the largest sample obtained since the die-off.

### **Weather and Habitat**

On September 30, 2018 the Range 2 Fire burned 9,200 acres of high quality habitat in Seitz and Lamoille Canyons of Unit 102. This fire negatively impacted a high percentage of the historical winter range for this herd. Winter observations did not indicate a change in sheep use, with most sightings being within or adjacent to the burned area. In February, Nevada Department of Wildlife, the US Forest Service, and private individuals partnered to aerially seed a majority of the resulting burn scar with a mix of native shrubs, grasses, and forbs. There is great optimism for the success of this project considering the above average snow loads received following the seeding.

### **Population Status and Trend**

Prior to the winter of 2009-2010, the Rocky Mountain bighorn sheep population in the Rubies was recovering from a die-off that occurred in 1996. Monitoring of the 2009-2010 disease event suggested mortality rates attributable to the pneumonia outbreak were 90% across all age classes. In 2012, 10 ewes and 1 lamb were transplanted from adjacent Unit 101 into Lamoille Canyon. At that time the sheep from both the Ruby Mountains and the East Humboldt Range shared the same pathogen profile, so there was very little risk in moving the Rocky Mountain bighorn sheep from Unit 101. Between 2013 and 2015, the sheep herd remained stable to declining and lamb recruitment varied from low to maintenance levels. Starting in 2015 this herd began exhibiting high lamb recruitment (>67 lambs:100 ewes). The strong lamb ratios are encouraging, but herd growth has been limited as many of the older-aged ewes that made it through the initial die-off are dying of old age.

## **Unit 114: North Snake Range - Mount Moriah; Eastern White Pine County**

Report by: Kody Menghini

### **Hunt Results**

In 2017, the Rocky Mountain bighorn season in Unit 114 was split into an early and late season. A quota of 2 tags was established for each season in 2018. Even though all 4 tag holders were successful in 2018, this hunt continues to be physically and mentally demanding. Access to the Mount Moriah Wilderness area is challenging and rams are difficult to locate due to extensive tree cover.

### **Survey Data**

Aerial herd composition surveys were conducted in February 2019 and resulted in the classification of 54 Rocky Mountain bighorn sheep. The observed sex and age ratios were 37 rams:100 ewes:43 lambs.

### **Weather and Habitat**

The National Weather Service recorded 80% of normal precipitation at the Ely Airport for the 2018 calendar-year. Overall, 2018 was warm and dry. The winter of 2018-2019 has been cool and snowy. The National Weather Service recorded 149% of normal precipitation at the Ely Airport from December 2018 to February 2019. At the timing of this writing, the spring continues to be cool and wet. Habitat conditions should greatly improve in 2019.

Dense mixed conifer and mountain mahogany effectively separate seasonal ranges in much of the area presently occupied by bighorn sheep. In July 2014, the Hampton Fire burned about 12,500 acres at mid-elevation in dense trees. There was massive erosion in August and September 2014 due to heavy monsoonal rains falling on bare soil. Vegetation response to the fire has varied with areas that had less tree cover pre-burn responding well with native bunch grasses and forbs, while other areas are dominated by cheatgrass. Locations that had heavy tree cover prior to the fire resulted in a hot burn that sterilized the soil. Overall, the Hampton Fire should benefit bighorn sheep.

### **Population Status and Trend**

The above average lamb recruitment resulted in a slight population increase with a current estimate of 90 Rocky Mountain bighorn sheep. Two ewes were observed with orange ear tags on survey. These ewes were released in 2006 when the Unit 114 population was augmented with Rocky Mountain bighorn sheep from Unit 101.

## **Unit 115: South Snake Range - Mount Wheeler: Eastern White Pine County**

Report by: Kody Menghini

### **Hunt Results**

In 2018, 1 tag was available for the seventh consecutive year. The hunter harvested a seven-year-old ram.

### **Survey Data**

Aerial herd composition surveys were conducted in February 2019. During the survey biologists classified 18 bighorn sheep with sex and age ratios of 129 rams:100 ewes:29 lambs.

### **Weather and Habitat**

The National Weather Service recorded 80% of normal precipitation at the Ely Airport for the 2018 calendar-year. Overall, 2018 was warm and dry. The winter of 2018-19 has been cool and snowy. The National Weather

Service recorded 149% of normal precipitation at the Ely Airport from December 2018 to February 2019. Spring 2019 continues to be cool and wet. Habitat conditions should greatly improve in 2019.

Continued long-term habitat limitations exist in this unit because dense mixed conifer and mountain mahogany effectively separate seasonal bighorn sheep ranges. Pinyon-juniper trees dominate much of the lower elevations that bighorn sheep use during late-winter and spring which reduces forage availability.

**Population Status and Trend**

A December 20 through February 20 season was established to allow the tag holder to pursue rams outside of Great Basin National Park boundary when they descend from higher elevations in late winter. This Rocky Mountain bighorn sheep population is increasing with a population estimate of 50 Rocky Mountain bighorn sheep.

# MOUNTAIN GOAT

**Unit 101: East Humboldt Mountains; Elko County**

**Unit 102: Ruby Mountains; Elko County**

**Unit 103: South Ruby Mountains; Elko and White Pine Counties**

**Report by: Scott Roberts**

## Hunt Results

Between 2010 and 2013, a conservative mountain goat quota had been recommended due to the uncertainty of pneumonia-related mountain goat mortalities in Units 101 and 102 that share summer range and partial winter range with bighorn sheep. More recently, after further assessing survey and harvest data post-die-off, there is greater confidence in adult survival rates for Unit 102 to support a slight increase in tags. In contrast, Unit 101 mountain goat herd still struggles with pathogens and subsequent decreases in annual survival rates.

All 8 tag holders hunted during the 2018 season, of which 2 were unsuccessful. Of the 6 mountain goats harvested 2 (33%) were nannies. The average age of all harvested mountain goats was 6.5 years old. Nanny harvest continues to be closely monitored due to the naturally low productivity potential of mountain goats. To curtail nanny harvest, the Nevada Department of Wildlife has posted a mandatory Mountain Goat Hunting Orientation document to its website to aid hunters in identifying the gender of mountain goats in the field.

## Survey Data

Aerial mountain goat surveys were conducted in Units 101-103 in January 2019. The survey classified 45 mountain goats in Unit 101 resulting in an observed ratio of 15 kids:100 adults. The northeast portion of the unit was not flown due to windy conditions, and it is presumed that several mountain goats were inhabiting this portion of the range at the time of the survey. The survey classified 92 mountain goats in Unit 102 resulting in an observed ratio of 23 kids:100 adults. Much of the east side of the range was not flown due to high winds, an area that has historically held concentrations of goats. The survey classified 22 mountain goats in Unit 103 resulting in an observed ratio of 10 kids:100 adults. Icy conditions made tracking very difficult during the survey, leading to the entire Unit 103 sample coming from one group except for a lone male.

## Weather and Habitat

Snow fields that accumulate during the winter and then recede slowly throughout the summer months sustain preferred forage for goats. The winter of 2018-2019 was above average in all respects with April 1, 2019 local water basin reports showing 127-134% of average for total precipitation and 153-178% of median snowpack levels. The snowpack conditions should translate into favorable summertime conditions for all 3 units.

On September 30, 2018 the Range 2 Fire burnt 9,200 acres of high-quality habitat in Seitz and Lamoille Canyons of Unit 102. Five days prior to the fire 4 different groups of mountain goats were observed in the eventual burn scar. The effects of the fire were presumably most pronounced the day of, as escape was improbable due to the incredible speed with which the fire moved and intense amount of smoke it produced. In February, Nevada Department of Wildlife, US Forest Service, and private individuals partnered to aerially seed most of the resulting burn scar with a mix of native shrubs, grasses, and forbs. There is great optimism for the success of this project considering the above average snow loads received following the seeding.

### **Population Status and Trend**

For the second year in a row the kid ratio in Unit 101 leaves room for optimism but the herd will still need to overcome the previous 8 years of observed kid ratios that ranged from 0-17 kids:100 adults. More years of elevated recruitment are needed to curtail the long-term population contraction and to maintain the minimal tag quota for Unit 101. In an effort to document the pathogen profile of individual mountain goats and potentially remove those individuals that are chronic shedders, a collaring/sampling project was initiated in the 2018-2019 winter. Twelve collars were purchased for the project but logistical constraints with capture crews and numerous weather events led to only one of the collars being deployed. The remaining collars are projected to be deployed on adult mountain goats in Unit 101 in the winter 2019-2020. The herds in both Unit 102 and Unit 103 continue to recruit at adequate levels to maintain relatively stable herds.

## BLACK BEAR

### Western Region

Report by: Carl Lackey

The cumulative number of black bears captured or handled from 1997 through the end of 2018 is 1,617 bears (Table 1). All bears are marked with permanently identifying individual ear tags, tattoos, or PIT tags prior to release. To date Nevada Department of Wildlife has permanently marked 575 individual bears.

Table 1: Bears handled in the Western Region, 2009–2018.

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Bears handled	40	78	78	83	97	143	122	71	89	120
Cumulative total <sup>a</sup> (since 1997)	735	813	891	974	1071	1214	1336	1407	1496	1616

<sup>a</sup> Includes recaptured bears previously handled and marked in the same or preceding years.

### Harvest Analysis

Since the inception of the hunt, season structure has varied little with minor changes in season length. The 2018 season was open from September 15 to December 1 (78 days). The harvest limits established by the Wildlife Commission have remained at 20 bears each year. Harvest limits have been apportioned to subsets of open units, and female harvest limits have been added. In 2018 the Commission increased the number of tags to resident and non-resident hunters to 45 and 5, respectively. Applications for these tags have increased each year (Table 2).

Table 2: Applications received for Black Bear Tags 2011-2018.

Year	2011	2012	2013	2014	2015	2016	2017	2018
Applications	1,113	1,719	1,972	2,090	2,293	2,457	2,546	2,828
Bonus Point Only	129	568	708	939	1,182	1,387	1,592	2,301
Total Applications	1,242	2,287	2,680	3,029	3,475	3,844	4,138	5,129

Nevada Department of Wildlife's Black Bear Management Plan specifies harvest data will be analyzed annually and include harvest data from the most recent 3 years. Nevada Department of Wildlife uses mark-recapture analyses to determine population size and trend, which supports hunter harvest data. The analyses allow Nevada Department of Wildlife to evaluate various demographics of the bear population and to detect substantive changes in vital rates that may warrant a change in the bear hunt strategy.

All successful hunters are required to personally check the hide and skull of harvested bears with a Department representative. Of the 109 successful hunters to date; 89% saved the bear meat, 22% were guided by professional guides, 6% were nonresident hunters, and 71% used hounds to harvest. To date, bears have been treed and selectively not harvested on 149 occasions. The hunter success rate was 26% in 2018, which is just below the long-term average of 29%.

The overall harvest of 14 bears in 2018 represents roughly 2 percent of the total estimated population. The three-year harvest data indicate light harvest when considering age cohorts in the harvest. The percent of female bears in the harvest was 21%, which decreased for the second consecutive year (Table 3). Fifty-two percent (57 of 109) of the bears killed during the 8 years of the hunt have been harvested in Unit 291. In 2017, open units were classified into 3 unit groups, each with a separate female harvest and total harvest limit to distribute harvest. Unique units included: 192, 194, 196 and 195; 201, 202, 204 and 206; and with Unit 291 as a single unit. Unit 203 was added to Unit 291 in 2018. The season structure,

individual harvest limits, and instructions to hunters at the indoctrination courses seems to have reduced female harvest the last 2 years (Table 3). Area 19 (Units 192, 194, 195, and 196) had a total harvest limit of 6 with a female harvest limit of 3. The harvest limits for Areas 20 (Units 201, 202, 204, and 206) and 29 (Units 291 and 203) were set at 6 total and 2 female and 8 total and 3 female, respectively. Considering the current population estimates, these are very conservative harvest limits.

Table 3: Hunter harvest data 2012-2018.

Data from all successful hunters	2012	2013	2014	2015	2016	2017	2018	Last 3 years	3 yr Harvest criteria indicator	All Years
Male bears killed	10	10	12	8	5	9	11	25		74
Female bears killed	1	4	6	6	6	4	3	13		35
<i>% females in harvest</i>	<b>9%</b>	<b>29%</b>	<b>33%</b>	<b>43%</b>	<b>55%</b>	<b>31%</b>	<b>21%</b>	<b>34%</b>	<i>Stable harvest</i>	<b>32%</b>
<i>Mean age males (years)</i>	<b>5.1</b>	<b>4.7</b>	<b>6.3</b>	<b>6.8</b>	<b>9.4</b>	<b>4.9</b>	<b>6.5</b>	<b>6.1</b>	<i>Light harvest</i>	<b>6.0</b>
<i>Mean age females (years)</i>	<b>9.0</b>	<b>5.8</b>	<b>9.3</b>	<b>4.8</b>	<b>7.0</b>	<b>7.8</b>	<b>5.0</b>	<b>6.3</b>	<i>Light Harvest</i>	<b>6.5</b>
Mean age all (years)	5.5	5.0	7.9	5.9	8.1	5.8	6.1	6.2		6.2
Male:female ratio	10.0	2.5	2.0	1.3	0.8	2.3	3.7	1.9		2.1
Hunter success rate	24%	31%	40%	31%	24%	26%	28%	26%		29%
Average days hunted	8.7	8.4	5.1	6.7	8.8	5.2	8.8	7.6		7.4
Average days scouted	2.1	4.0	2.9	2.5	4.3	7.5	4.6	5.5		4.3
Hunt Method:										
Dogs	7	8	13	9	8	9	11	28		77
Other	4	6	5	5	3	4	3	10		32

### Status

The modeled statewide population estimate of black bears is 600-700 adults ( $\geq 18$  months). The most recent MARK analysis completed by the University of Nevada, Reno concluded that the bear population in Areas 19 and 29, which include the Carson Range and Pine Nut Mountains, has stabilized at about 400-450. Additional viable populations of black bears exist in the Pine Grove Hills, Wassuk Range, Sweetwater Mountains, East Walker River area, and likely the Virginia Mountains and the Excelsior Range but at lower densities. Random sightings and captures in historical habitat throughout the state have been documented and these instances are increasing. A single bear was reported in Hays Canyon, Washoe County, and a sow with three cubs was reported near Jacks Peak in the Independence Range of Elko County. One can conclude from these analyses and long-term trends in the data set, along with empirical data collected from captured bears, sightings, and mortalities, that Nevada's black bear population is stable to slightly increasing. The growth has been slowing the last few years, possibly indicating biological carrying capacity has been reached in western Nevada.

# APPENDIX

## Harvest, Survey, and Population Tables





## **APPENDIX - TABLE OF CONTENTS**

### **Harvest, Survey, and Population Tables**

TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP (ORDERED ALPHABETICALLY BY SPECIES).....	1
TABLE 2. 2018 MULE DEER POINT CLASS BY UNIT GROUP .....	31
TABLE 3. % FOUR-POINT OR GREATER MULE DEER HARVEST BY UNIT GROUP, 2008 - 2018 .....	32
TABLE 4. 2018 PRONGHORN HARVEST COMPOSITION BY UNIT GROUP .....	33
TABLE 5. PRONGHORN HORN TRENDS - % OF BUCKS 15+ INCHES BY UNIT GROUP, 2010 - 2018 .....	34
TABLE 6. 2018 ELK HARVEST COMPOSITION BY UNIT GROUP.....	35
TABLE 7. ELK 2018 ANTLER LENGTH BY UNIT GROUP .....	36
TABLE 8. ELK 2018 COMPOSITION OF 50-IN BEAMS IN HARVEST 2009 - 2018 .....	37
TABLE 9. BIGHORN SHEEP RAM HARVEST HISTORY .....	38
TABLE 10. BIGHORN SHEEP RAM HARVEST AVERAGE AGE TRENDS, 2010 - 2018 .....	42
TABLE 11. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2003 - 2018 .....	44
TABLE 12. 2018 BLACK BEAR DRAW AND HUNT RESULTS.....	46
TABLE 13. FALL 2018 AND SPRING 2019 MULE DEER SURVEY COMPOSITION.....	47
TABLE 14. LATE SUMMER/FALL/WINTER 2018 PRONGHORN SURVEY COMPOSITION .....	48
TABLE 15. LATE SUMMER/FALL 2018 DESERT BIGHORN SHEEP SURVEY COMPOSITION.....	49
TABLE 16. LATE SUMMER/FALL 2018 CALIFORNIA BIGHORN SHEEP SURVEY COMPOSITION .....	50
TABLE 17. SUMMER/WINTER/EARLY SPRING 2018 - 2019 ROCKY MOUNTAIN BIGHORN SHEEP SURVEY COMPOSITION .....	50
TABLE 18. JANUARY 2019 MOUNTAIN GOAT SURVEY COMPOSITION .....	51
TABLE 19. WINTER 2018 - 2019 ROCKY MOUNTAIN ELK SURVEY COMPOSITION.....	51
TABLE 20. 2019 MULE DEER POPULATION ESTIMATES .....	52
TABLE 21. 2019 ROCKY MOUNTAIN ELK POPULATION ESTIMATES.....	53
TABLE 22. 2019 PRONGHORN POPULATION ESTIMATES .....	54
TABLE 23. 2019 DESERT BIGHORN POPULATION ESTIMATES .....	55
TABLE 24. 2019 CALIFORNIA BIGHORN POPULATION ESTIMATES .....	56
TABLE 25. 2019 ROCKY MOUNTAIN BIGHORN POPULATION ESTIMATES.....	56
TABLE 26. 2019 ROCKY MOUNTAIN GOAT POPULATION ESTIMATES .....	56
TABLE 27. BIG GAME POPULATION ESTIMATE HISTORY, 1985 - 2019 .....	57
TABLE 28. BIG GAME TAG SALES AND HARVEST HISTORY BY SPECIES, 1988 - 2018 .....	58
TABLE 29. MOUNTAIN LION TAG SALES, SPORT HARVEST, HUNTER SUCCESS, 1980 - 2018.....	59
TABLE 30. NEVADA MOUNTAIN LION DEPREDATION HARVEST.....	60



**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Antelope Horns Longer Than Ears	Antelope	ALW	011	Aug 22 - Sep 7	437	70	64	44	16%	98%	70%		23%
Res Antelope Horns Longer Than Ears	Antelope	ALW	012 - 014	Aug 22 - Sep 7	1,080	140	130	100	13%	95%	81%		27%
Res Antelope Horns Longer Than Ears	Antelope	ALW	015	Aug 22 - Sep 7	506	65	64	47	13%	97%	76%		43%
Res Antelope Horns Longer Than Ears	Antelope	ALW	021 - 022	Aug 22 - Sep 7	1,597	45	37	31	3%	95%	89%		40%
Res Antelope Horns Longer Than Ears	Antelope	ALW	031	Aug 22 - Sep 7	545	120	113	56	22%	97%	51%		35%
Res Antelope Horns Longer Than Ears	Antelope	ALW	032, 034	Aug 22 - Sep 7	419	85	75	44	20%	99%	59%		20%
Res Antelope Horns Longer Than Ears	Antelope	ALW	033	Aug 29 - Sep 7	161	35	33	28	22%	100%	85%		50%
Res Antelope Horns Longer Than Ears	Antelope	ALW	033	Aug 22 - Aug 28	441	35	30	22	8%	97%	76%		41%
Res Antelope Horns Longer Than Ears	Antelope	ALW	035	Aug 22 - Sep 7	219	35	32	21	16%	100%	66%		5%
Res Antelope Horns Longer Than Ears	Antelope	ALW	041 - 042	Aug 29 - Sep 7	261	70	65	52	27%	98%	81%		13%
Res Antelope Horns Longer Than Ears	Antelope	ALW	041 - 042	Aug 22 - Aug 28	974	70	65	48	7%	97%	76%		44%
Res Antelope Horns Longer Than Ears	Antelope	ALW	043 - 046	Aug 22 - Sep 7	333	55	52	48	17%	98%	94%		31%
Res Antelope Horns Longer Than Ears	Antelope	ALW	051	Aug 22 - Sep 7	342	30	30	16	9%	100%	53%		44%
Res Antelope Horns Longer Than Ears	Antelope	ALW	061 - 062, 064, 071, 073	Aug 22 - Sep 7	1,241	180	173	135	15%	97%	81%		27%
Res Antelope Horns Longer Than Ears	Antelope	ALW	065, 142, 144	Aug 22 - Sep 7	427	60	60	50	14%	98%	85%		20%
Res Antelope Horns Longer Than Ears	Antelope	ALW	066	Aug 22 - Sep 7	143	35	33	24	24%	100%	73%		42%
Res Antelope Horns Longer Than Ears	Antelope	ALW	067 - 068	Aug 22 - Sep 7	553	110	105	80	20%	99%	77%		36%
Res Antelope Horns Longer Than Ears	Antelope	ALW	072, 074 - 075	Aug 22 - Sep 7	502	70	68	59	14%	99%	88%		22%
Res Antelope Horns Longer Than Ears	Antelope	ALW	076 - 077, 079, 081, 091	Aug 22 - Sep 7	647	50	41	34	8%	98%	85%		64%
Res Antelope Horns Longer Than Ears	Antelope	ALW	078, 105 - 107, 121	Aug 22 - Sep 7	448	110	107	93	25%	97%	89%		39%
Res Antelope Horns Longer Than Ears	Antelope	ALW	101 - 104, 108 - 109, 144	Aug 22 - Sep 7	442	90	88	74	20%	99%	85%		34%
Res Antelope Horns Longer Than Ears	Antelope	ALW	111 - 114	Aug 22 - Sep 7	860	200	197	143	23%	97%	75%		12%
Res Antelope Horns Longer Than Ears	Antelope	ALW	115, 231, 242	Aug 22 - Sep 7	334	40	38	30	12%	97%	81%		24%
Res Antelope Horns Longer Than Ears	Antelope	ALW	131, 145, 163 - 164	Aug 22 - Sep 7	477	75	72	58	16%	97%	83%		24%
Res Antelope Horns Longer Than Ears	Antelope	ALW	132 - 134, 245	Aug 22 - Sep 7	526	40	37	35	8%	100%	95%		37%
Res Antelope Horns Longer Than Ears	Antelope	ALW	141, 143, 151 - 156	Aug 22 - Sep 7	940	200	197	155	21%	99%	79%		27%
Res Antelope Horns Longer Than Ears	Antelope	ALW	161 - 162	Aug 22 - Sep 7	362	30	28	25	8%	100%	89%		21%
Res Antelope Horns Longer Than Ears	Antelope	ALW	171 - 173	Aug 22 - Sep 7	173	25	24	21	14%	96%	91%		33%
Res Antelope Horns Longer Than Ears	Antelope	ALW	181 - 184	Aug 22 - Sep 7	407	45	43	37	11%	100%	86%		32%
Res Antelope Horns Longer Than Ears	Antelope	ALW	202, 204	Oct 15 - Oct 30	97	4	3	2	4%	100%	67%		100%
Res Antelope Horns Longer Than Ears	Antelope	ALW	203, 291	Aug 22 - Sep 7	43	7	7	6	16%	86%	100%		0%
Res Antelope Horns Longer Than Ears	Antelope	ALW	205 - 208	Aug 22 - Sep 7	128	25	25	23	20%	100%	92%		22%
Res Antelope Horns Longer Than Ears	Antelope	ALW	211 - 213	Aug 22 - Sep 7	44	8	8	5	18%	100%	63%		0%
Res Antelope Horns Longer Than Ears	Antelope	ALW	221 - 223, 241	Aug 22 - Sep 7	433	35	29	18	8%	100%	62%		17%
Res Antelope Horns Longer Than Ears	Antelope	ALW	251	Aug 22 - Sep 7	420	25	24	23	6%	96%	100%		48%

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Antelope Horns Longer Than Ears	Antelope	AR	011	Aug 1 - Aug 21	58	20	17	5	34%	82%	36%		0%
Res Antelope Horns Longer Than Ears	Antelope	AR	012 - 014	Aug 1 - Aug 21	106	35	27	15	33%	96%	58%		54%
Res Antelope Horns Longer Than Ears	Antelope	AR	015	Aug 1 - Aug 21	47	15	13	3	32%	100%	23%		0%
Res Antelope Horns Longer Than Ears	Antelope	AR	021 - 022	Aug 1 - Aug 21	90	5	4	2	6%	100%	50%		50%
Res Antelope Horns Longer Than Ears	Antelope	AR	031	Aug 1 - Aug 21	32	6	4	1	19%	100%	25%		0%
Res Antelope Horns Longer Than Ears	Antelope	AR	032, 034	Aug 1 - Aug 21	44	30	24	5	68%	92%	23%		20%
Res Antelope Horns Longer Than Ears	Antelope	AR	033	Aug 1 - Aug 21	41	6	6	2	15%	100%	33%		50%
Res Antelope Horns Longer Than Ears	Antelope	AR	035	Aug 1 - Aug 21	22	6	6	3	27%	100%	50%		67%
Res Antelope Horns Longer Than Ears	Antelope	AR	041 - 042	Aug 1 - Aug 21	92	10	7	4	11%	100%	57%		0%
Res Antelope Horns Longer Than Ears	Antelope	AR	043 - 046	Aug 1 - Aug 21	32	20	15	4	63%	100%	27%		50%
Res Antelope Horns Longer Than Ears	Antelope	AR	051	Aug 1 - Aug 21	36	20	16	3	56%	88%	21%		0%
Res Antelope Horns Longer Than Ears	Antelope	AR	061 - 062, 064, 071, 073	Aug 1 - Aug 21	80	55	50	11	69%	98%	22%		55%
Res Antelope Horns Longer Than Ears	Antelope	AR	065, 142, 144	Aug 1 - Aug 21	36	30	26	10	83%	100%	38%		30%
Res Antelope Horns Longer Than Ears	Antelope	AR	066	Aug 1 - Aug 21	12	10	7	2	83%	100%	29%		0%
Res Antelope Horns Longer Than Ears	Antelope	AR	067 - 068	Aug 1 - Aug 21	36	30	25	2	83%	100%	8%		50%
Res Antelope Horns Longer Than Ears	Antelope	AR	072, 074 - 075	Aug 1 - Aug 21	45	25	22	6	56%	100%	27%		17%
Res Antelope Horns Longer Than Ears	Antelope	AR	076 - 077, 079, 081, 091	Aug 1 - Aug 21	31	8	4		26%	100%	0%		
Res Antelope Horns Longer Than Ears	Antelope	AR	078, 105 - 107, 121	Aug 1 - Aug 21	24	10	9	6	42%	100%	67%		17%
Res Antelope Horns Longer Than Ears	Antelope	AR	101 - 104, 108 - 109, 144	Aug 1 - Aug 21	40	20	18	8	50%	94%	47%		13%
Res Antelope Horns Longer Than Ears	Antelope	AR	111 - 114	Aug 1 - Aug 21	84	45	41	10	54%	98%	25%		27%
Res Antelope Horns Longer Than Ears	Antelope	AR	115, 231, 242	Aug 1 - Aug 14	41	8	6	2	20%	100%	33%		50%
Res Antelope Horns Longer Than Ears	Antelope	AR	131, 145, 163 - 164	Aug 1 - Aug 14	24	5	3	1	21%	100%	33%		100%
Res Antelope Horns Longer Than Ears	Antelope	AR	132 - 134, 245	Aug 1 - Aug 14	36	5	5	3	14%	100%	60%		67%
Res Antelope Horns Longer Than Ears	Antelope	AR	141, 143, 151 - 156	Aug 1 - Aug 21	63	55	46	11	87%	98%	24%		27%
Res Antelope Horns Longer Than Ears	Antelope	AR	161 - 162	Aug 1 - Aug 21	16	6	6	3	38%	83%	60%		0%
Res Antelope Horns Longer Than Ears	Antelope	AR	171 - 173	Aug 1 - Aug 21	18	5	4	3	28%	100%	75%		0%
Res Antelope Horns Longer Than Ears	Antelope	AR	181 - 184	Aug 1 - Aug 21	45	20	19	6	44%	100%	32%		17%
Res Antelope Horns Longer Than Ears	Antelope	AR	203, 291	Aug 1 - Aug 21	8	1	0		13%				
Res Antelope Horns Longer Than Ears	Antelope	AR	205 - 208	Aug 1 - Aug 21	25	12	12	4	48%	100%	33%		25%
Res Antelope Horns Longer Than Ears	Antelope	AR	211 - 213	Aug 1 - Aug 21	4	2	2	1	50%	100%	50%		0%
Res Antelope Horns Longer Than Ears	Antelope	AR	221 - 223, 241	Aug 1 - Aug 14	31	6	4	1	19%	100%	25%		100%
Res Antelope Horns Longer Than Ears	Antelope	AR	251	Aug 1 - Aug 21	27	2	2	2	7%	100%	100%		0%
Res Antelope Horns Longer Than Ears	Antelope	M	011	Sep 25 - Oct 4	11	2	2	1	18%	100%	50%		0%
Res Antelope Horns Longer Than Ears	Antelope	M	012 - 014	Sep 25 - Oct 4	22	3	1		14%	100%	0%		
Res Antelope Horns Longer Than Ears	Antelope	M	015	Sep 25 - Oct 4	9	4	4	1	44%	100%	25%		0%

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Antelope Horns Longer Than Ears	Antelope	M	021 - 022	Sep 25 - Oct 4	42	4	4	2	10%	75%	67%		50%
Res Antelope Horns Longer Than Ears	Antelope	M	033	Sep 25 - Oct 4	11	4	3	1	36%	100%	33%		0%
Res Antelope Horns Longer Than Ears	Antelope	M	065, 142, 144	Sep 25 - Oct 4	21	4	4	3	19%	100%	75%		67%
Res Antelope Horns Longer Than Ears	Antelope	M	078, 105 - 107, 121	Sep 25 - Oct 4	14	10	9	2	71%	100%	22%		0%
Res Antelope Horns Longer Than Ears	Antelope	M	101 - 104, 108 - 109, 144	Sep 25 - Oct 4	11	3	3	2	27%	100%	67%		0%
Res Antelope Horns Longer Than Ears	Antelope	M	111 - 114	Sep 25 - Oct 4	22	10	10	6	45%	100%	60%		17%
Res Antelope Horns Longer Than Ears	Antelope	M	115, 231, 242	Aug 15 - Aug 21	11	3	3	3	27%	100%	100%		0%
Res Antelope Horns Longer Than Ears	Antelope	M	131, 145, 163 - 164	Aug 15 - Aug 21	14	3	3	1	21%	67%	50%		100%
Res Antelope Horns Longer Than Ears	Antelope	M	132 - 134, 245	Aug 15 - Aug 21	8	1	1	1	13%	100%	100%		100%
Res Antelope Horns Longer Than Ears	Antelope	M	221 - 223, 241	Aug 15 - Aug 21	9	4	4	4	44%	100%	100%		25%
Res Antelope Horns Shorter Than Ears	Antelope	ALW	031	Sep 8 - Sep 24	271	60	59	31	22%	95%	55%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	032, 034	Sep 8 - Sep 24	86	25	25	15	29%	92%	65%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	035	Sep 8 - Sep 24	79	10	9	7	13%	89%	88%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	041 - 042	Sep 8 - Sep 24	430	55	54	45	13%	98%	85%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	061 - 062, 064, 071, 073	Sep 8 - Sep 24	525	200	197	139	38%	96%	73%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	065, 142, 144	Sep 8 - Sep 24	129	55	55	46	43%	98%	85%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	066	Sep 8 - Sep 24	30	15	15	10	50%	100%	67%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	067 - 068	Sep 8 - Sep 24	273	130	127	85	48%	98%	68%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	072, 074 - 075	Sep 8 - Sep 24	113	40	38	27	35%	97%	73%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	076 - 077, 079, 081, 091	Sep 8 - Sep 24	44	20	20	17	45%	100%	85%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	078, 105 - 107, 121	Sep 8 - Sep 24	137	80	80	64	58%	99%	81%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	101 - 104, 108 - 109, 144	Sep 8 - Sep 24	139	60	59	46	43%	98%	79%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	111 - 114	Sep 8 - Sep 24	219	80	78	47	37%	100%	60%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	114 - 115 Baker Ranch	Sep 10 - Sep 16	28	10	10	8	36%	100%	80%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	131, 145	Sep 8 - Sep 24	104	45	45	35	43%	100%	78%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	141, 143, 152, 154 - 155	Sep 8 - Sep 24	382	250	248	164	65%	98%	67%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	151, 153, 156	Sep 8 - Sep 24	265	170	168	133	64%	98%	81%		
Res Antelope Horns Shorter Than Ears	Antelope	ALW	181 - 184	Sep 8 - Sep 24	172	25	25	24	15%	100%	96%		
Res Antelope PIW	Antelope	SWR	Any Open Unit	Any Open Season	2,320	5	5	4	0.2%	100%	80%		25%
Silver State Pronghorn Antelope	Antelope	ALW	Any Open Unit	Any Open Season	3,600	1	1	1	0.03%	100%	100%		0%
NR Antelope Horns Longer Than Ears	Antelope	ALW	011	Aug 22 - Sep 7	364	8	8	8	2%	100%	100%		25%
NR Antelope Horns Longer Than Ears	Antelope	ALW	012 - 014	Aug 22 - Sep 7	339	15	13	11	4%	100%	85%		18%
NR Antelope Horns Longer Than Ears	Antelope	ALW	015	Aug 22 - Sep 7	198	7	6	6	4%	100%	100%		60%
NR Antelope Horns Longer Than Ears	Antelope	ALW	021 - 022	Aug 22 - Sep 7	528	6	6	6	1%	100%	100%		17%
NR Antelope Horns Longer Than Ears	Antelope	ALW	031	Aug 22 - Sep 7	206	15	15	8	7%	100%	53%		25%

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Antelope Horns Longer Than Ears	Antelope	ALW	032, 034	Aug 22 - Sep 7	123	10	9	5	8%	100%	56%		0%
NR Antelope Horns Longer Than Ears	Antelope	ALW	033	Aug 29 - Sep 7	137	3	3	3	2%	100%	100%		67%
NR Antelope Horns Longer Than Ears	Antelope	ALW	033	Aug 22 - Aug 28	652	3	3	2	0.5%	100%	67%		50%
NR Antelope Horns Longer Than Ears	Antelope	ALW	035	Aug 22 - Sep 7	52	4	4	3	8%	100%	75%		33%
NR Antelope Horns Longer Than Ears	Antelope	ALW	041 - 042	Aug 29 - Sep 7	54	8	7	7	15%	100%	100%		29%
NR Antelope Horns Longer Than Ears	Antelope	ALW	041 - 042	Aug 22 - Aug 28	215	8	7	7	4%	100%	100%		0%
NR Antelope Horns Longer Than Ears	Antelope	ALW	043 - 046	Aug 22 - Sep 7	32	6	5	5	19%	100%	100%		20%
NR Antelope Horns Longer Than Ears	Antelope	ALW	051	Aug 22 - Sep 7	60	4	4	4	7%	100%	100%		0%
NR Antelope Horns Longer Than Ears	Antelope	ALW	061 - 062, 064, 071, 073	Aug 22 - Sep 7	240	20	20	17	8%	100%	85%		47%
NR Antelope Horns Longer Than Ears	Antelope	ALW	065, 142, 144	Aug 22 - Sep 7	69	7	6	3	10%	100%	50%		33%
NR Antelope Horns Longer Than Ears	Antelope	ALW	066	Aug 22 - Sep 7	36	4	4	4	11%	100%	100%		50%
NR Antelope Horns Longer Than Ears	Antelope	ALW	067 - 068	Aug 22 - Sep 7	114	10	6	5	9%	100%	83%		40%
NR Antelope Horns Longer Than Ears	Antelope	ALW	072, 074 - 075	Aug 22 - Sep 7	143	8	7	6	6%	100%	86%		17%
NR Antelope Horns Longer Than Ears	Antelope	ALW	076 - 077, 079, 081, 091	Aug 22 - Sep 7	843	7	7	5	1%	86%	83%		60%
NR Antelope Horns Longer Than Ears	Antelope	ALW	078, 105 - 107, 121	Aug 22 - Sep 7	66	10	9	9	15%	100%	100%		56%
NR Antelope Horns Longer Than Ears	Antelope	ALW	101 - 104, 108 - 109, 144	Aug 22 - Sep 7	82	10	9	8	12%	100%	89%		25%
NR Antelope Horns Longer Than Ears	Antelope	ALW	111 - 114	Aug 22 - Sep 7	124	20	19	16	16%	100%	84%		25%
NR Antelope Horns Longer Than Ears	Antelope	ALW	115, 231, 242	Aug 22 - Sep 7	71	4	4	3	6%	100%	75%		33%
NR Antelope Horns Longer Than Ears	Antelope	ALW	131, 145, 163 - 164	Aug 22 - Sep 7	81	8	7	5	10%	71%	100%		20%
NR Antelope Horns Longer Than Ears	Antelope	ALW	132 - 134, 245	Aug 22 - Sep 7	52	4	3	2	8%	100%	67%		100%
NR Antelope Horns Longer Than Ears	Antelope	ALW	141, 143, 151 - 156	Aug 22 - Sep 7	152	25	22	16	16%	100%	73%		25%
NR Antelope Horns Longer Than Ears	Antelope	ALW	161 - 162	Aug 22 - Sep 7	62	3	3	3	5%	100%	100%		33%
NR Antelope Horns Longer Than Ears	Antelope	ALW	171 - 173	Aug 22 - Sep 7	37	3	3	2	8%	100%	67%		50%
NR Antelope Horns Longer Than Ears	Antelope	ALW	181 - 184	Aug 22 - Sep 7	61	8	8	8	13%	100%	100%		63%
NR Antelope Horns Longer Than Ears	Antelope	ALW	202, 204	Oct 15 - Oct 30	29	1	1		3%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	ALW	205 - 208	Aug 22 - Sep 7	34	3	3	2	9%	100%	67%		0%
NR Antelope Horns Longer Than Ears	Antelope	ALW	221 - 223, 241	Aug 22 - Sep 7	39	3	3	3	8%	100%	100%		33%
NR Antelope Horns Longer Than Ears	Antelope	ALW	251	Aug 22 - Sep 7	120	3	3	3	3%	100%	100%		100%
NR Antelope Horns Longer Than Ears	Antelope	AR	011	Aug 1 - Aug 21	22	2	2	1	9%	100%	50%		100%
NR Antelope Horns Longer Than Ears	Antelope	AR	012 - 014	Aug 1 - Aug 21	28	4	2	1	14%	50%	100%		0%
NR Antelope Horns Longer Than Ears	Antelope	AR	015	Aug 1 - Aug 21	19	2	2		11%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	AR	021 - 022	Aug 1 - Aug 21	27	1	1		4%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	AR	031	Aug 1 - Aug 21	12	1	0		8%				
NR Antelope Horns Longer Than Ears	Antelope	AR	032, 034	Aug 1 - Aug 21	15	3	3	2	20%	100%	67%		0%
NR Antelope Horns Longer Than Ears	Antelope	AR	033	Aug 1 - Aug 21	74	1	1	1	1%	100%	100%		0%

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Antelope Horns Longer Than Ears	Antelope	AR	035	Aug 1 - Aug 21	6	1	1	1	17%	100%	100%		0%
NR Antelope Horns Longer Than Ears	Antelope	AR	041 - 042	Aug 1 - Aug 21	30	1	0		3%				
NR Antelope Horns Longer Than Ears	Antelope	AR	051	Aug 1 - Aug 21	6	2	2		33%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	AR	061 - 062, 064, 071, 073	Aug 1 - Aug 21	13	6	5		46%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	AR	065, 142, 144	Aug 1 - Aug 21	6	3	2		50%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	AR	067 - 068	Aug 1 - Aug 21	10	3	2		30%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	AR	072, 074 - 075	Aug 1 - Aug 21	8	3	3	1	38%	100%	33%		0%
NR Antelope Horns Longer Than Ears	Antelope	AR	078, 105 - 107, 121	Aug 1 - Aug 21	5	1	1	1	20%	100%	100%		0%
NR Antelope Horns Longer Than Ears	Antelope	AR	101 - 104, 108 - 109, 144	Aug 1 - Aug 21	7	2	2		29%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	AR	111 - 114	Aug 1 - Aug 21	15	5	5	2	33%	100%	40%		0%
NR Antelope Horns Longer Than Ears	Antelope	AR	115, 231, 242	Aug 1 - Aug 14	8	1	1		13%				
NR Antelope Horns Longer Than Ears	Antelope	AR	131, 145, 163 - 164	Aug 1 - Aug 14	5	1	1	1	20%	100%	100%		0%
NR Antelope Horns Longer Than Ears	Antelope	AR	132 - 134, 245	Aug 1 - Aug 14	6	1	1		17%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	AR	141, 143, 151 - 156	Aug 1 - Aug 21	15	6	6	2	40%	100%	33%		0%
NR Antelope Horns Longer Than Ears	Antelope	AR	161 - 162	Aug 1 - Aug 21	4	1	0		25%				
NR Antelope Horns Longer Than Ears	Antelope	AR	171 - 173	Aug 1 - Aug 21	3	2	2	1	67%	100%	50%		0%
NR Antelope Horns Longer Than Ears	Antelope	AR	181 - 184	Aug 1 - Aug 21	4	2	1		50%	100%	0%		
NR Antelope Horns Longer Than Ears	Antelope	AR	205 - 208	Aug 1 - Aug 21	5	1	1		20%	100%	0%		
Dream Antelope	Antelope	SWR	Any Open Unit	Any Open Season			1	1		100%	100%		100%
Landowner Compensation Antelope	Antelope	SWR	012				1	1		100%	100%		100%
Landowner Compensation Antelope	Antelope	SWR	015				1	0		100%	0%		
Landowner Compensation Antelope	Antelope	SWR	022				2	2		100%	100%		100%
Landowner Compensation Antelope	Antelope	SWR	031				4	3		100%	75%		67%
Landowner Compensation Antelope	Antelope	SWR	032				6	6		100%	100%		33%
Landowner Compensation Antelope	Antelope	SWR	034				3	3		100%	100%		33%
Landowner Compensation Antelope	Antelope	SWR	035				5	5		100%	100%		20%
Landowner Compensation Antelope	Antelope	SWR	044				3	3		100%	100%		67%
Landowner Compensation Antelope	Antelope	SWR	046				1	1		100%	100%		0%
Landowner Compensation Antelope	Antelope	SWR	051				5	5		100%	100%		40%
Landowner Compensation Antelope	Antelope	SWR	062				6	6		100%	100%		50%
Landowner Compensation Antelope	Antelope	SWR	065				1	1		100%	100%		0%
Landowner Compensation Antelope	Antelope	SWR	065, 103				2	1		100%	50%		100%
Landowner Compensation Antelope	Antelope	SWR	073				3	3		100%	100%		67%
Landowner Compensation Antelope	Antelope	SWR	075				2	1		100%	50%		0%
Landowner Compensation Antelope	Antelope	SWR	081				2	2		100%	100%		50%

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Landowner Compensation Antelope	Antelope	SWR	105				1	1		100%	100%		0%
Landowner Compensation Antelope	Antelope	SWR	114, 115				1	0		100%	0%		
Landowner Compensation Antelope	Antelope	SWR	115				3	1		33%	100%		0%
Landowner Compensation Antelope	Antelope	SWR	121				3	1		67%	50%		100%
Landowner Compensation Antelope	Antelope	SWR	131				1	1		100%	100%		0%
Landowner Compensation Antelope	Antelope	SWR	132				1	0		100%	0%		
Landowner Compensation Antelope	Antelope	SWR	144				2	2		100%	100%		0%
Landowner Compensation Antelope	Antelope	SWR	156				3	3		100%	100%		33%
Landowner Compensation Antelope	Antelope	SWR	161				1	1		100%	100%		0%
Landowner Compensation Antelope	Antelope	SWR	172				3	3		100%	100%		67%
Landowner Compensation Antelope	Antelope	SWR	172, 184				8	8		100%	100%		63%
Landowner Compensation Antelope	Antelope	SWR	183				1	1		100%	100%		100%
Landowner Compensation Antelope	Antelope	SWR	184				5	5		100%	100%		20%
Landowner Compensation Antelope	Antelope	SWR	251				3	3		100%	100%		67%
Wildlife Heritage Antelope	Antelope	ALW	Any Open Unit	Aug 1 - Dec 31			2	1		100%	50%		100%
Res Black Bear Either Sex	Black Bear	ALW	192, 194 - 196, 201 - 204, 206, 291	Sep 15 - Dec 1	2,612	45	44	12	2%	100%	27%		
NR Black Bear Either Sex	Black Bear	ALW	192, 194 - 196, 201 - 204, 206, 291	Sep 15 - Dec 1	196	5	4	2	3%	100%	50%		
Res Cali Bighorn PIW	Cali Bighorn	SWR	Any Open Unit	Any Open Season	2,099	1	1	1	0.05%	100%	100%		
Res California Bighorn Sheep Any Ewe	Cali Bighorn	ALW	068	Nov 6 - Nov 30	389	2	2	1	1%	100%	50%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	012	Sep 1 - Oct 31	358	3	3	3	1%	100%	100%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	014	Sep 1 - Oct 31	153	3	3	3	2%	100%	100%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	021 - 022	Sep 1 - Oct 31	454	3	3	2	1%	100%	67%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	031	Sep 1 - Oct 31	1,252	5	5	5	0.4%	100%	100%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	032	Sep 1 - Oct 31	1,803	11	11	11	1%	100%	100%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	033	Sep 1 - Oct 31	166	2	2	2	1.2%	100%	100%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	034	Sep 1 - Oct 31	558	8	8	7	1%	100%	88%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	035	Sep 1 - Oct 31	146	6	6	5	4%	100%	83%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	041	Sep 1 - Oct 31	631	1	1	1	0.2%	100%	100%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	051	Sep 1 - Oct 31	733	4	4	4	1%	100%	100%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	066	Sep 1 - Oct 31	92	1	1	1	1%	100%	100%		
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	068	Sep 1 - Oct 31	524	6	6	6	1%	100%	100%		
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	012	Sep 1 - Oct 31	994	1	1	1	0.1%	100%	100%		
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	032	Sep 1 - Oct 31	6,148	2	2	2	0.0%	100%	100%		
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	034	Sep 1 - Oct 31	802	1	1	1	0.1%	100%	100%		
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	035	Sep 1 - Oct 31	561	2	2	2	0.4%	100%	100%		

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Dream Cali Bighorn	Cali Bighorn	SWR	Any Open Unit	Any Open Season			1	1		100%	100%		
Wildlife Heritage Cali Bighorn	Cali Bighorn	ALW	Any Open Unit	Aug 1 - Dec 31			1	1		100%	100%		
Res Desert Bighorn PIW	Desert Bighorn	SWR	Any Open Unit	Any Open Season	2,292	1	1	1	0.0%	100%	100%		
Res Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	212	Oct 5 - Oct 25	159	18	17	11	11%	100%	65%		
Res Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	213	Oct 5 - Oct 25	176	40	39	25	23%	95%	68%		
Res Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	253	Oct 5 - Oct 25	68	13	13	10	19%	92%	83%		
Res Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	268	Oct 5 - Oct 25	342	50	48	29	15%	100%	60%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	044, 182	Nov 20 - Jan 1	498	13	13	13	3%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	045, 153	Oct 15 - Nov 5	125	5	5	4	4%	100%	80%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	045, 153	Nov 20 - Jan 1	44	4	4	4	9%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	131, 164	Nov 20 - Jan 1	99	3	3	3	3%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	132	Nov 20 - Jan 1	35	4	3	2	11%	100%	67%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	133, 245	Nov 20 - Jan 1	51	3	3	3	6%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	134	Nov 20 - Jan 1	38	5	5	4	13%	100%	80%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	161	Sep 5 - Oct 5	123	7	7	6	6%	100%	86%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	161	Nov 20 - Jan 1	46	5	5	5	11%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	162 - 163	Nov 20 - Jan 1	249	9	9	8	4%	100%	89%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	173N	Sep 5 - Oct 5	36	4	3	1	11%	100%	33%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	173S	Nov 20 - Jan 1	22	1	1	1	5%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	181	Nov 20 - Jan 1	750	16	16	15	2%	100%	94%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	183	Nov 20 - Jan 1	346	14	14	14	4%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	184	Oct 15 - Nov 5	111	3	3	3	3%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	202	Oct 15 - Nov 5	170	6	6	6	4%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	204	Oct 15 - Nov 5	27	1	1	1	4%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	205	Nov 20 - Jan 1	380	14	14	12	4%	100%	86%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	206, 208	Nov 20 - Jan 1	46	4	3	3	9%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	207	Nov 20 - Jan 1	72	6	6	6	8%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	211	Nov 20 - Jan 1	135	11	9	9	8%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	212	Nov 15 - Dec 5	128	6	5	5	5%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	212	Dec 6 - Dec 26	45	6	5	4	13%	100%	80%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	213	Nov 15 - Dec 5	76	7	7	6	9%	100%	86%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	213	Dec 6 - Dec 26	30	6	6	5	20%	100%	83%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	221, 223, 241	Nov 20 - Jan 1	91	4	4	4	4%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	241	Nov 20 - Jan 1	26	2	2	1	8%	100%	50%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	243	Nov 20 - Jan 1	28	4	4	3	14%	100%	75%		

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	244	Nov 20 - Jan 1	118	6	6	6	5%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	252	Nov 17 - Dec 9	153	6	5	3	4%	100%	60%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	253	Nov 20 - Jan 1	1,203	7	7	7	1%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	254	Nov 20 - Jan 1	43	3	3	3	7%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	261	Nov 20 - Jan 1	66	5	4	3	8%	100%	75%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	262	Nov 20 - Jan 1	254	4	4	4	2%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	263	Nov 20 - Jan 1	467	8	8	8	2%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	264 - 265	Nov 20 - Jan 1	86	1	1	1	1%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	266	Nov 20 - Jan 1	74	1	1	1	1%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	267	Nov 20 - Jan 1	225	8	8	8	4%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	268	Nov 20 - Jan 1	1,974	23	23	22	1%	100%	96%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	271, 242	Nov 20 - Jan 1	214	9	9	9	4%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	272	Nov 20 - Jan 1	57	2	2	1	4%	100%	50%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	280	Dec 15 - Jan 1	32	4	4	3	13%	100%	75%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	281	Dec 15 - Jan 1	59	7	7	6	12%	100%	86%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	282	Dec 15 - Jan 1	203	4	4	4	2%	100%	100%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	283 - 284	Nov 20 - Jan 1	57	6	6	3	11%	100%	50%		
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	286	Nov 20 - Jan 1	84	5	5	4	6%	100%	80%		
Silver State Desert Bighorn	Desert Bighorn	ALW	Any Open Unit	Any Open Season	6,575	1	1	1	0.02%	100%	100%		
NR Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	212	Oct 5 - Oct 25	65	2	2	2	3%	100%	100%		
NR Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	213	Oct 5 - Oct 25	63	4	4	3	6%	100%	75%		
NR Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	253	Oct 5 - Oct 25	19	1	1	1	5%	100%	100%		
NR Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	268	Oct 5 - Oct 25	87	6	6	4	7%	100%	67%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	044, 182	Nov 20 - Jan 1	458	3	3	2	1%	100%	67%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	161	Nov 20 - Jan 1	274	2	2	2	1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	173N	Sep 5 - Oct 5	114	1	1	1	1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	181	Nov 20 - Jan 1	586	2	2	2	0.3%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	183	Nov 20 - Jan 1	238	2	2	2	1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	184	Oct 15 - Nov 5	49	1	0		2%				
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	205	Nov 20 - Jan 1	230	2	2	2	1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	207	Nov 20 - Jan 1	112	1	1	1	1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	211	Nov 20 - Jan 1	398	1	1		0.3%	100%	0%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	212	Nov 15 - Dec 5	81	1	1	1	1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	212	Dec 6 - Dec 26	133	1	1	1	1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	213	Nov 15 - Dec 5	130	2	2	2	2%	100%	100%		

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	213	Dec 6 - Dec 26	86	1	1	1	1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	261	Nov 20 - Jan 1	90	1	0		1%				
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	262	Nov 20 - Jan 1	794	1	1	1	0.1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	263	Nov 20 - Jan 1	1,413	1	1	1	0.1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	267	Nov 20 - Jan 1	505	1	1	1	0.2%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	268	Nov 20 - Jan 1	3,658	4	4	4	0.1%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	271, 242	Nov 20 - Jan 1	629	1	1	1	0.2%	100%	100%		
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	283 - 284	Nov 20 - Jan 1	85	1	1		1%	100%	0%		
Dream Desert Bighorn	Desert Bighorn	SWR	Any Open Unit Except Units 253, 263	Any Open Season			1	1		100%	100%		
Wildlife Heritage Desert Bighorn #1	Desert Bighorn	ALW	Any Open Unit	Aug 1 - Dec 31			1	1		100%	100%		
Wildlife Heritage Desert Bighorn #2	Desert Bighorn	ALW	Any Open Unit Except Unit 253	Aug 1 - Dec 31			1	1		100%	100%		
Res Antlered Elk PIW	Elk	SWR	Any Open Unit	Any Open Season	2,353	3	3	2	0.1%	100%	67%	100%	50%
Res Elk Antlered	Elk	ALW	051	Sep 17 - Sep 30	344	10	8	3	3%	100%	38%	100%	33%
Res Elk Antlered	Elk	ALW	051	Nov 6 - Nov 28	142	20	17	3	14%	100%	18%	100%	0%
Res Elk Antlered	Elk	ALW	061, 071	Oct 22 - Nov 5	422	40	32	23	9%	97%	74%	74%	0%
Res Elk Antlered	Elk	ALW	061, 071	Nov 6 - Nov 20	171	40	37	18	23%	100%	49%	67%	6%
Res Elk Antlered	Elk	ALW	062, 064, 066 - 068	Oct 22 - Nov 5	500	40	35	15	8%	94%	45%	67%	27%
Res Elk Antlered	Elk	ALW	062, 064, 066 - 068	Nov 6 - Nov 20	221	45	36	14	20%	94%	41%	86%	29%
Res Elk Antlered	Elk	ALW	065	Sep 17 - Sep 30	63	4	2	1	6%	100%	50%	0%	0%
Res Elk Antlered	Elk	ALW	072 - 074	Oct 22 - Nov 5	841	225	206	79	27%	97%	40%	64%	17%
Res Elk Antlered	Elk	ALW	072 - 074	Nov 6 - Nov 20	442	225	205	50	51%	97%	25%	60%	16%
Res Elk Antlered	Elk	ALW	075	Oct 22 - Nov 5	73	15	15	9	21%	93%	64%	67%	11%
Res Elk Antlered	Elk	ALW	075	Nov 6 - Nov 20	39	15	15	5	38%	100%	33%	40%	40%
Res Elk Antlered	Elk	ALW	076 - 077, 079, 081	Nov 6 - Nov 20	969	65	57	35	7%	98%	63%	66%	23%
Res Elk Antlered	Elk	ALW	076 - 077, 079, 081	Nov 21 - Dec 4	317	65	58	37	21%	100%	64%	75%	12%
Res Elk Antlered	Elk	ALW	078, 105 - 107, 109	Oct 22 - Nov 5	166	9	9	6	5%	100%	67%	100%	67%
Res Elk Antlered	Elk	ALW	078, 105 - 107, 109	Nov 6 - Nov 28	65	8	7	7	12%	100%	100%	57%	57%
Res Elk Antlered	Elk	ALW	091	Sep 8 - Sep 28	409	9	8	7	2%	100%	88%	100%	33%
Res Elk Antlered	Elk	ALW	104, 108, 121	Nov 6 - Nov 20	389	45	42	28	12%	98%	68%	68%	39%
Res Elk Antlered	Elk	ALW	108, 131 - 132	Nov 6 - Nov 20	305	55	52	26	18%	98%	51%	58%	27%
Res Elk Antlered	Elk	ALW	111 - 115	Nov 6 - Nov 20	1,851	95	85	55	5%	99%	65%	70%	39%
Res Elk Antlered	Elk	ALW	111 - 115	Nov 21 - Dec 4	476	85	82	49	18%	96%	62%	65%	41%
Res Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Sep 17 - Sep 30	941	5	5	5	1%	100%	100%	100%	60%
Res Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Nov 6 - Nov 20	275	40	39	14	15%	95%	38%	64%	14%
Res Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Nov 21 - Dec 4	175	40	37	15	23%	97%	42%	60%	20%

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Elk Antlered	Elk	ALW	221 - 223	Nov 6 - Nov 20	1,299	80	71	55	6%	100%	77%	61%	21%
Res Elk Antlered	Elk	ALW	221 - 223	Nov 21 - Dec 4	375	70	63	36	19%	95%	60%	50%	14%
Res Elk Antlered	Elk	ALW	231	Nov 6 - Nov 20	986	50	49	39	5%	100%	80%	46%	8%
Res Elk Antlered	Elk	ALW	231	Nov 21 - Dec 4	320	50	48	27	16%	100%	56%	56%	11%
Res Elk Antlered	Elk	ALW	241 - 242	Sep 17 - Sep 24	129	3	3	2	2%	100%	67%	50%	50%
Res Elk Antlered	Elk	ALW	262	Sep 17 - Sep 30	352	4	4	4	1%	100%	100%	75%	25%
Res Elk Antlered	Elk	AR	061, 071	Aug 16 - Aug 31	62	35	32	5	56%	94%	17%	20%	0%
Res Elk Antlered	Elk	AR	062, 064, 066 - 068	Aug 16 - Aug 31	47	30	26	3	64%	96%	12%	100%	100%
Res Elk Antlered	Elk	AR	072 - 074	Aug 16 - Aug 31	117	80	67	6	68%	99%	9%	100%	20%
Res Elk Antlered	Elk	AR	075	Aug 16 - Aug 31	15	6	5	3	40%	80%	75%	100%	33%
Res Elk Antlered	Elk	AR	076 - 077, 079, 081	Aug 25 - Sep 16	98	40	35	10	41%	97%	29%	80%	30%
Res Elk Antlered	Elk	AR	078, 105 - 107, 109	Sep 1 - Sep 20	44	6	5		14%	100%	0%		
Res Elk Antlered	Elk	AR	104, 108, 121	Aug 25 - Sep 16	61	15	15	8	25%	100%	53%	100%	25%
Res Elk Antlered	Elk	AR	108, 131 - 132	Aug 25 - Sep 16	57	10	9	5	18%	100%	56%	100%	100%
Res Elk Antlered	Elk	AR	111 - 115	Aug 25 - Sep 16	343	35	31	15	10%	100%	48%	80%	60%
Res Elk Antlered	Elk	AR	161 - 164, 171 - 173	Aug 25 - Sep 16	76	20	20	7	26%	100%	35%	43%	29%
Res Elk Antlered	Elk	AR	221 - 223	Aug 25 - Sep 16	239	30	29	12	13%	97%	43%	58%	42%
Res Elk Antlered	Elk	AR	231	Aug 25 - Sep 16	145	20	20	5	14%	100%	25%	60%	80%
Res Elk Antlered	Elk	AR	241 - 242	Aug 25 - Sep 16	7	2	1		29%	100%	0%		
Res Elk Antlered	Elk	AR	262	Aug 25 - Sep 16	35	1	0		3%				
Res Elk Antlered	Elk	M	061, 071	Sep 1 - Sep 16	175	25	17	8	14%	100%	47%	100%	13%
Res Elk Antlered	Elk	M	062, 064, 066 - 068	Sep 1 - Sep 16	136	20	18	8	15%	100%	44%	88%	57%
Res Elk Antlered	Elk	M	072 - 074	Sep 1 - Sep 16	222	90	76	38	41%	100%	50%	78%	28%
Res Elk Antlered	Elk	M	075	Sep 1 - Sep 16	22	10	10	7	45%	100%	70%	71%	29%
Res Elk Antlered	Elk	M	076 - 077, 079, 081	Oct 22 - Nov 5	59	15	14	6	25%	100%	43%	100%	50%
Res Elk Antlered	Elk	M	078, 105 - 107, 109	Oct 5 - Oct 21	54	6	6	6	11%	100%	100%	100%	67%
Res Elk Antlered	Elk	M	104, 108, 121	Oct 22 - Nov 5	40	8	8	7	20%	100%	88%	57%	0%
Res Elk Antlered	Elk	M	108, 131 - 132	Oct 22 - Nov 5	17	6	6	2	35%	100%	33%	100%	0%
Res Elk Antlered	Elk	M	111 - 115	Oct 22 - Nov 5	108	25	18	13	23%	100%	72%	69%	31%
Res Elk Antlered	Elk	M	161 - 164, 171 - 173	Oct 22 - Nov 5	51	30	25	7	59%	100%	28%	86%	14%
Res Elk Antlered	Elk	M	221 - 223	Oct 22 - Nov 5	98	20	18	8	20%	100%	44%	38%	25%
Res Elk Antlered	Elk	M	231	Oct 22 - Nov 5	71	10	6	3	14%	100%	50%	67%	0%
Res Elk Antlered	Elk	M	241 - 242	Oct 22 - Nov 5	3	2	2	1	67%	100%	50%	0%	0%
Res Elk Antlered	Elk	M	262	Oct 22 - Nov 5	14	1	1		7%	100%	0%		
Res Elk Antlerless	Elk	ALW	051	Oct 1 - Oct 20	229	10	10		4%	100%	0%		

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Elk Antlerless	Elk	ALW	051	Dec 5 - Jan 31	119	15	14	1	13%	93%	8%		
Res Elk Antlerless	Elk	ALW	061, 071	Sep 17 - Oct 4	1,080	275	250	71	25%	99%	29%		
Res Elk Antlerless	Elk	ALW	061, 071	Nov 21 - Jan 31	338	140	136	33	41%	91%	27%		
Res Elk Antlerless	Elk	ALW	062, 064, 066 - 068	Sep 17 - Oct 4	890	200	183	21	22%	100%	11%		
Res Elk Antlerless	Elk	ALW	062, 064, 066 - 068	Nov 21 - Jan 31	327	55	55	7	17%	93%	14%		
Res Elk Antlerless	Elk	ALW	065	Oct 1 - Oct 20	58	10	9	2	17%	100%	22%		
Res Elk Antlerless	Elk	ALW	072	Sep 26 - Oct 4	193	140	129	16	73%	98%	13%		
Res Elk Antlerless	Elk	ALW	072	Sep 17 - Sep 25	323	140	134	21	43%	99%	16%		
Res Elk Antlerless	Elk	ALW	072 - 075	Nov 21 - Jan 5	1,118	325	318	49	29%	97%	16%		
Res Elk Antlerless	Elk	ALW	072 Wilderness	Sep 17 - Oct 4	263	140	134	35	53%	100%	26%		
Res Elk Antlerless	Elk	ALW	073	Sep 17 - Oct 4	88	35	35	3	40%	97%	9%		
Res Elk Antlerless	Elk	ALW	074	Sep 17 - Oct 4	43	30	30	5	70%	90%	19%		
Res Elk Antlerless	Elk	ALW	075	Sep 17 - Oct 4	121	15	15	7	12%	100%	47%		
Res Elk Antlerless	Elk	ALW	076 - 077, 079, 081	Oct 1 - Oct 20	1,196	100	96	50	8%	98%	53%		
Res Elk Antlerless	Elk	ALW	076 - 077, 079, 081	Dec 5 - Jan 5	579	50	45	17	9%	100%	38%		
Res Elk Antlerless	Elk	ALW	078, 105 - 107, 109	Sep 21 - Oct 4	229	30	30	7	13%	97%	24%		
Res Elk Antlerless	Elk	ALW	104, 108, 121	Sep 25 - Oct 4	508	120	113	74	24%	100%	65%		
Res Elk Antlerless	Elk	ALW	108, 131 - 132	Sep 25 - Oct 4	275	45	45	14	16%	98%	32%		
Res Elk Antlerless	Elk	ALW	111 - 112	Sep 25 - Oct 4	1,281	100	98	43	8%	99%	44%		
Res Elk Antlerless	Elk	ALW	111 - 112	Dec 5 - Jan 5	437	85	84	45	19%	99%	54%		
Res Elk Antlerless	Elk	ALW	113	Sep 25 - Oct 4	120	45	45	14	38%	100%	31%		
Res Elk Antlerless	Elk	ALW	113	Dec 5 - Jan 5	132	70	70	14	53%	99%	20%		
Res Elk Antlerless	Elk	ALW	114 - 115	Sep 25 - Oct 4	169	45	45	29	27%	100%	64%		
Res Elk Antlerless	Elk	ALW	114 - 115	Dec 5 - Jan 5	144	70	66	24	49%	100%	36%		
Res Elk Antlerless	Elk	ALW	161 - 164	Oct 1 - Oct 20	419	65	62	9	16%	98%	15%		
Res Elk Antlerless	Elk	ALW	161 - 164	Dec 5 - Jan 31	467	80	77	21	17%	95%	29%		
Res Elk Antlerless	Elk	ALW	162 Wilderness	Oct 1 - Oct 20	95	40	39	21	42%	100%	54%		
Res Elk Antlerless	Elk	ALW	221	Sep 25 - Oct 4	263	50	50	22	19%	96%	46%		
Res Elk Antlerless	Elk	ALW	221	Dec 5 - Jan 5	59	30	29	7	51%	100%	24%		
Res Elk Antlerless	Elk	ALW	222 - 223	Sep 25 - Oct 4	845	110	109	48	13%	98%	45%		
Res Elk Antlerless	Elk	ALW	222 - 223	Dec 5 - Jan 5	311	70	69	27	23%	99%	40%		
Res Elk Antlerless	Elk	ALW	222 Wilderness	Sep 25 - Oct 4	67	20	16	9	30%	94%	60%		
Res Elk Antlerless	Elk	ALW	222 Wilderness	Dec 5 - Jan 5	51	20	20	13	39%	100%	65%		
Res Elk Antlerless	Elk	ALW	231	Sep 25 - Oct 4	835	60	59	25	7%	97%	44%		
Res Elk Antlerless	Elk	ALW	231	Dec 5 - Jan 5	481	100	97	24	21%	97%	26%		

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Elk Antlerless	Elk	ALW	231 Wilderness	Sep 25 - Oct 4	44	25	24	4	57%	96%	17%		
Res Elk Antlerless	Elk	ALW	241 - 242	Sep 25 - Oct 4	98	6	6	1	6%	100%	17%		
Res Elk Antlerless	Elk	AR	061, 071	Aug 1 - Aug 15	91	65	62	4	71%	97%	7%		
Res Elk Antlerless	Elk	AR	062, 064, 066 - 068	Aug 1 - Aug 15	62	55	53	3	89%	98%	6%		
Res Elk Antlerless	Elk	AR	072	Aug 1 - Aug 15	61	50	48	3	82%	96%	7%		
Res Elk Antlerless	Elk	AR	073	Aug 1 - Aug 15	8	7	7		88%	100%	0%		
Res Elk Antlerless	Elk	AR	074	Aug 1 - Aug 15	142	8	8		6%	100%	0%		
Res Elk Antlerless	Elk	AR	075	Aug 1 - Aug 15	9	8	8		89%	100%	0%		
Res Elk Antlerless	Elk	AR	076 - 077, 079, 081	Aug 1 - Aug 24	89	30	30	3	34%	97%	10%		
Res Elk Antlerless	Elk	AR	078, 105 - 107, 109	Aug 1 - Aug 15	27	8	8	3	30%	100%	38%		
Res Elk Antlerless	Elk	AR	104, 108, 121	Aug 1 - Aug 24	54	15	14	3	28%	100%	21%		
Res Elk Antlerless	Elk	AR	108, 131 - 132	Aug 1 - Aug 24	49	8	8	2	16%	100%	25%		
Res Elk Antlerless	Elk	AR	111 - 112	Aug 1 - Aug 24	175	40	40	10	23%	100%	25%		
Res Elk Antlerless	Elk	AR	113	Aug 1 - Aug 24	40	30	27	3	75%	100%	11%		
Res Elk Antlerless	Elk	AR	114 - 115	Aug 1 - Aug 24	64	45	44	12	70%	98%	28%		
Res Elk Antlerless	Elk	AR	161 - 164	Aug 1 - Aug 15	89	30	26	5	34%	100%	19%		
Res Elk Antlerless	Elk	AR	221 - 223	Aug 1 - Aug 24	164	50	50	12	30%	98%	24%		
Res Elk Antlerless	Elk	AR	231	Aug 1 - Aug 24	122	35	35	7	29%	100%	20%		
Res Elk Antlerless	Elk	AR	241 - 242	Aug 1 - Aug 24	6	3	3		50%	100%	0%		
Res Elk Antlerless	Elk	M	072	Sep 1 - Sep 16	121	80	69	17	66%	99%	25%		
Res Elk Antlerless	Elk	M	073	Sep 1 - Sep 16	30	30	30	2	100%	100%	7%		
Res Elk Antlerless	Elk	M	074	Sep 1 - Sep 16	8	8	7	3	100%	100%	43%		
Res Elk Antlerless	Elk	M	075	Sep 1 - Sep 16	21	8	8	1	38%	100%	13%		
Res Elk Antlerless	Elk	M	076 - 077, 079, 081	Sep 17 - Sep 30	131	25	24	8	19%	100%	33%		
Res Elk Antlerless	Elk	M	078, 105 - 107, 109	Aug 16 - Aug 31	12	6	6	3	50%	100%	50%		
Res Elk Antlerless	Elk	M	104, 108, 121	Sep 17 - Sep 24	34	15	15	9	44%	93%	64%		
Res Elk Antlerless	Elk	M	108, 131 - 132	Sep 17 - Sep 24	47	15	15	2	32%	87%	15%		
Res Elk Antlerless	Elk	M	111 - 112	Sep 17 - Sep 24	145	25	23	7	17%	100%	30%		
Res Elk Antlerless	Elk	M	113	Sep 17 - Sep 24	31	30	28	9	97%	100%	32%		
Res Elk Antlerless	Elk	M	114 - 115	Sep 17 - Sep 24	59	15	14	3	25%	100%	21%		
Res Elk Antlerless	Elk	M	161 - 164	Sep 1 - Sep 16	63	20	19	3	32%	100%	16%		
Res Elk Antlerless	Elk	M	221 - 223	Sep 17 - Sep 24	163	30	29	8	18%	93%	30%		
Res Elk Antlerless	Elk	M	231	Sep 17 - Sep 24	143	30	28	8	21%	100%	29%		
Res Elk Depredation Antlered	Elk	ALW	101 - 103	Oct 1 - Jan 31	586	50	49	12	9%	100%	24%	50%	25%
Res Elk Depredation Antlered	Elk	ALW	101 - 103	Aug 1 - Sep 30	1,141	50	49	18	4%	92%	40%	22%	11%

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Elk Depredation Antlered	Elk	ALW	144 - 145	Sep 1 - Sep 30	443	10	10	1	2%	100%	10%	100%	100%
Res Elk Depredation Antlered	Elk	ALW	144 - 145	Oct 1 - Oct 31	86	10	9		12%	100%	0%		
Res Elk Depredation Antlered	Elk	ALW	144 - 145	Nov 1 - Jan 31	169	10	10		6%	100%	0%		
Res Elk Depredation Antlered	Elk	ALW	251	Aug 1 - Jan 31	437	5	5	1	1%	100%	20%	0%	0%
Res Elk Depredation Antlerless	Elk	ALW	081	Sep 17 - Sep 30	131	20	19	14	15%	100%	74%		
Res Elk Depredation Antlerless	Elk	ALW	081	Oct 1 - Oct 20	154	35	35	17	23%	100%	49%		
Res Elk Depredation Antlerless	Elk	ALW	081	Dec 5 - Jan 5	112	35	35	10	31%	100%	29%		
Res Elk Depredation Antlerless	Elk	ALW	081	Aug 1 - Aug 24	139	15	15	6	11%	100%	40%		
Res Elk Depredation Antlerless	Elk	ALW	101 - 103	Aug 1 - Jan 31	381	100	100	8	26%	94%	9%		
Res Elk Depredation Antlerless	Elk	ALW	121	Sep 1 - Sep 30	34	10	9	3	29%	100%	33%		
Res Elk Depredation Antlerless	Elk	ALW	121	Oct 1 - Jan 31	76	10	10	2	13%	100%	20%		
Res Elk Depredation Antlerless	Elk	ALW	121	Aug 1 - Aug 31	78	25	25	12	32%	100%	48%		
Res Elk Depredation Antlerless	Elk	ALW	144 - 145	Sep 1 - Sep 30	34	10	10	2	29%	100%	20%		
Res Elk Depredation Antlerless	Elk	ALW	144 - 145	Oct 1 - Oct 31	26	10	10		38%	100%	0%		
Res Elk Depredation Antlerless	Elk	ALW	144 - 145	Nov 1 - Jan 31	53	10	10		19%	100%	0%		
Res Elk Depredation Antlerless	Elk	ALW	144 - 145	Aug 1 - Aug 31	59	10	10		17%	100%	0%		
Res Elk Depredation Antlerless	Elk	ALW	251	Aug 1 - Jan 31	150	10	10		7%	100%	0%		
Res Elk Junior Management Antlerless	Elk	SWR	072 - 077, 079	Aug 10 - Nov 2		180	57	18	100%	96%	33%		
Res Elk Management Antlerless	Elk	ALW	061 - 062, 064, 066 - 068	Oct 5 - Oct 20		250	233	18	100%	98%	8%		
Res Elk Management Antlerless	Elk	ALW	072 - 077, 079	Oct 5 - Oct 20		350	115	26	100%	96%	24%		
Res Elk Management Antlerless	Elk	ALW	072 - 077, 079	Oct 21 - Nov 5		90	20	6	100%	100%	30%		
Res Elk Management Antlerless	Elk	ALW	101 - 103	Oct 5 - Oct 16		180	174	4	100%	98%	2%		
Res Elk Management Antlerless	Elk	ALW	101 - 103	Oct 31 - Nov 8		30	20		100%	100%	0%		
Res Elk Management Antlerless	Elk	ALW	101 - 103	Oct 17 - Oct 30		160	156	2	100%	96%	1%		
Res Elk Management Antlerless	Elk	ALW	131 - 132	Oct 5 - Oct 20		100	79	18	100%	100%	23%		
Res Elk Management Antlerless	Elk	ALW	161 - 164	Oct 5 - Oct 20		85	81	13	100%	94%	17%		
Res Elk Management Antlerless	Elk	ALW	161 - 164	Oct 21 - Nov 5		15	7	2	100%	114%	25%		
Res Elk Management Antlerless	Elk	ALW	221 - 223	Oct 5 - Oct 16		30	29	9	100%	93%	33%		
Res Elk Management Antlerless	Elk	ALW	221 - 223	Oct 31 - Nov 8		15	4		100%	100%	0%		
Res Elk Management Antlerless	Elk	ALW	221 - 223	Oct 17 - Oct 30		25	23	5	100%	100%	22%		
Res Elk Management Antlerless	Elk	ALW	231	Oct 5 - Oct 31		50	47	24	100%	100%	51%		
Res Elk Management Antlerless	Elk	AR	061 - 062, 064, 066 - 068	Aug 10 - Sep 9		55	51	1	100%	100%	2%		
Res Elk Management Antlerless	Elk	AR	072 - 077, 079	Nov 10 - Nov 20		15	4		100%	100%	0%		
Res Elk Management Antlerless	Elk	AR	072 - 077, 079	Aug 10 - Sep 9		120	32	1	100%	97%	3%		
Res Elk Management Antlerless	Elk	AR	101 - 103	Nov 10 - Nov 20		10	3		100%	100%	0%		

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Elk Management Antlerless	Elk	AR	101 - 103	Aug 10 - Sep 9		50	49	2	100%	96%	4%		
Res Elk Management Antlerless	Elk	AR	131 - 132	Aug 10 - Sep 9		10	4		100%	100%	0%		
Res Elk Management Antlerless	Elk	AR	161 - 164	Aug 10 - Sep 9		15	15		100%	100%	0%		
Res Elk Management Antlerless	Elk	AR	231	Aug 10 - Sep 9		10	10	3	100%	100%	30%		
Res Elk Management Antlerless	Elk	M	061 - 062, 064, 066 - 068	Sep 10 - Oct 4		15	15		100%	100%	0%		
Res Elk Management Antlerless	Elk	M	072 - 077, 079	Sep 10 - Oct 4		30	6	1	100%	100%	17%		
Res Elk Management Antlerless	Elk	M	101 - 103	Sep 10 - Oct 4		30	16		100%	94%	0%		
Res Elk Management Antlerless	Elk	M	131 - 132	Sep 10 - Oct 4		10	4		100%	100%	0%		
Res Elk Management Antlerless	Elk	M	231	Sep 10 - Oct 4		10	6	2	100%	100%	33%		
Res Elk Management Antlerless	Elk	M	161 - 164	Sep 10 - Oct 4		30	6	2	100%	117%	29%		
Res Elk Spike	Elk	ALW	061, 071	Sep 17 - Oct 4	280	35	33	13	13%	100%	39%	0%	0%
Res Elk Spike	Elk	ALW	061, 071	Oct 5 - Oct 20	81	50	47	9	62%	100%	19%	0%	0%
Res Elk Spike	Elk	ALW	061, 071	Nov 21 - Jan 31	136	40	39	8	29%	97%	21%	0%	0%
Res Elk Spike	Elk	ALW	062, 064, 066 - 068	Sep 17 - Oct 4	183	35	33	2	19%	100%	6%	0%	0%
Res Elk Spike	Elk	ALW	062, 064, 066 - 068	Oct 5 - Oct 20	60	35	33	3	58%	100%	9%	0%	0%
Res Elk Spike	Elk	ALW	062, 064, 066 - 068	Nov 21 - Jan 31	102	35	34	3	34%	100%	9%	0%	0%
Res Elk Spike	Elk	ALW	072 - 074	Sep 17 - Oct 4	185	40	39	7	22%	100%	18%	0%	0%
Res Elk Spike	Elk	ALW	072 - 074	Oct 5 - Oct 20	74	40	39	4	54%	100%	10%	0%	0%
Res Elk Spike	Elk	ALW	072 - 074	Nov 21 - Jan 5	131	40	38	4	31%	100%	11%	0%	0%
Res Elk Spike	Elk	ALW	076 - 077, 079, 081	Oct 1 - Oct 20	244	15	15	8	6%	100%	53%	0%	0%
Res Elk Spike	Elk	ALW	076 - 077, 079, 081	Dec 5 - Jan 5	164	10	9	4	6%	100%	44%	0%	0%
Res Elk Spike	Elk	ALW	078, 105 - 107, 109	Sep 21 - Oct 4	143	9	9	2	6%	100%	22%	0%	0%
Silver State Elk	Elk	ALW	Any Open Unit	Any Open Season	7,627	1	1	1	0.01%	100%	100%	100%	0%
NR Elk Antlered	Elk	ALW	061, 071	Oct 22 - Nov 5	106	5	5	4	5%	100%	80%	50%	0%
NR Elk Antlered	Elk	ALW	061, 071	Nov 6 - Nov 20	51	5	5	3	10%	100%	60%	100%	33%
NR Elk Antlered	Elk	ALW	062, 064, 066 - 068	Oct 22 - Nov 5	152	4	4	2	3%	100%	50%	100%	0%
NR Elk Antlered	Elk	ALW	062, 064, 066 - 068	Nov 6 - Nov 20	51	4	4	3	8%	100%	75%	67%	33%
NR Elk Antlered	Elk	ALW	072 - 074	Oct 22 - Nov 5	281	23	21	13	8%	95%	65%	85%	25%
NR Elk Antlered	Elk	ALW	072 - 074	Nov 6 - Nov 20	143	23	23	20	16%	100%	87%	95%	50%
NR Elk Antlered	Elk	ALW	075	Oct 22 - Nov 5	40	2	2	1	5%	100%	50%	100%	0%
NR Elk Antlered	Elk	ALW	075	Nov 6 - Nov 20	11	2	2	2	18%	100%	100%	100%	100%
NR Elk Antlered	Elk	ALW	076 - 077, 079, 081	Nov 6 - Nov 20	313	8	8	7	3%	100%	88%	57%	71%
NR Elk Antlered	Elk	ALW	076 - 077, 079, 081	Nov 21 - Dec 4	124	8	8	3	6%	100%	38%	67%	33%
NR Elk Antlered	Elk	ALW	078, 105 - 107, 109	Oct 22 - Nov 5	68	1	1	1	1%	100%	100%	100%	100%
NR Elk Antlered	Elk	ALW	078, 105 - 107, 109	Nov 6 - Nov 28	54	1	1	1	2%	100%	100%	100%	100%

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Elk Antlered	Elk	ALW	104, 108, 121	Nov 6 - Nov 20	95	8	8	7	8%	100%	88%	57%	29%
NR Elk Antlered	Elk	ALW	108, 131 - 132	Nov 6 - Nov 20	55	6	5	3	11%	100%	60%	67%	67%
NR Elk Antlered	Elk	ALW	111 - 115	Nov 6 - Nov 20	1,629	10	9	6	1%	89%	75%	83%	50%
NR Elk Antlered	Elk	ALW	111 - 115	Nov 21 - Dec 4	399	10	8	8	3%	100%	100%	100%	63%
NR Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Sep 17 - Sep 30	1,425	1	1	1	0.1%	100%	100%	100%	100%
NR Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Nov 6 - Nov 20	61	4	3	2	7%	100%	67%	100%	50%
NR Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Nov 21 - Dec 4	43	4	3	2	9%	100%	67%	50%	100%
NR Elk Antlered	Elk	ALW	221 - 223	Nov 6 - Nov 20	696	9	8	6	1%	100%	75%	100%	33%
NR Elk Antlered	Elk	ALW	221 - 223	Nov 21 - Dec 4	201	8	7	6	4%	100%	86%	100%	50%
NR Elk Antlered	Elk	ALW	231	Nov 6 - Nov 20	276	6	6	5	2%	100%	83%	60%	40%
NR Elk Antlered	Elk	ALW	231	Nov 21 - Dec 4	144	5	5	4	3%	100%	80%	100%	50%
NR Elk Antlered	Elk	AR	061, 071	Aug 16 - Aug 31	45	4	3	1	9%	100%	33%	0%	100%
NR Elk Antlered	Elk	AR	062, 064, 066 - 068	Aug 16 - Aug 31	40	3	3		8%	67%	0%		
NR Elk Antlered	Elk	AR	072 - 074	Aug 16 - Aug 31	111	10	7	2	9%	100%	29%	100%	0%
NR Elk Antlered	Elk	AR	076 - 077, 079, 081	Aug 25 - Sep 16	87	5	5	3	6%	100%	60%	100%	33%
NR Elk Antlered	Elk	AR	078, 105 - 107, 109	Sep 1 - Sep 20	45	1	1		2%	100%	0%		
NR Elk Antlered	Elk	AR	104, 108, 121	Aug 25 - Sep 16	33	2	2		6%	100%	0%		
NR Elk Antlered	Elk	AR	108, 131 - 132	Aug 25 - Sep 16	71	1	1	1	1%	100%	100%	100%	100%
NR Elk Antlered	Elk	AR	111 - 115	Aug 25 - Sep 16	1,031	4	3	2	0.4%	67%	100%	100%	100%
NR Elk Antlered	Elk	AR	161 - 164, 171 - 173	Aug 25 - Sep 16	56	2	2	1	4%	100%	50%	100%	100%
NR Elk Antlered	Elk	AR	221 - 223	Aug 25 - Sep 16	487	3	3	1	1%	100%	33%	0%	0%
NR Elk Antlered	Elk	AR	231	Aug 25 - Sep 16	245	2	2	1	1%	100%	50%	100%	0%
NR Elk Antlered	Elk	M	061, 071	Sep 1 - Sep 16	87	3	3	2	3%	100%	67%	50%	50%
NR Elk Antlered	Elk	M	062, 064, 066 - 068	Sep 1 - Sep 16	128	2	2	1	2%	100%	50%	100%	100%
NR Elk Antlered	Elk	M	072 - 074	Sep 1 - Sep 16	199	15	14	7	8%	100%	50%	100%	50%
NR Elk Antlered	Elk	M	076 - 077, 079, 081	Oct 22 - Nov 5	16	3	2	2	19%	100%	100%	100%	50%
NR Elk Antlered	Elk	M	104, 108, 121	Oct 22 - Nov 5	8	1	1		13%	100%	0%		
NR Elk Antlered	Elk	M	111 - 115	Oct 22 - Nov 5	148	4	5	4	3%	100%	80%	75%	25%
NR Elk Antlered	Elk	M	161 - 164, 171 - 173	Oct 22 - Nov 5	22	3	3	1	14%	100%	33%	0%	0%
NR Elk Antlered	Elk	M	221 - 223	Oct 22 - Nov 5	59	2	2	1	3%	100%	50%	100%	100%
NR Elk Antlered	Elk	M	231	Oct 22 - Nov 5	29	1	1		3%	100%	0%		
NR Elk Antlerless	Elk	ALW	061, 071	Sep 17 - Oct 4	144	30	29	12	21%	100%	41%		
NR Elk Antlerless	Elk	ALW	061, 071	Nov 21 - Jan 31	89	15	15	7	17%	80%	58%		
NR Elk Antlerless	Elk	ALW	062, 064, 066 - 068	Sep 17 - Oct 4	110	25	23	6	23%	100%	26%		
NR Elk Antlerless	Elk	ALW	062, 064, 066 - 068	Nov 21 - Jan 31	79	6	4		8%	75%	0%		

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Elk Antlerless	Elk	ALW	072	Sep 26 - Oct 4	50	15	13	1	30%	100%	8%		
NR Elk Antlerless	Elk	ALW	072	Sep 17 - Sep 25	67	15	14	6	22%	86%	50%		
NR Elk Antlerless	Elk	ALW	072 - 075	Nov 21 - Jan 5	192	35	35	7	18%	94%	21%		
NR Elk Antlerless	Elk	ALW	108, 131 - 132	Sep 25 - Oct 4	22	5	4	2	23%	100%	50%		
NR Elk Antlerless	Elk	ALW	111 - 112	Sep 25 - Oct 4	107	10	9	7	9%	100%	78%		
NR Elk Antlerless	Elk	ALW	111 - 112	Dec 5 - Jan 5	76	9	8	7	12%	100%	88%		
NR Elk Antlerless	Elk	ALW	161 - 164	Oct 1 - Oct 20	45	7	7	5	16%	100%	71%		
NR Elk Antlerless	Elk	ALW	161 - 164	Dec 5 - Jan 31	58	10	10	5	17%	100%	50%		
NR Elk Antlerless	Elk	ALW	231	Sep 25 - Oct 4	27	6	6	2	22%	100%	33%		
NR Elk Antlerless	Elk	ALW	231	Dec 5 - Jan 5	50	10	8	6	20%	100%	75%		
NR Elk Antlerless	Elk	AR	072	Aug 1 - Aug 15	4	2	2	1	50%	100%	50%		
NR Elk Antlerless	Elk	AR	076 - 077, 079, 081	Aug 1 - Aug 24	7	3	3		43%	100%	0%		
NR Elk Antlerless	Elk	AR	108, 131 - 132	Aug 1 - Aug 24	9	1	1		11%	100%	0%		
NR Elk Antlerless	Elk	M	072	Sep 1 - Sep 16	11	2	2	1	18%	100%	50%		
NR Elk Antlerless	Elk	M	076 - 077, 079, 081	Sep 17 - Sep 30	13	3	3	2	23%	100%	67%		
NR Elk Antlerless	Elk	M	108, 131 - 132	Sep 17 - Sep 24	6	2	2	1	33%	100%	50%		
NR Elk Management Antlerless	Elk	ALW	072 - 077, 079	Oct 5 - Oct 20		30	5		100%	100%	0%		
NR Elk Management Antlerless	Elk	ALW	072 - 077, 079	Oct 21 - Nov 5		7	1		100%	100%	0%		
Elk Incentive Hunt	Elk	SWR	061, 071				12	8		100%	67%	88%	0%
Elk Incentive Hunt	Elk	SWR	061,071				1	1		100%	100%	0%	100%
Elk Incentive Hunt	Elk	SWR	072, 073, 074				12	8		100%	67%	100%	43%
Elk Incentive Hunt	Elk	SWR	075				12	9		100%	75%	78%	22%
Elk Incentive Hunt	Elk	SWR	076, 077, 079, 081				51	30		94%	63%	76%	28%
Elk Incentive Hunt	Elk	SWR	111-115				15	10		93%	71%	100%	70%
Elk Incentive Hunt	Elk	SWR	221-223				9	4		100%	44%	75%	50%
Elk Incentive Hunt	Elk	SWR	222, 231				6	6		100%	100%	50%	17%
Elk Incentive Hunt	Elk	SWR	231				11	8		100%	73%	63%	13%
Elk Incentive Hunt	Elk	SWR	242				1	1		100%	100%	100%	0%
Private Lands Hunt Antlerless Elk	Elk	ALW	062				11	3		91%	30%		
Private Lands Hunt Antlerless Elk	Elk	ALW	077,081				7	6		100%	86%		
Private Lands Hunt Antlerless Elk	Elk	ALW	101 - 102				1	0		100%	0%		
Private Lands Hunt Antlerless Elk	Elk	ALW	111				5	3		80%	75%		
Private Lands Hunt Antlerless Elk	Elk	ALW	231				13	3		92%	25%		
Wildlife Heritage Elk	Elk	ALW	Any Open Elk Except Unit 091	Aug 1 - Dec 31			2	2		100%	100%	100%	50%
Res Mountain Goat Either Sex	Mountain Goat	ALW	101	Sep 1 - Oct 31	1,406	1	1	1	0.1%	100%	100%		

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Mountain Goat Either Sex	Mountain Goat	ALW	102	Sep 1 - Oct 31	2,924	6	6	5	0.2%	100%	83%		
Res Mountain Goat Either Sex	Mountain Goat	ALW	103	Sep 1 - Oct 31	457	1	1		0.2%	100%	0%		
Res Mule Deer Antlered	Mule Deer	ALW	011 - 013	Oct 5 - Oct 20	467	60	57	27	13%	100%	47%	44%	
Res Mule Deer Antlered	Mule Deer	ALW	011 - 013	Oct 21 - Nov 5	257	10	10	5	4%	100%	50%	80%	
Res Mule Deer Antlered	Mule Deer	ALW	014	Oct 5 - Oct 20	204	35	30	5	17%	100%	17%	20%	
Res Mule Deer Antlered	Mule Deer	ALW	014	Oct 21 - Nov 5	169	10	10	4	6%	100%	40%	75%	
Res Mule Deer Antlered	Mule Deer	ALW	015	Dec 11 - Jan 1	159	35	33	9	22%	100%	27%	44%	
Res Mule Deer Antlered	Mule Deer	ALW	021	Dec 21 - Jan 1	752	40	38	31	5%	100%	82%	68%	
Res Mule Deer Antlered	Mule Deer	ALW	022	Oct 5 - Nov 2	450	40	35	18	9%	100%	51%	50%	
Res Mule Deer Antlered	Mule Deer	ALW	031	Oct 5 - Nov 5	641	170	167	94	27%	95%	59%	41%	
Res Mule Deer Antlered	Mule Deer	ALW	032	Oct 5 - Nov 5	227	140	132	28	62%	96%	22%	18%	
Res Mule Deer Antlered	Mule Deer	ALW	033	Oct 5 - Oct 20	87	20	17	8	23%	94%	50%	25%	
Res Mule Deer Antlered	Mule Deer	ALW	033	Oct 21 - Nov 5	122	10	8	7	8%	100%	88%	43%	
Res Mule Deer Antlered	Mule Deer	ALW	034	Oct 5 - Nov 5	117	25	24	9	21%	100%	38%	22%	
Res Mule Deer Antlered	Mule Deer	ALW	035	Oct 5 - Nov 5	176	90	84	27	51%	98%	33%	15%	
Res Mule Deer Antlered	Mule Deer	ALW	041 - 042	Oct 5 - Nov 2	232	30	29	12	13%	97%	43%	8%	
Res Mule Deer Antlered	Mule Deer	ALW	043 - 046	Oct 5 - Oct 20	451	140	135	54	31%	96%	42%	19%	
Res Mule Deer Antlered	Mule Deer	ALW	043 - 046	Oct 21 - Nov 5	207	55	55	28	27%	96%	53%	50%	
Res Mule Deer Antlered	Mule Deer	ALW	051	Oct 5 - Nov 5	771	275	268	115	36%	99%	44%	41%	
Res Mule Deer Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 5 - Oct 20	2,189	800	729	377	37%	98%	53%	32%	
Res Mule Deer Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 21 - Nov 5	1,052	140	126	77	13%	99%	62%	65%	
Res Mule Deer Antlered	Mule Deer	ALW	065	Oct 5 - Nov 2	575	65	64	47	11%	98%	75%	66%	
Res Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	Oct 5 - Oct 20	1,881	350	333	214	19%	95%	68%	47%	
Res Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	Oct 21 - Nov 5	1,500	90	84	73	6%	99%	88%	71%	
Res Mule Deer Antlered	Mule Deer	ALW	081	Dec 11 - Jan 1	614	40	40	31	7%	100%	78%	87%	
Res Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 5 - Oct 16	1,143	800	784	315	70%	97%	42%	22%	
Res Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 31 - Nov 8	577	160	147	91	28%	99%	63%	62%	
Res Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 17 - Oct 30	844	700	676	267	83%	98%	40%	31%	
Res Mule Deer Antlered	Mule Deer	ALW	111 - 113	Oct 5 - Oct 20	1,387	450	441	232	32%	96%	55%	26%	
Res Mule Deer Antlered	Mule Deer	ALW	111 - 113	Oct 21 - Nov 5	495	50	47	33	10%	98%	72%	55%	
Res Mule Deer Antlered	Mule Deer	ALW	114 - 115	Oct 5 - Oct 20	160	90	88	39	56%	99%	45%	44%	
Res Mule Deer Antlered	Mule Deer	ALW	114 - 115	Oct 21 - Nov 5	88	10	10	4	11%	100%	40%	25%	
Res Mule Deer Antlered	Mule Deer	ALW	115	Dec 1 - Dec 15	157	10	10	6	6%	100%	60%	83%	
Res Mule Deer Antlered	Mule Deer	ALW	121	Oct 5 - Oct 20	433	160	154	108	37%	99%	71%	26%	
Res Mule Deer Antlered	Mule Deer	ALW	121	Oct 21 - Nov 5	260	20	20	20	8%	100%	100%	20%	

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Mule Deer Antlered	Mule Deer	ALW	131 - 134	Oct 5 - Oct 20	1,037	275	268	141	27%	99%	53%	34%	
Res Mule Deer Antlered	Mule Deer	ALW	131 - 134	Oct 21 - Nov 5	511	30	22	11	6%	100%	50%	64%	
Res Mule Deer Antlered	Mule Deer	ALW	141 - 145	Oct 5 - Oct 20	669	350	343	192	52%	98%	57%	31%	
Res Mule Deer Antlered	Mule Deer	ALW	141 - 145	Oct 21 - Nov 5	208	40	39	20	19%	97%	53%	20%	
Res Mule Deer Antlered	Mule Deer	ALW	151 - 156	Oct 5 - Oct 20	387	200	192	85	52%	97%	46%	28%	
Res Mule Deer Antlered	Mule Deer	ALW	151 - 156	Oct 21 - Nov 5	178	25	22	12	14%	100%	55%	58%	
Res Mule Deer Antlered	Mule Deer	ALW	161 - 164	Oct 5 - Oct 20	875	375	365	131	43%	95%	38%	32%	
Res Mule Deer Antlered	Mule Deer	ALW	161 - 164	Oct 21 - Nov 5	448	45	41	17	10%	98%	43%	47%	
Res Mule Deer Antlered	Mule Deer	ALW	171 - 173	Oct 5 - Oct 20	613	425	423	126	69%	97%	31%	23%	
Res Mule Deer Antlered	Mule Deer	ALW	171 - 173	Oct 21 - Nov 5	274	140	138	53	51%	96%	40%	36%	
Res Mule Deer Antlered	Mule Deer	ALW	181 - 184	Oct 5 - Nov 5	464	180	177	72	39%	98%	42%	35%	
Res Mule Deer Antlered	Mule Deer	ALW	192	Nov 5 - Nov 30	260	35	34	17	13%	100%	50%	18%	
Res Mule Deer Antlered	Mule Deer	ALW	194, 196	Nov 5 - Nov 30	2,669	60	56	49	2%	100%	88%	76%	
Res Mule Deer Antlered	Mule Deer	ALW	195	Oct 5 - Nov 2	298	20	20	11	7%	90%	61%	40%	
Res Mule Deer Antlered	Mule Deer	ALW	201, 204	Nov 5 - Nov 30	302	20	18	11	7%	94%	65%	36%	
Res Mule Deer Antlered	Mule Deer	ALW	202, 205 - 208	Nov 5 - Nov 30	252	55	55	31	22%	100%	56%	35%	
Res Mule Deer Antlered	Mule Deer	ALW	203	Nov 5 - Nov 30	160	50	48	26	31%	98%	55%	50%	
Res Mule Deer Antlered	Mule Deer	ALW	211 - 213	Nov 5 - Nov 30	169	50	48	21	30%	96%	46%	48%	
Res Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 5 - Oct 16	1,027	250	238	108	24%	97%	47%	40%	
Res Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 31 - Nov 8	935	25	21	13	3%	100%	62%	77%	
Res Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 17 - Oct 30	472	150	139	62	32%	97%	46%	47%	
Res Mule Deer Antlered	Mule Deer	ALW	231	Oct 5 - Oct 31	1,804	150	145	88	8%	97%	63%	55%	
Res Mule Deer Antlered	Mule Deer	ALW	241 - 245	Oct 5 - Oct 31	1,279	95	89	52	7%	98%	60%	76%	
Res Mule Deer Antlered	Mule Deer	ALW	251 - 254	Oct 5 - Nov 2	94	40	40	6	43%	100%	15%	50%	
Res Mule Deer Antlered	Mule Deer	ALW	261 - 268	Nov 5 - Nov 30	819	65	62	51	8%	98%	84%	45%	
Res Mule Deer Antlered	Mule Deer	ALW	271 - 272	Nov 5 - Nov 30	189	30	28	12	16%	96%	44%	33%	
Res Mule Deer Antlered	Mule Deer	ALW	291	Nov 5 - Nov 30	392	55	53	43	14%	100%	81%	37%	
Res Mule Deer Antlered	Mule Deer	AR	011 - 013	Aug 10 - Sep 9	50	15	13	1	30%	92%	8%	0%	
Res Mule Deer Antlered	Mule Deer	AR	014	Aug 10 - Sep 9	34	5	5		15%	100%	0%		
Res Mule Deer Antlered	Mule Deer	AR	015	Aug 10 - Sep 9	19	7	6	3	37%	100%	50%	100%	
Res Mule Deer Antlered	Mule Deer	AR	021	Dec 1 - Dec 10	99	30	27	5	30%	100%	19%	80%	
Res Mule Deer Antlered	Mule Deer	AR	022	Aug 10 - Sep 9	42	15	13	3	36%	100%	23%	0%	
Res Mule Deer Antlered	Mule Deer	AR	031	Aug 10 - Sep 9	32	20	17	2	63%	100%	12%	0%	
Res Mule Deer Antlered	Mule Deer	AR	032	Aug 10 - Sep 9	125	85	86	6	68%	97%	7%	0%	
Res Mule Deer Antlered	Mule Deer	AR	033	Aug 10 - Sep 9	9	2	2		22%	100%	0%		

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Mule Deer Antlered	Mule Deer	AR	034	Aug 10 - Sep 9	10	8	5	2	80%	100%	40%	0%	
Res Mule Deer Antlered	Mule Deer	AR	035	Aug 10 - Sep 9	35	35	34	3	100%	100%	9%	33%	
Res Mule Deer Antlered	Mule Deer	AR	041 - 042	Aug 10 - Sep 9	28	15	13		54%	100%	0%		
Res Mule Deer Antlered	Mule Deer	AR	043 - 046	Aug 10 - Sep 9	91	85	77	13	93%	97%	17%	8%	
Res Mule Deer Antlered	Mule Deer	AR	051	Aug 10 - Sep 9	117	110	106	24	94%	97%	23%	38%	
Res Mule Deer Antlered	Mule Deer	AR	061 - 062, 064, 066 - 068	Aug 10 - Sep 9	387	275	266	49	71%	97%	19%	45%	
Res Mule Deer Antlered	Mule Deer	AR	065	Aug 10 - Sep 9	48	15	14	1	31%	100%	7%	0%	
Res Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	Nov 10 - Nov 20	162	15	14	8	9%	100%	57%	50%	
Res Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	Aug 10 - Sep 9	277	120	115	37	43%	97%	33%	62%	
Res Mule Deer Antlered	Mule Deer	AR	081	Nov 10 - Nov 20	55	3	3	1	5%	100%	33%	100%	
Res Mule Deer Antlered	Mule Deer	AR	101 - 109	Nov 10 - Nov 20	68	20	17	4	29%	100%	24%	50%	
Res Mule Deer Antlered	Mule Deer	AR	101 - 109	Aug 10 - Sep 9	589	500	492	95	85%	96%	20%	39%	
Res Mule Deer Antlered	Mule Deer	AR	111 - 113	Aug 10 - Sep 9	151	45	43	18	30%	95%	44%	6%	
Res Mule Deer Antlered	Mule Deer	AR	114 - 115	Aug 10 - Sep 9	112	110	107	17	98%	94%	17%	65%	
Res Mule Deer Antlered	Mule Deer	AR	121	Nov 10 - Nov 20	30	6	5	5	20%	100%	100%	40%	
Res Mule Deer Antlered	Mule Deer	AR	121	Aug 10 - Sep 9	42	25	25	12	60%	100%	48%	17%	
Res Mule Deer Antlered	Mule Deer	AR	131 - 134	Aug 10 - Sep 9	285	45	41	24	16%	95%	62%	46%	
Res Mule Deer Antlered	Mule Deer	AR	141 - 145	Aug 10 - Sep 9	240	190	185	45	79%	97%	25%	27%	
Res Mule Deer Antlered	Mule Deer	AR	151 - 156	Aug 10 - Sep 9	119	110	109	25	92%	98%	23%	40%	
Res Mule Deer Antlered	Mule Deer	AR	161 - 164	Aug 10 - Sep 9	252	160	143	30	63%	99%	21%	17%	
Res Mule Deer Antlered	Mule Deer	AR	171 - 173	Aug 10 - Sep 9	250	180	171	21	72%	98%	13%	14%	
Res Mule Deer Antlered	Mule Deer	AR	181 - 184	Aug 10 - Sep 9	56	40	40	5	71%	98%	13%	100%	
Res Mule Deer Antlered	Mule Deer	AR	192	Dec 1 - Jan 1	46	20	20	6	43%	100%	30%	33%	
Res Mule Deer Antlered	Mule Deer	AR	192	Aug 10 - Sep 9	40	15	15	3	38%	100%	20%	0%	
Res Mule Deer Antlered	Mule Deer	AR	194, 196	Dec 1 - Jan 1	153	15	14	8	10%	100%	57%	75%	
Res Mule Deer Antlered	Mule Deer	AR	194, 196	Aug 10 - Sep 9	216	15	13	1	7%	100%	8%	0%	
Res Mule Deer Antlered	Mule Deer	AR	195	Aug 10 - Sep 9	36	4	4	2	11%	75%	67%	50%	
Res Mule Deer Antlered	Mule Deer	AR	201 - 202, 204 - 208	Aug 10 - Sep 9	13	8	8	1	62%	88%	14%	0%	
Res Mule Deer Antlered	Mule Deer	AR	201, 204	Dec 16 - Jan 1	27	10	10	1	37%	100%	10%	100%	
Res Mule Deer Antlered	Mule Deer	AR	202, 205 - 208	Dec 16 - Jan 1	13	6	5	4	46%	80%	100%	50%	
Res Mule Deer Antlered	Mule Deer	AR	203	Dec 16 - Jan 1	24	20	20	3	83%	100%	15%	33%	
Res Mule Deer Antlered	Mule Deer	AR	203	Aug 10 - Sep 9	35	20	20	6	57%	100%	30%	0%	
Res Mule Deer Antlered	Mule Deer	AR	211 - 213	Aug 10 - Sep 9	17	15	13	4	88%	100%	31%	25%	
Res Mule Deer Antlered	Mule Deer	AR	221 - 223	Aug 10 - Sep 9	171	75	69	15	44%	100%	22%	47%	
Res Mule Deer Antlered	Mule Deer	AR	231	Aug 10 - Sep 9	206	45	43	12	22%	100%	28%	75%	

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Mule Deer Antlered	Mule Deer	AR	241 - 245	Aug 10 - Sep 9	61	10	7	4	16%	86%	67%	75%	
Res Mule Deer Antlered	Mule Deer	AR	251 - 254	Aug 10 - Sep 9	12	10	10	3	83%	90%	33%	33%	
Res Mule Deer Antlered	Mule Deer	AR	261 - 268	Aug 10 - Sep 9	72	10	10		14%	100%	0%		
Res Mule Deer Antlered	Mule Deer	AR	271 - 272	Aug 10 - Sep 9	13	10	8	3	77%	88%	43%	33%	
Res Mule Deer Antlered	Mule Deer	AR	291	Aug 10 - Sep 9	26	8	8		31%	100%	0%		
Res Mule Deer Antlered	Mule Deer	M	011 - 013	Sep 10 - Oct 4	20	2	2		10%	100%	0%		
Res Mule Deer Antlered	Mule Deer	M	014	Sep 10 - Oct 4	20	5	5	1	25%	100%	20%	0%	
Res Mule Deer Antlered	Mule Deer	M	015	Sep 10 - Oct 4	14	3	2		21%	100%	0%		
Res Mule Deer Antlered	Mule Deer	M	021	Dec 11 - Dec 20	26	2	2		8%	100%	0%		
Res Mule Deer Antlered	Mule Deer	M	022	Sep 10 - Oct 4	17	2	2		12%	100%	0%		
Res Mule Deer Antlered	Mule Deer	M	031	Sep 10 - Oct 4	40	15	15	7	38%	100%	47%	29%	
Res Mule Deer Antlered	Mule Deer	M	032	Sep 10 - Oct 4	10	7	5	2	70%	100%	40%	0%	
Res Mule Deer Antlered	Mule Deer	M	033	Sep 10 - Oct 4	7	5	5	1	71%	100%	20%	100%	
Res Mule Deer Antlered	Mule Deer	M	034	Sep 10 - Oct 4	5	2	2		40%	100%	0%		
Res Mule Deer Antlered	Mule Deer	M	035	Sep 10 - Oct 4	20	10	10	1	50%	90%	11%	0%	
Res Mule Deer Antlered	Mule Deer	M	041 - 042	Sep 10 - Oct 4	13	5	3	1	38%	67%	50%	0%	
Res Mule Deer Antlered	Mule Deer	M	043 - 046	Sep 10 - Oct 4	21	10	10	3	48%	100%	30%	67%	
Res Mule Deer Antlered	Mule Deer	M	051	Sep 10 - Oct 4	50	25	25	16	50%	96%	67%	31%	
Res Mule Deer Antlered	Mule Deer	M	061 - 062, 064, 066 - 068	Sep 10 - Oct 4	225	70	64	30	31%	100%	47%	33%	
Res Mule Deer Antlered	Mule Deer	M	065	Sep 10 - Oct 4	49	5	5	3	10%	100%	60%	67%	
Res Mule Deer Antlered	Mule Deer	M	071 - 079, 091	Sep 10 - Oct 4	181	30	28	17	17%	100%	61%	47%	
Res Mule Deer Antlered	Mule Deer	M	081	Nov 21 - Dec 10	180	10	10	7	6%	100%	70%	86%	
Res Mule Deer Antlered	Mule Deer	M	101 - 109	Sep 10 - Oct 4	131	110	107	38	84%	97%	37%	13%	
Res Mule Deer Antlered	Mule Deer	M	111 - 113	Sep 10 - Oct 4	84	25	24	14	30%	100%	58%	21%	
Res Mule Deer Antlered	Mule Deer	M	114 - 115	Nov 10 - Nov 30	97	25	24	15	26%	100%	63%	87%	
Res Mule Deer Antlered	Mule Deer	M	121	Sep 10 - Oct 4	31	10	10	6	32%	100%	60%	50%	
Res Mule Deer Antlered	Mule Deer	M	131 - 134	Sep 10 - Oct 4	218	35	27	17	16%	100%	63%	50%	
Res Mule Deer Antlered	Mule Deer	M	141 - 145	Sep 10 - Oct 4	58	30	30	11	52%	93%	39%	36%	
Res Mule Deer Antlered	Mule Deer	M	151 - 156	Sep 10 - Oct 4	34	15	15	8	44%	93%	57%	75%	
Res Mule Deer Antlered	Mule Deer	M	161 - 164	Sep 10 - Oct 4	92	35	35	20	38%	100%	57%	25%	
Res Mule Deer Antlered	Mule Deer	M	171 - 173	Sep 10 - Oct 4	101	85	83	26	84%	96%	33%	27%	
Res Mule Deer Antlered	Mule Deer	M	181 - 184	Nov 10 - Nov 30	64	15	15	5	23%	93%	36%	40%	
Res Mule Deer Antlered	Mule Deer	M	192	Sep 10 - Oct 4	29	15	15	1	52%	100%	7%	100%	
Res Mule Deer Antlered	Mule Deer	M	194, 196	Sep 10 - Oct 4	66	4	3	1	6%	100%	33%	0%	
Res Mule Deer Antlered	Mule Deer	M	195	Sep 10 - Oct 4	9	2	1	1	22%	100%	100%	100%	

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Mule Deer Antlered	Mule Deer	M	201, 204	Dec 1 - Dec 15	11	2	2	1	18%	100%	50%	100%	
Res Mule Deer Antlered	Mule Deer	M	202, 205 - 208	Dec 1 - Dec 15	19	10	7	5	53%	100%	71%	40%	
Res Mule Deer Antlered	Mule Deer	M	211 - 213	Sep 10 - Oct 10	11	8	7	2	73%	86%	33%	0%	
Res Mule Deer Antlered	Mule Deer	M	221 - 223	Sep 10 - Oct 4	76	25	21	13	33%	100%	62%	62%	
Res Mule Deer Antlered	Mule Deer	M	231	Sep 10 - Oct 4	134	25	25	10	19%	100%	40%	30%	
Res Mule Deer Antlered	Mule Deer	M	241 - 245	Sep 10 - Oct 4	45	6	5	1	13%	100%	20%	100%	
Res Mule Deer Antlered	Mule Deer	M	251 - 254	Sep 10 - Oct 4	13	5	4	2	38%	100%	50%	100%	
Res Mule Deer Antlered	Mule Deer	M	261 - 268	Sep 10 - Oct 4	30	10	10	6	33%	100%	60%	50%	
Res Mule Deer Antlered	Mule Deer	M	271 - 272	Sep 10 - Oct 4	11	10	9	2	91%	100%	22%	50%	
Res Mule Deer Antlered	Mule Deer	M	291	Sep 10 - Oct 4	11	2	2	1	18%	100%	50%	0%	
Res Mule Deer Antlerless	Mule Deer	ALW	051	Oct 10 - Oct 31	90	30	30	17	33%	100%	57%		
Res Mule Deer Antlerless	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 10 - Oct 31	373	350	322	172	94%	98%	55%		
Res Mule Deer Antlerless	Mule Deer	ALW	062, 067 - 068	Nov 6 - Nov 20	1,070	350	332	169	33%	97%	53%		
Res Mule Deer Antlerless	Mule Deer	ALW	071 - 079, 091	Oct 10 - Oct 31	195	125	124	83	64%	95%	70%		
Res Mule Deer Antlerless	Mule Deer	ALW	101 - 102, 109	Oct 5 - Oct 20	215	125	125	62	58%	98%	50%		
Res Mule Deer Antlerless	Mule Deer	ALW	114 - 115 Baker Ranch	Sep 17 - Sep 24	22	15	15	4	68%	100%	27%		
Res Mule Deer Antlerless	Mule Deer	ALW	114 - 115 Baker Ranch	Dec 1 - Dec 15	204	40	39	16	20%	97%	42%		
Res Mule Deer Junior	Mule Deer	SWR	011 - 013	Aug 10 - Nov 2	54	20	20	10	37%	100%	50%	50%	
Res Mule Deer Junior	Mule Deer	SWR	014	Aug 10 - Nov 2	43	20	20	11	47%	95%	58%	13%	
Res Mule Deer Junior	Mule Deer	SWR	015	Aug 10 - Jan 1	16	10	10	5	63%	90%	56%	80%	
Res Mule Deer Junior	Mule Deer	SWR	021	Dec 1 - Jan 1	101	15	15	10	15%	100%	67%	50%	
Res Mule Deer Junior	Mule Deer	SWR	022	Aug 10 - Nov 2	68	25	24	13	37%	100%	54%	18%	
Res Mule Deer Junior	Mule Deer	SWR	031	Aug 10 - Nov 5	75	65	65	43	87%	98%	67%	28%	
Res Mule Deer Junior	Mule Deer	SWR	032	Aug 10 - Nov 5	77	75	75	33	97%	96%	46%	38%	
Res Mule Deer Junior	Mule Deer	SWR	033	Aug 10 - Nov 5	21	15	15	8	71%	93%	57%	25%	
Res Mule Deer Junior	Mule Deer	SWR	034	Aug 10 - Nov 5	15	10	10	7	67%	100%	70%	29%	
Res Mule Deer Junior	Mule Deer	SWR	035	Aug 10 - Nov 5	70	45	45	28	64%	98%	64%	29%	
Res Mule Deer Junior	Mule Deer	SWR	041 - 042	Aug 10 - Nov 2	30	15	15	8	50%	93%	57%	29%	
Res Mule Deer Junior	Mule Deer	SWR	043 - 046	Aug 10 - Nov 2	114	110	111	62	96%	95%	59%	35%	
Res Mule Deer Junior	Mule Deer	SWR	051	Aug 10 - Nov 5	134	130	131	80	97%	97%	63%	48%	
Res Mule Deer Junior	Mule Deer	SWR	061 - 062, 064, 066 - 068	Aug 10 - Nov 2	465	400	400	248	86%	97%	64%	39%	
Res Mule Deer Junior	Mule Deer	SWR	065	Aug 10 - Nov 2	77	20	20	9	26%	85%	53%	56%	
Res Mule Deer Junior	Mule Deer	SWR	071 - 079, 091	Aug 10 - Nov 2	394	180	180	142	46%	98%	81%	60%	
Res Mule Deer Junior	Mule Deer	SWR	081	Nov 1 - Jan 1	105	15	15	14	14%	100%	93%	86%	
Res Mule Deer Junior	Mule Deer	SWR	101 - 109	Aug 10 - Nov 2	361	375	359	208	100%	97%	59%	30%	

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Res Mule Deer Junior	Mule Deer	SWR	111 - 113	Aug 10 - Nov 2	250	225	227	144	90%	97%	65%	30%	
Res Mule Deer Junior	Mule Deer	SWR	114 - 115	Aug 10 - Nov 2	58	55	53	29	95%	94%	58%	56%	
Res Mule Deer Junior	Mule Deer	SWR	121	Aug 10 - Nov 2	99	80	80	67	81%	100%	84%	27%	
Res Mule Deer Junior	Mule Deer	SWR	131 - 134	Aug 10 - Nov 2	228	140	141	90	61%	99%	64%	41%	
Res Mule Deer Junior	Mule Deer	SWR	141 - 145	Aug 10 - Nov 2	200	190	190	105	95%	95%	58%	27%	
Res Mule Deer Junior	Mule Deer	SWR	151 - 156	Aug 10 - Nov 2	119	110	112	68	92%	92%	66%	38%	
Res Mule Deer Junior	Mule Deer	SWR	161 - 164	Aug 10 - Nov 2	173	140	138	66	81%	96%	50%	34%	
Res Mule Deer Junior	Mule Deer	SWR	171 - 173	Aug 10 - Nov 2	158	140	139	77	89%	97%	57%	36%	
Res Mule Deer Junior	Mule Deer	SWR	181 - 184	Aug 10 - Nov 2	103	80	80	34	78%	94%	45%	44%	
Res Mule Deer Junior	Mule Deer	SWR	192	Aug 10 - Nov 30	48	20	19	13	42%	95%	72%	58%	
Res Mule Deer Junior	Mule Deer	SWR	194, 196	Aug 10 - Nov 30	383	25	25	24	7%	100%	96%	52%	
Res Mule Deer Junior	Mule Deer	SWR	195	Aug 10 - Nov 2	42	7	7	4	17%	86%	67%	33%	
Res Mule Deer Junior	Mule Deer	SWR	201, 204	Nov 5 - Jan 1	50	6	6	5	12%	100%	83%	0%	
Res Mule Deer Junior	Mule Deer	SWR	202, 205 - 208	Nov 5 - Jan 1	37	20	20	9	54%	95%	47%	43%	
Res Mule Deer Junior	Mule Deer	SWR	203	Aug 10 - Nov 30	27	20	20	14	74%	95%	74%	27%	
Res Mule Deer Junior	Mule Deer	SWR	211 - 213	Aug 10 - Nov 30	22	20	20	8	91%	100%	40%	13%	
Res Mule Deer Junior	Mule Deer	SWR	221 - 223	Aug 10 - Nov 2	338	200	199	110	59%	95%	58%	44%	
Res Mule Deer Junior	Mule Deer	SWR	231	Aug 10 - Nov 2	248	85	85	72	34%	98%	87%	50%	
Res Mule Deer Junior	Mule Deer	SWR	241 - 245	Aug 10 - Nov 2	198	30	30	23	15%	100%	77%	50%	
Res Mule Deer Junior	Mule Deer	SWR	251 - 254	Aug 10 - Nov 2	56	30	30	7	54%	100%	23%	33%	
Res Mule Deer Junior	Mule Deer	SWR	261 - 268	Aug 10 - Nov 30	161	30	29	23	19%	97%	82%	33%	
Res Mule Deer Junior	Mule Deer	SWR	271 - 272	Aug 10 - Nov 30	30	15	15	7	50%	100%	47%	17%	
Res Mule Deer Junior	Mule Deer	SWR	291	Aug 10 - Nov 30	57	20	20	17	35%	95%	89%	47%	
Res Mule Deer PIW	Mule Deer	SWR	Any Open Unit	Any Open Season	5,269	22	22	18	0.4%	95%	86%	61%	
Silver State Mule Deer	Mule Deer	ALW	Any Open Unit	Any Open Season	7,983	1	1	1	0.01%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	011 - 013	Oct 5 - Oct 20	88	6	5	3	7%	100%	60%	33%	
NR Mule Deer Antlered	Mule Deer	ALW	011 - 013	Oct 21 - Nov 5	131	2	3	2	2%	100%	67%	50%	
NR Mule Deer Antlered	Mule Deer	ALW	014	Oct 5 - Oct 20	16	3	2	1	19%	100%	50%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	014	Oct 21 - Nov 5	44	2	2	2	5%	100%	100%	50%	
NR Mule Deer Antlered	Mule Deer	ALW	015	Dec 11 - Jan 1	122	3	2	1	2%	100%	50%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	021	Dec 21 - Jan 1	185	4	4	2	2%	100%	50%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	022	Oct 5 - Nov 2	68	4	4	3	6%	100%	75%	33%	
NR Mule Deer Antlered	Mule Deer	ALW	031	Oct 5 - Nov 5	241	15	14	10	6%	100%	71%	20%	
NR Mule Deer Antlered	Mule Deer	ALW	032	Oct 5 - Nov 5	70	10	10	3	14%	90%	33%	67%	
NR Mule Deer Antlered	Mule Deer	ALW	033	Oct 5 - Oct 20	24	2	2		8%	100%	0%		

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Mule Deer Antlered	Mule Deer	ALW	033	Oct 21 - Nov 5	65	2	2	2	3%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	034	Oct 5 - Nov 5	19	2	2	2	11%	100%	100%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	035	Oct 5 - Nov 5	26	8	8	4	31%	100%	50%	75%	
NR Mule Deer Antlered	Mule Deer	ALW	041 - 042	Oct 5 - Nov 2	25	3	3		12%	100%	0%		
NR Mule Deer Antlered	Mule Deer	ALW	043 - 046	Oct 5 - Oct 20	46	8	8	6	17%	100%	75%	33%	
NR Mule Deer Antlered	Mule Deer	ALW	043 - 046	Oct 21 - Nov 5	30	4	3	2	13%	100%	67%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	051	Oct 5 - Nov 5	138	20	20	10	14%	95%	53%	80%	
NR Mule Deer Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 5 - Oct 20	444	60	41	23	14%	98%	58%	70%	
NR Mule Deer Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 21 - Nov 5	302	15	12	6	5%	100%	50%	67%	
NR Mule Deer Antlered	Mule Deer	ALW	065	Oct 5 - Nov 2	79	5	2	1	6%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	Oct 5 - Oct 20	370	30	28	21	8%	96%	78%	76%	
NR Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	Oct 21 - Nov 5	550	7	6	6	1%	100%	100%	83%	
NR Mule Deer Antlered	Mule Deer	ALW	081	Dec 11 - Jan 1	886	3	2	2	0.3%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 5 - Oct 16	218	70	69	34	32%	91%	54%	41%	
NR Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 31 - Nov 8	230	15	14	12	7%	100%	86%	75%	
NR Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 17 - Oct 30	139	65	57	30	47%	100%	53%	57%	
NR Mule Deer Antlered	Mule Deer	ALW	111 - 113	Oct 5 - Oct 20	205	30	28	21	15%	100%	75%	43%	
NR Mule Deer Antlered	Mule Deer	ALW	111 - 113	Oct 21 - Nov 5	154	3	3	3	2%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	114 - 115	Oct 5 - Oct 20	39	6	5	4	15%	100%	80%	75%	
NR Mule Deer Antlered	Mule Deer	ALW	114 - 115	Oct 21 - Nov 5	29	2	2	2	7%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	115	Dec 1 - Dec 15	212	2	2		1%	50%	0%		
NR Mule Deer Antlered	Mule Deer	ALW	121	Oct 5 - Oct 20	71	15	12	7	21%	100%	58%	43%	
NR Mule Deer Antlered	Mule Deer	ALW	121	Oct 21 - Nov 5	66	2	1	1	3%	100%	100%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	131 - 134	Oct 5 - Oct 20	179	20	19	13	11%	100%	68%	46%	
NR Mule Deer Antlered	Mule Deer	ALW	131 - 134	Oct 21 - Nov 5	347	3	3	1	1%	100%	33%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	141 - 145	Oct 5 - Oct 20	98	26	25	18	27%	92%	78%	33%	
NR Mule Deer Antlered	Mule Deer	ALW	141 - 145	Oct 21 - Nov 5	23	3	3	3	13%	100%	100%	33%	
NR Mule Deer Antlered	Mule Deer	ALW	151 - 156	Oct 5 - Oct 20	57	18	17	12	32%	100%	71%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	151 - 156	Oct 21 - Nov 5	23	2	2	1	9%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	161 - 164	Oct 5 - Oct 20	120	25	24	15	21%	100%	63%	73%	
NR Mule Deer Antlered	Mule Deer	ALW	161 - 164	Oct 21 - Nov 5	79	4	3	2	5%	100%	67%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	171 - 173	Oct 5 - Oct 20	86	40	38	23	47%	100%	61%	35%	
NR Mule Deer Antlered	Mule Deer	ALW	171 - 173	Oct 21 - Nov 5	38	10	5	3	26%	100%	60%	67%	
NR Mule Deer Antlered	Mule Deer	ALW	181 - 184	Oct 5 - Nov 5	42	15	15	8	36%	80%	67%	50%	
NR Mule Deer Antlered	Mule Deer	ALW	192	Nov 5 - Nov 30	44	4	4	3	9%	100%	75%	33%	

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Mule Deer Antlered	Mule Deer	ALW	194, 196	Nov 5 - Nov 30	592	5	5	4	1%	100%	80%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	195	Oct 5 - Nov 2	11	2	2	2	18%	100%	100%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	201, 204	Nov 5 - Nov 30	34	2	2	2	6%	100%	100%	50%	
NR Mule Deer Antlered	Mule Deer	ALW	202, 205 - 208	Nov 5 - Nov 30	40	6	6	3	15%	100%	50%	67%	
NR Mule Deer Antlered	Mule Deer	ALW	203	Nov 5 - Nov 30	18	4	4	3	22%	100%	75%	33%	
NR Mule Deer Antlered	Mule Deer	ALW	211 - 213	Nov 5 - Nov 30	60	5	4	2	8%	75%	67%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 5 - Oct 16	95	15	13	11	16%	100%	85%	91%	
NR Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 31 - Nov 8	1,388	2	2		0.1%	100%	0%		
NR Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 17 - Oct 30	135	15	14	5	11%	93%	38%	80%	
NR Mule Deer Antlered	Mule Deer	ALW	231	Oct 5 - Oct 31	688	15	13	8	2%	69%	89%	75%	
NR Mule Deer Antlered	Mule Deer	ALW	241 - 245	Oct 5 - Oct 31	1,181	10	10	5	1%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	251 - 254	Oct 5 - Nov 2	39	5	4	1	13%	100%	25%	0%	
NR Mule Deer Antlered	Mule Deer	ALW	261 - 268	Nov 5 - Nov 30	65	5	3	1	8%	100%	33%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	271 - 272	Nov 5 - Nov 30	60	3	3	1	5%	100%	33%	100%	
NR Mule Deer Antlered	Mule Deer	ALW	291	Nov 5 - Nov 30	24	3	2	2	13%	100%	100%	50%	
NR Mule Deer Antlered	Mule Deer	AR	011 - 013	Aug 10 - Sep 9	30	2	1	1	7%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	AR	014	Aug 10 - Sep 9	3	2	1		67%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	015	Aug 10 - Sep 9	9	2	2	1	22%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	AR	021	Dec 1 - Dec 10	23	3	3		13%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	022	Aug 10 - Sep 9	6	2	1		33%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	031	Aug 10 - Sep 9	15	2	2	1	13%	100%	50%	0%	
NR Mule Deer Antlered	Mule Deer	AR	032	Aug 10 - Sep 9	16	10	10		63%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	033	Aug 10 - Sep 9	11	2	2	1	18%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	AR	034	Aug 10 - Sep 9	3	2	1		67%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	035	Aug 10 - Sep 9	7	4	4	2	57%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	AR	041 - 042	Aug 10 - Sep 9	3	2	0		67%				
NR Mule Deer Antlered	Mule Deer	AR	043 - 046	Aug 10 - Sep 9	14	10	10	1	71%	100%	10%		
NR Mule Deer Antlered	Mule Deer	AR	051	Aug 10 - Sep 9	31	10	10	2	32%	100%	20%	100%	
NR Mule Deer Antlered	Mule Deer	AR	061 - 062, 064, 066 - 068	Aug 10 - Sep 9	81	30	28	7	37%	100%	25%	43%	
NR Mule Deer Antlered	Mule Deer	AR	065	Aug 10 - Sep 9	11	2	2		18%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	Nov 10 - Nov 20	62	2	2	2	3%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	Aug 10 - Sep 9	102	15	12	8	15%	100%	67%	25%	
NR Mule Deer Antlered	Mule Deer	AR	081	Nov 10 - Nov 20	84	2	2	1	2%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	AR	101 - 109	Nov 10 - Nov 20	46	2	1	1	4%	100%	100%	0%	
NR Mule Deer Antlered	Mule Deer	AR	101 - 109	Aug 10 - Sep 9	150	50	50	8	33%	98%	16%	44%	

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT AND UNIT GROUP**

Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Mule Deer Antlered	Mule Deer	AR	111 - 113	Aug 10 - Sep 9	30	5	4	4	17%	100%	100%	75%	
NR Mule Deer Antlered	Mule Deer	AR	114 - 115	Aug 10 - Sep 9	37	10	8	2	27%	100%	25%	50%	
NR Mule Deer Antlered	Mule Deer	AR	121	Nov 10 - Nov 20	25	2	2	2	8%	100%	100%	50%	
NR Mule Deer Antlered	Mule Deer	AR	121	Aug 10 - Sep 9	7	3	2		43%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	131 - 134	Aug 10 - Sep 9	121	5	4	2	4%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	AR	141 - 145	Aug 10 - Sep 9	31	24	24	8	77%	100%	33%	50%	
NR Mule Deer Antlered	Mule Deer	AR	151 - 156	Aug 10 - Sep 9	15	10	7	3	67%	100%	43%	67%	
NR Mule Deer Antlered	Mule Deer	AR	161 - 164	Aug 10 - Sep 9	54	20	18	6	37%	100%	33%	50%	
NR Mule Deer Antlered	Mule Deer	AR	171 - 173	Aug 10 - Sep 9	34	20	18	1	59%	100%	6%	0%	
NR Mule Deer Antlered	Mule Deer	AR	181 - 184	Aug 10 - Sep 9	6	4	3	2	67%	100%	67%	0%	
NR Mule Deer Antlered	Mule Deer	AR	192	Dec 1 - Jan 1	11	2	1		18%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	192	Aug 10 - Sep 9	12	2	1		17%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	194, 196	Dec 1 - Jan 1	124	2	1		2%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	194, 196	Aug 10 - Sep 9	22	2	0		9%				
NR Mule Deer Antlered	Mule Deer	AR	195	Aug 10 - Sep 9	8	2	2	1	25%	50%	100%	100%	
NR Mule Deer Antlered	Mule Deer	AR	201 - 202, 204 - 208	Aug 10 - Sep 9	4	2	1	1	50%	100%	100%	0%	
NR Mule Deer Antlered	Mule Deer	AR	201, 204	Dec 16 - Jan 1	5	2	2	1	40%	100%	50%	0%	
NR Mule Deer Antlered	Mule Deer	AR	202, 205 - 208	Dec 16 - Jan 1	12	3	3	2	25%	100%	67%	0%	
NR Mule Deer Antlered	Mule Deer	AR	203	Dec 16 - Jan 1	5	2	2		40%	50%	0%		
NR Mule Deer Antlered	Mule Deer	AR	203	Aug 10 - Sep 9	5	3	3		60%	67%	0%		
NR Mule Deer Antlered	Mule Deer	AR	211 - 213	Aug 10 - Sep 9	7	2	2	1	29%	100%	50%	0%	
NR Mule Deer Antlered	Mule Deer	AR	221 - 223	Aug 10 - Sep 9	70	8	6	1	11%	100%	17%	0%	
NR Mule Deer Antlered	Mule Deer	AR	231	Aug 10 - Sep 9	257	5	4	1	2%	100%	25%	100%	
NR Mule Deer Antlered	Mule Deer	AR	241 - 245	Aug 10 - Sep 9	187	2	0		1%				
NR Mule Deer Antlered	Mule Deer	AR	251 - 254	Aug 10 - Sep 9	6	2	2	1	33%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	AR	261 - 268	Aug 10 - Sep 9	4	2	2	1	50%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	AR	271 - 272	Aug 10 - Sep 9	5	2	2		40%	100%	0%		
NR Mule Deer Antlered	Mule Deer	AR	291	Aug 10 - Sep 9	2	2	2		100%	100%	0%		
NR Mule Deer Antlered	Mule Deer	M	011 - 013	Sep 10 - Oct 4	12	2	2		17%	100%	0%		
NR Mule Deer Antlered	Mule Deer	M	014	Sep 10 - Oct 4	17	2	2	1	12%	100%	50%	0%	
NR Mule Deer Antlered	Mule Deer	M	015	Sep 10 - Oct 4	20	2	2	1	10%	50%	100%	100%	
NR Mule Deer Antlered	Mule Deer	M	021	Dec 11 - Dec 20	38	2	2	2	5%	100%	100%	50%	
NR Mule Deer Antlered	Mule Deer	M	022	Sep 10 - Oct 4	12	2	2		17%	50%	0%		
NR Mule Deer Antlered	Mule Deer	M	031	Sep 10 - Oct 4	15	2	2	2	13%	100%	100%	0%	
NR Mule Deer Antlered	Mule Deer	M	032	Sep 10 - Oct 4	4	2	2		50%	100%	0%		

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Mule Deer Antlered	Mule Deer	M	033	Sep 10 - Oct 4	6	2	2	2	33%	100%	100%	50%	
NR Mule Deer Antlered	Mule Deer	M	034	Sep 10 - Oct 4	3	2	2	2	67%	100%	100%	50%	
NR Mule Deer Antlered	Mule Deer	M	035	Sep 10 - Oct 4	4	2	2	1	50%	100%	50%	0%	
NR Mule Deer Antlered	Mule Deer	M	041 - 042	Sep 10 - Oct 4	6	2	2		33%	50%	0%		
NR Mule Deer Antlered	Mule Deer	M	043 - 046	Sep 10 - Oct 4	6	2	1		33%	100%	0%		
NR Mule Deer Antlered	Mule Deer	M	051	Sep 10 - Oct 4	11	3	3	3	27%	100%	100%	67%	
NR Mule Deer Antlered	Mule Deer	M	061 - 062, 064, 066 - 068	Sep 10 - Oct 4	34	8	7	2	24%	100%	29%	50%	
NR Mule Deer Antlered	Mule Deer	M	065	Sep 10 - Oct 4	8	2	1		25%	100%	0%		
NR Mule Deer Antlered	Mule Deer	M	071 - 079, 091	Sep 10 - Oct 4	44	4	4	3	9%	100%	75%	33%	
NR Mule Deer Antlered	Mule Deer	M	081	Nov 21 - Dec 10	252	2	2	2	1%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	M	101 - 109	Sep 10 - Oct 4	43	14	9		33%	67%	0%		
NR Mule Deer Antlered	Mule Deer	M	111 - 113	Sep 10 - Oct 4	16	3	3	3	19%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	M	114 - 115	Nov 10 - Nov 30	93	3	3	3	3%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	M	121	Sep 10 - Oct 4	8	2	0		25%				
NR Mule Deer Antlered	Mule Deer	M	131 - 134	Sep 10 - Oct 4	75	4	3	3	5%	100%	100%	67%	
NR Mule Deer Antlered	Mule Deer	M	141 - 145	Sep 10 - Oct 4	14	4	4	4	29%	100%	100%	25%	
NR Mule Deer Antlered	Mule Deer	M	151 - 156	Sep 10 - Oct 4	8	2	2	1	25%	100%	50%	0%	
NR Mule Deer Antlered	Mule Deer	M	161 - 164	Sep 10 - Oct 4	13	4	4	1	31%	100%	25%	100%	
NR Mule Deer Antlered	Mule Deer	M	171 - 173	Sep 10 - Oct 4	11	10	9	2	91%	100%	22%	50%	
NR Mule Deer Antlered	Mule Deer	M	181 - 184	Nov 10 - Nov 30	7	2	2	1	29%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	M	192	Sep 10 - Oct 4	7	3	3	1	43%	100%	33%	100%	
NR Mule Deer Antlered	Mule Deer	M	194, 196	Sep 10 - Oct 4	17	2	2	2	12%	100%	100%	0%	
NR Mule Deer Antlered	Mule Deer	M	195	Sep 10 - Oct 4	8	2	2	2	25%	100%	100%	50%	
NR Mule Deer Antlered	Mule Deer	M	201, 204	Dec 1 - Dec 15	9	2	1	1	22%	100%	100%	100%	
NR Mule Deer Antlered	Mule Deer	M	202, 205 - 208	Dec 1 - Dec 15	16	2	2	2	13%	100%	100%	50%	
NR Mule Deer Antlered	Mule Deer	M	211 - 213	Sep 10 - Oct 10	6	2	2	1	33%	50%	100%	100%	
NR Mule Deer Antlered	Mule Deer	M	221 - 223	Sep 10 - Oct 4	33	2	2	1	6%	50%	100%	100%	
NR Mule Deer Antlered	Mule Deer	M	231	Sep 10 - Oct 4	74	2	2	1	3%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	M	241 - 245	Sep 10 - Oct 4	61	2	2	1	3%	100%	50%	100%	
NR Mule Deer Antlered	Mule Deer	M	251 - 254	Sep 10 - Oct 4	5	2	2		40%	100%	0%		
NR Mule Deer Antlered	Mule Deer	M	261 - 268	Sep 10 - Oct 4	10	2	1		20%	100%	0%		
NR Mule Deer Antlered	Mule Deer	M	271 - 272	Sep 10 - Oct 4	6	2	2		33%	100%	0%		
NR Mule Deer Antlered	Mule Deer	M	291	Sep 10 - Oct 4	5	2	2	1	40%	100%	50%	0%	
NR Mule Deer PIW	Mule Deer	SWR	Any Open Unit	Any Open Season	2,456	3	3	2	0.1%	100%	67%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	011-013	Oct 21 - Nov 05	2	1	1	1	50%	100%	100%	100%	

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Restricted Guided Mule Deer	Mule Deer	ALW	014	Oct 21 - Nov 05	2	1	0		50%				
NR Restricted Guided Mule Deer	Mule Deer	ALW	015	Dec 11 - Jan 01	1	1	1	1	100%	100%	100%	0%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	021	Dec 21 - Jan 01	10	1	0		10%				
NR Restricted Guided Mule Deer	Mule Deer	ALW	022	Oct 05 - Nov 02	9	2	2	1	22%	100%	50%	0%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	031	Oct 05 - Nov 05	10	7	7	4	70%	100%	57%	75%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	032	Oct 05 - Nov 05	7	4	4	2	57%	100%	50%	50%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	033	Oct 21 - Nov 05	1	1	0		100%				
NR Restricted Guided Mule Deer	Mule Deer	ALW	034	Oct 05 - Nov 05	4	1	0		25%				
NR Restricted Guided Mule Deer	Mule Deer	ALW	035	Oct 05 - Nov 05	3	3	3	2	100%	67%	100%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	041, 042	Oct 05 - Nov 02	1	1	0		100%				
NR Restricted Guided Mule Deer	Mule Deer	ALW	043-046	Oct 21 - Nov 05	3	3	3	1	100%	100%	33%	0%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	043-046	Oct 05 - Oct 20	4	7	3	2	100%	67%	100%	0%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	051	Oct 05 - Nov 05	12	10	10	9	83%	100%	90%	67%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	061, 062, 064, 066-068	Oct 21 - Nov 05	48	3	2	2	6%	100%	100%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	061, 062, 064, 066-068	Oct 05 - Oct 20	42	31	30	17	74%	97%	59%	71%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	065	Oct 05 - Nov 02	28	2	2	1	7%	100%	50%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	071-079, 091	Oct 21 - Nov 05	152	3	2	2	2%	100%	100%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	071-079, 091	Oct 05 - Oct 20	98	12	12	11	12%	100%	92%	91%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	081	Dec 11 - Jan 01	41	1	1		2%	100%	0%		
NR Restricted Guided Mule Deer	Mule Deer	ALW	101-109	Oct 31 - Nov 08	42	3	3	1	7%	100%	33%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	101-109	Oct 17 - Oct 30	28	16	16	13	57%	100%	81%	69%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	101-109	Oct 05 - Oct 16	29	19	18	8	66%	94%	47%	75%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	111-113	Oct 21 - Nov 05	8	2	2	1	25%	100%	50%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	111-113	Oct 05 - Oct 20	22	19	19	15	86%	95%	83%	80%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	114, 115	Oct 21 - Nov 05	6	1	0		17%				
NR Restricted Guided Mule Deer	Mule Deer	ALW	114, 115	Oct 05 - Oct 20	4	4	4	2	100%	75%	67%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	121	Oct 21 - Nov 05	1	1	1		100%	100%	0%		
NR Restricted Guided Mule Deer	Mule Deer	ALW	121	Oct 05 - Oct 20	10	5	4	3	50%	75%	100%	67%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	131-134	Oct 21 - Nov 05	17	1	1		6%	100%	0%		
NR Restricted Guided Mule Deer	Mule Deer	ALW	131-134	Oct 05 - Oct 20	14	12	8	6	86%	100%	75%	83%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	141-145	Oct 21 - Nov 05	4	1	1	1	25%	100%	100%	0%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	141-145	Oct 05 - Oct 20	16	14	14	8	88%	93%	62%	25%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	151-156	Oct 21 - Nov 05	3	1	1	1	33%	100%	100%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	151-156	Oct 05 - Oct 20	7	6	6	6	86%	100%	100%	50%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	161-164	Oct 21 - Nov 05	5	1	1	1	20%	100%	100%	100%	

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
NR Restricted Guided Mule Deer	Mule Deer	ALW	161-164	Oct 05 - Oct 20	17	14	13	4	82%	92%	33%	75%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	171-173	Oct 21 - Nov 05	3	3	3	2	100%	100%	67%	50%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	171-173	Oct 05 - Oct 20	2	10	1		100%	100%	0%		
NR Restricted Guided Mule Deer	Mule Deer	ALW	181-184	Oct 05 - Nov 05	1	4	1	1	100%	100%	100%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	194, 196	Nov 05 - Nov 30	24	2	1	1	8%	100%	100%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	202, 205-208	Nov 05 - Nov 30	1	1	1		100%	100%	0%		
NR Restricted Guided Mule Deer	Mule Deer	ALW	203	Nov 05 - Nov 30	4	2	2		50%	100%	0%		
NR Restricted Guided Mule Deer	Mule Deer	ALW	211-213	Nov 05 - Nov 30	7	1	1	1	14%	100%	100%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	221-223	Oct 31 - Nov 08	327	1	1		0.3%	100%	0%		
NR Restricted Guided Mule Deer	Mule Deer	ALW	221-223	Oct 17 - Oct 30	64	8	7	3	13%	86%	50%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	221-223	Oct 05 - Oct 16	32	9	8	1	28%	100%	13%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	231	Oct 05 - Oct 31	102	8	8	4	8%	100%	50%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	241-245	Oct 05 - Oct 31	247	3	3	1	1%	100%	33%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	251-254	Oct 05 - Nov 02	1	1	1		100%	100%	0%		
NR Restricted Guided Mule Deer	Mule Deer	ALW	261-268	Nov 05 - Nov 30	6	3	1	1	50%	100%	100%	100%	
NR Restricted Guided Mule Deer	Mule Deer	ALW	271, 272	Nov 05 - Nov 30	8	1	0		13%				
NR Restricted Guided Mule Deer	Mule Deer	ALW	291	Nov 05 - Nov 30	8	2	1	1	25%	100%	100%	0%	
Dream Mule Deer	Mule Deer	SWR	Any Open Unit	Any Open Season			1	1		100%	100%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	012				2	1		100%	50%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	013				4	1		100%	25%	0%	
Landowner Compensation Mule Deer	Mule Deer	SWR	015				1	1		100%	100%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	022				1	1		100%	100%		
Landowner Compensation Mule Deer	Mule Deer	SWR	031				20	11		95%	58%	55%	
Landowner Compensation Mule Deer	Mule Deer	SWR	031, 032, 034, 035				3	3		100%	100%	67%	
Landowner Compensation Mule Deer	Mule Deer	SWR	032				6	4		100%	67%	75%	
Landowner Compensation Mule Deer	Mule Deer	SWR	034				7	6		100%	86%	67%	
Landowner Compensation Mule Deer	Mule Deer	SWR	035				3	1		100%	33%	0%	
Landowner Compensation Mule Deer	Mule Deer	SWR	041, 042				2	1		100%	50%	0%	
Landowner Compensation Mule Deer	Mule Deer	SWR	051				11	10		91%	100%	80%	
Landowner Compensation Mule Deer	Mule Deer	SWR	062				7	5		100%	71%	75%	
Landowner Compensation Mule Deer	Mule Deer	SWR	073				3	3		100%	100%	67%	
Landowner Compensation Mule Deer	Mule Deer	SWR	081				4	3		75%	100%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	101				6	5		100%	83%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	102				8	8		100%	100%	50%	
Landowner Compensation Mule Deer	Mule Deer	SWR	103				5	2		100%	40%	100%	

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Hunt	Species	Weapon	Unit Group	Season	Apps	2018 Quota	Tags	Successful Hunters	Draw Rate	Return	Success	Points or Greater	Length or Greater
Landowner Compensation Mule Deer	Mule Deer	SWR	111				1	1		100%	100%	0%	
Landowner Compensation Mule Deer	Mule Deer	SWR	114, 115				6	3		100%	50%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	115				2	0		100%	0%		
Landowner Compensation Mule Deer	Mule Deer	SWR	121				5	2		100%	40%	50%	
Landowner Compensation Mule Deer	Mule Deer	SWR	131				2	0		100%	0%		
Landowner Compensation Mule Deer	Mule Deer	SWR	131, 132				6	4		100%	67%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	132				8	3		100%	38%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	132, 221				3	3		100%	100%	33%	
Landowner Compensation Mule Deer	Mule Deer	SWR	133				2	1		100%	50%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	141				2	2		100%	100%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	142				2	1		100%	50%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	143				3	3		100%	100%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	144				5	5		100%	100%	20%	
Landowner Compensation Mule Deer	Mule Deer	SWR	152				5	4		100%	80%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	161				1	1		100%	100%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	164				2	0		100%	0%		
Landowner Compensation Mule Deer	Mule Deer	SWR	171				1	1		100%	100%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	173				3	1		100%	33%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	202				1	1		100%	100%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	223, 242				2	1		100%	50%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	231				67	38		100%	57%	82%	
Landowner Compensation Mule Deer	Mule Deer	SWR	231, 242				6	3		100%	50%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	241				1	1		100%	100%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	241, 242				6	2		100%	33%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	242				7	5		100%	71%	100%	
Landowner Compensation Mule Deer	Mule Deer	SWR	245				1	0		100%	0%		
Wildlife Heritage Mule Deer	Mule Deer	ALW	Any Open Unit	Aug 1 - Dec 31			2	1		100%	50%	100%	
Res Rocky Mountain Bighorn Any Ram	Rocky Bighorn	ALW	114	Sep 1 - Oct 31	2,933	2	2	2	0.1%	100%	100%		
Res Rocky Mountain Bighorn Any Ram	Rocky Bighorn	ALW	114	Dec 20 - Feb 20	880	2	2	2	0.2%	100%	100%		
Res Rocky Mountain Bighorn Any Ram	Rocky Bighorn	ALW	115	Dec 20 - Feb 20	561	1	1	1	0.2%	100%	100%		

**TABLE 1. 2018 BIG GAME HARVEST BY HUNT UNIT GROUP - FIELD DEFINITIONS**

<b>Column Header</b>	<b>Description</b>
Residency	R = Resident, NR = Non-Resident, <blank cell> = mixed residency
Weapon	ALW = Any Legal Weapon, AR = Archery, M = Muzzleloader, SWR = Seasonal Weapon Restriction
Apps	Sum of tags awarded, regardless of choice, and unsuccessful first choice applicants for a given hunt.
Tags	Number of hunters with tags on opening day of the hunt accounting for tags returned by hunters that were not reissued.
Draw Rate	A relative representation of draw probability. Proportion of 2018 Quota divided by Apps (see definition above). Hunts with higher draw rates are easier to draw. Does not account for bonus points or hunter choice.
Return	Proportion of hunt surveys received compared to Tags (see definition above) available.
Success	Proportion of successful hunters compared to hunt surveys (see definition above) received.
Points or Greater	Calculated for mule deer and elk harvest. Proportion in harvest of mule deer with 4 or more antler points <b>OR</b> elk with 6 or more antler points.
Length or Greater	Calculated for antelope and elk harvest. Proportion in total harvest of antelope with horns 15-in or longer <b>OR</b> elk with antlers 50-in or longer.

**TABLE 2. 2018 MULE DEER POINT CLASS BY UNIT GROUP**

Unit Group of Harvest	Does	Fawns	Bucks by Antler Points						Unit Group Buck Total	% 4+ Pts	TOTAL DEER
			1	2	3	4	5	6+			
011 - 013				3	23	23	3		52	50%	52
014	3			4	12	5	1		22	27%	25
015			1	0	7	12	1	2	23	65%	23
021				5	14	24	6	1	50	62%	50
022	2		1	5	18	11		1	36	33%	38
031	3		5	30	73	56	7	2	173	38%	176
032	11		6	15	27	19			67	28%	78
033			2		15	11	1		29	41%	29
034				5	14	8		1	28	32%	28
035	7		1	20	23	16	2		62	29%	69
041 - 042	1		3	7	8	3		1	22	18%	23
043 - 046	14		9	55	47	41	4	1	157	29%	171
051	33	1	8	55	73	98	14	4	252	46%	286
061 - 062, 064, 066 - 068	362	27	23	240	213	273	43	7	799	40%	1188
065			2	3	17	33	5	3	63	65%	63
071 - 079, 091	97	4	7	81	143	248	39	14	532	57%	633
081			0	2	6	45	10	3	66	88%	66
101 - 109	108	5	55	340	323	320	41	12	1091	34%	1204
111 - 113	50	3	25	156	113	121	20	3	438	33%	491
114 - 115	23	1		21	26	68	5	3	123	62%	147
121	10	1	7	74	80	57	4		222	27%	233
131 - 134	8		4	78	94	114	13	5	308	43%	316
141 - 145	24	2	22	123	134	110	12	1	402	31%	428
151 - 156	8		5	61	71	64	11	6	218	37%	226
161 - 164	19		9	95	72	91	3	4	274	36%	293
171 - 173	30	2	23	102	89	80	7	1	302	29%	334
181 - 184	2		2	34	38	44	7	2	127	42%	129
192	1			11	17	13	2		43	35%	44
194, 196	1			6	28	48	13	3	98	65%	99
195	1		1	2	9	7	3		22	45%	23
201, 204			1	2	14	8			25	32%	25
202, 205 - 208	2		3	13	17	21	1		55	40%	57
203	3		3	10	19	15	2	1	50	36%	53
211 - 213			1	10	15	12	1	1	40	35%	40
221 - 223	20	1	11	74	85	131	15	13	329	48%	350
231	9		3	31	56	109	23	5	227	60%	236
241 - 245	2			4	20	53	11	7	95	75%	97
251 - 254	1			3	7	7		2	19	47%	20
261 - 268	2			18	29	26	7	3	83	43%	85
271 - 272	1			7	9	8			24	33%	25
291			2	12	26	22	1	2	65	38%	65
<b>TOTAL</b>	<b>858</b>	<b>47</b>	<b>245</b>	<b>1,817</b>	<b>2,124</b>	<b>2,475</b>	<b>338</b>	<b>114</b>	<b>7,113</b>	<b>41%</b>	<b>8,018</b>

**TABLE 3. % FOUR-POINT OR GREATER MULE DEER HARVEST BY UNIT GROUP**

Unit Group	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
011- 013	59%	56%	51%	56%	40%	38%	38%	43%	46%	47%	50%
014	49%	60%	51%	48%	54%	41%	40%	25%	32%	18%	27%
015	50%	44%	53%	59%	47%	42%	36%	42%	33%	58%	65%
021	50%	48%	42%	56%	47%	45%	46%	65%	57%	43%	62%
022	48%	50%	48%	73%	67%	57%	51%	52%	52%	42%	32%
031	46%	54%	46%	36%	39%	48%	50%	48%	43%	46%	38%
032	34%	43%	38%	24%	27%	32%	34%	24%	23%	32%	28%
033	38%	44%	51%	49%	26%	36%	44%	33%	63%	45%	41%
034	36%	75%	62%	56%	45%	64%	45%	43%	49%	68%	32%
035	63%	60%	67%	40%	39%	45%	30%	34%	41%	25%	29%
041, 042	55%	58%	55%	43%	21%	27%	55%	46%	53%	37%	18%
043 - 046	49%	47%	47%	34%	32%	33%	35%	33%	32%	31%	29%
051	39%	46%	33%	29%	27%	38%	40%	40%	46%	41%	46%
061,062,064,066-068	47%	47%	44%	49%	46%	40%	39%	39%	40%	42%	40%
065	72%	64%	65%	71%	58%	58%	51%	54%	54%	66%	65%
071 - 079, 091	38%	43%	41%	40%	40%	33%	33%	40%	51%	54%	56%
081	59%	84%	71%	78%	65%	71%	87%	81%	79%	88%	88%
101 - 108	33%	39%	39%	37%	30%	28%	27%	29%	32%	37%	34%
111 - 113	27%	32%	27%	31%	24%	26%	25%	31%	32%	34%	33%
114, 115	44%	46%	48%	59%	40%	41%	45%	44%	50%	55%	62%
121	31%	32%	28%	32%	22%	36%	32%	31%	36%	36%	27%
131 - 134	44%	53%	43%	56%	45%	43%	42%	44%	43%	51%	43%
141 - 145	37%	36%	40%	35%	27%	30%	28%	23%	33%	30%	31%
151, 152, 154, 155	48%	54%	49%	42%	32%	31%	37%	28%	41%	40%	37%
161 - 164	46%	47%	34%	35%	34%	39%	30%	39%	44%	33%	36%
171 - 173	41%	45%	33%	36%	26%	33%	28%	33%	25%	29%	29%
181 - 184	49%	41%	40%	39%	37%	32%	36%	40%	41%	35%	42%
192	35%	35%	46%	17%	41%	54%	38%	41%	44%	35%	35%
194, 196	62%	59%	54%	68%	64%	61%	60%	72%	74%	72%	65%
195	35%	46%	52%	38%	66%	25%	74%	36%	53%	60%	43%
201, 204	30%	45%	17%	25%	42%	19%	23%	30%	21%	33%	32%
202, 205-208	44%	46%	38%	53%	27%	49%	46%	28%	28%	29%	40%
203	28%	34%	26%	35%	33%	42%	39%	38%	29%	33%	36%
211, 212	33%	42%	64%	30%	39%	44%	55%	29%	28%	52%	35%
221 - 223	48%	48%	48%	48%	42%	43%	37%	40%	49%	47%	48%
231	61%	69%	61%	65%	55%	55%	54%	61%	58%	65%	60%
241 - 245	66%	65%	76%	74%	62%	62%	65%	69%	64%	75%	75%
251 - 253	72%	54%	31%	65%	56%	53%	74%	67%	81%	41%	47%
261 - 268	25%	40%	52%	27%	35%	27%	40%	57%	47%	43%	43%
271, 272	55%	70%	90%	44%	54%	45%	65%	62%	46%	65%	33%
291	40%	41%	46%	23%	22%	46%	34%	36%	33%	40%	38%
<b>Statewide</b>	<b>41%</b>	<b>46%</b>	<b>42%</b>	<b>42%</b>	<b>37%</b>	<b>37%</b>	<b>37%</b>	<b>38%</b>	<b>41%</b>	<b>43%</b>	<b>41%</b>

\*Includes harvest from all hunts and weapon classes combined

**TABLE 4. 2018 PRONGHORN HARVEST COMPOSITION BY UNIT GROUP**

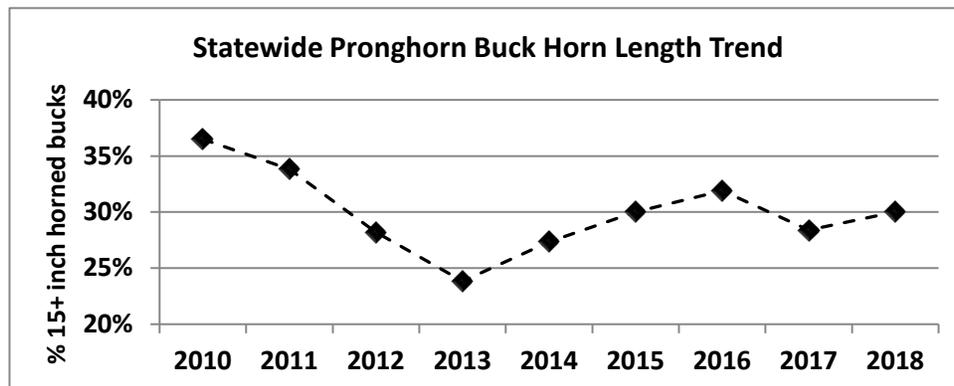
Unit Group of Harvest	Does	Fawns	Yrlg Bucks	Adult Bucks	Total Bucks	Total Harvest
011				60	60	60
012 - 014				128	128	128
015	1			56	56	57
021 - 022				45	45	45
031	24	1	6	68	74	99
032, 034	11	1	3	65	68	80
033				59	59	59
035	7			33	33	40
041 - 042	33	6	6	118	124	163
043 - 046				61	61	61
051				28	28	28
061 - 062, 064, 071, 073	111	8	20	172	192	311
065, 142, 144 <sup>A</sup>	36	4	6	68	74	114
066	8		2	30	32	40
067 - 068	65	3	17	87	104	172
072, 074 - 075	24		3	76	79	103
076 - 077, 079, 081, 091	15		2	42	44	59
078, 105 - 107, 121	52	3	9	113	122	177
101 - 104, 108 - 109, 144 <sup>B</sup>	37	1	8	95	103	141
111 - 114	42	4	9	178	187	233
115, 231, 242	1			38	38	39
131, 145, 163 - 164	31		4	67	71	102
132 - 134, 245				41	41	41
141, 143, 151 - 156	223	30	45	186	231	484
161 - 162				32	32	32
171 - 173				30	30	30
181 - 184	19		5	65	70	89
202, 204				2	2	2
203, 291				6	6	6
205 - 208				29	29	29
211 - 213				6	6	6
221 - 223, 241				26	26	26
251				31	31	31
Unknown	3			1	1	4
<b>TOTAL</b>	<b>743</b>	<b>61</b>	<b>145</b>	<b>2,142</b>	<b>2,287</b>	<b>3,091</b>

**SPECIALTY TAGHOLDER HARVEST BY UNIT**

HUNT	UNIT	#
Heritage	076	1
Silver State	011	1
Dream, PIW	022	2
PIW	015	1
PIW	101	1
PIW	112	1

**TABLE 5. PRONGHORN HORN TRENDS - % OF BUCKS 15+ INCHES BY UNIT GROUP**

Unit Group	2010	2011	2012	2013	2014	2015	2016	2017
011	46%	39%	32%	22%	28%	30%	31%	30%
012 - 014	27%	38%	32%	15%	31%	35%	36%	26%
015	49%	37%	31%	10%	21%	25%	28%	26%
021, 022	55%	53%	41%	32%	55%	39%	46%	52%
031	32%	20%	27%	20%	18%	27%	19%	19%
032, 034	39%	37%	29%	27%	19%	18%	34%	13%
033	62%	55%	36%	19%	44%	48%	34%	30%
035	38%	27%	14%	16%	6%	18%	23%	22%
041, 042	44%	34%	40%	31%	26%	39%	41%	28%
043 - 046		50%	40%	10%	24%	13%	33%	25%
051	36%	40%	20%	24%	21%	30%	21%	16%
061, 062, 064, 071, 073	30%	30%	26%	23%	31%	39%	32%	32%
065, 142, 144	52%	54%	33%	42%	39%	38%	32%	36%
066	47%	67%	29%	48%	36%	46%	58%	28%
067, 068	32%	30%	27%	24%	31%	33%	44%	40%
072, 074, 075	33%	33%	21%	28%	35%	35%	37%	26%
076, 077, 079, 081, 091	51%	40%	43%	50%	54%	60%	50%	55%
078, 105 - 107, 121	22%	35%	26%	8%	27%	19%	25%	27%
101 - 104, 108, 109, 144	27%	27%	21%	25%	34%	45%	31%	42%
111 - 114	14%	15%	13%	14%	8%	10%	17%	17%
115, 231, 242	48%	11%	40%	20%	22%	24%	24%	30%
131, 145, 163, 164	31%	35%	20%	27%	38%	29%	37%	33%
132 - 134, 245	53%	41%	32%	38%	37%	40%	36%	24%
141, 143, 151 - 156	32%	29%	31%	28%	24%	17%	28%	27%
161, 162	38%	23%	32%	35%	20%	41%	29%	35%
171 - 173	35%	36%	12%	27%	14%	21%	20%	12%
181 - 184	30%	29%	13%	19%	21%	21%	27%	27%
202, 204	0%	0%	0%	0%	0%	33%	20%	40%
203, 291	20%	0%	0%		25%	0%	20%	40%
205, 206, 207, 208	18%	7%	17%	13%	20%	25%	8%	22%
211, 212			50%	0%	100%	67%	29%	0%
221 - 223, 241	28%	24%	12%	14%	31%	33%	28%	23%
251	50%	76%	53%	46%	60%	42%	74%	33%
<b>Statewide</b>	<b>37%</b>	<b>34%</b>	<b>28%</b>	<b>24%</b>	<b>27%</b>	<b>30%</b>	<b>32%</b>	<b>28%</b>



**TABLE 6. 2018 ELK HARVEST COMPOSITION BY UNIT GROUP**

Unit Group of Harvest	Cows	Calves	Bulls by Antler Points								Unit Group Bull Total	% 6+ Pts	Total Harvest
			Unk	1	2	3	4	5	6	7+			
051	1								5	1	6	100%	7
061, 071	124	4		29	3	3	6	12	47	4	104	61%	232
062, 064, 066 - 068	55	4		6		2	4	5	34	4	55	78%	114
065	2							1			1	100%	3
072 - 074	166	15	2	13	1	5	11	45	142	21	240	87%	421
075	24	1				2		8	23	3	36	94%	61
076 - 077, 079, 081	143	19		11	3	1	3	28	84	15	145	88%	307
078, 105 - 107, 109	18	1		2			1	3	16	2	24	88%	43
091									7		7	100%	7
101 - 103	16			1		2	3	14	10		30	80%	46
104, 121, 108 <sup>A</sup>	99	4	2	1			1	13	26	8	51	96%	154
111 - 115	218	15		5			9	29	106	16	165	92%	398
131 - 132, 108 <sup>B</sup>	36	3			1		3	9	21	5	39	90%	78
144 - 145	2								1		1	100%	3
161 - 164, 171 - 173	83	4		1		1	2	15	32	5	56	93%	143
221 - 223	153	7		6		2	7	39	66	14	134	89%	294
231	105	3	1	2			7	34	39	15	98	91%	206
241 - 242	1						1	1	3		5	80%	6
251								1			1	100%	1
262								1	3		4	100%	4
Unknown									1		1	100%	1
<b>TOTAL</b>	<b>1,246</b>	<b>80</b>	<b>5</b>	<b>77</b>	<b>8</b>	<b>18</b>	<b>58</b>	<b>258</b>	<b>666</b>	<b>113</b>	<b>1,203</b>	<b>87%</b>	<b>2,529</b>

**SPECIALTY TAGHOLDER HARVEST BY UNIT**

HUNT	UNIT	#
Heritage	115	1
Heritage	231	1
Silver State	111	1
PIW	114	1
PIW	241	1

**TABLE 7. ELK 2018 ANTLER LENGTH BY UNIT GROUP**

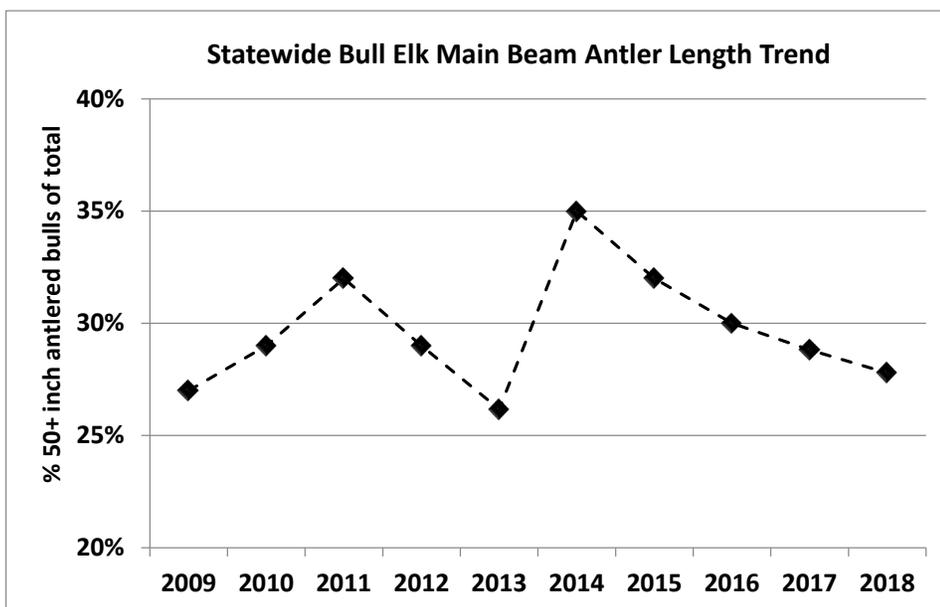
Unit Group	Count of Antlers by Class Size					Response	Percent of Antlers by Class Size				Avg Beam Length (in)
	0"-29"	30"-43"	44"-49"	50" plus	Total		0"-29"	30"-43"	44"-49"	50" plus	
051	0	3	2	1	6	100%	0%	50%	33%	17%	44
061, 071	7	38	23	6	74	100%	9%	51%	31%	8%	40
062, 064, 066 - 068	6	12	11	17	46	98%	13%	26%	24%	37%	42
065	0	1	0	0	1	100%	0%	100%	0%	0%	32
072 - 074	19	84	64	51	218	96%	9%	39%	29%	23%	42
075	3	16	7	9	35	97%	9%	46%	20%	26%	42
076 - 077, 079, 081	8	44	45	34	131	98%	6%	34%	34%	26%	43
078, 105 - 107, 109	0	4	3	15	22	100%	0%	18%	14%	68%	50
091	0	2	2	2	6	86%	0%	33%	33%	33%	47
101 - 103	3	17	5	5	30	100%	10%	57%	17%	17%	39
104, 121, 108 <sup>A</sup>	1	22	13	15	51	100%	2%	43%	25%	29%	45
111 - 115	8	41	43	74	166	99%	5%	25%	26%	45%	46
131 - 132, 108 <sup>B</sup>	3	11	9	15	38	100%	8%	29%	24%	39%	45
144 - 145	0	0	0	1	1	100%	0%	0%	0%	100%	52
161 - 164, 171 - 173	3	13	24	16	56	100%	5%	23%	43%	29%	45
221 - 223	15	52	31	32	130	98%	12%	40%	24%	25%	42
231	6	40	35	16	97	98%	6%	41%	36%	16%	42
241 - 242	0	2	2	1	5	100%	0%	40%	40%	20%	44
251	0	1	0	0	1	100%	0%	100%	0%	0%	34
262	1	2	0	1	4	100%	25%	50%	0%	25%	40
Unknown	0	1	0	0	1	100%	0%	100%	0%	0%	38
<b>Statewide</b>	<b>83</b>	<b>406</b>	<b>319</b>	<b>311</b>	<b>1119</b>	<b>98%</b>	<b>7%</b>	<b>36%</b>	<b>29%</b>	<b>28%</b>	<b>43</b>

**TABLE 8. ELK 2018 COMPOSITION OF 50-IN BEAMS IN HARVEST 2009-2018**

**Note:** Historic main beam data has been updated to exclude spike hunt results from 2014-2018

Unit Group	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
051							100%	100%	29%	17%
061, 071	18%	23%	17%	12%	10%	11%	21%	21%	22%	8%
062, 064, 066 - 068	29%	49%	55%	24%	27%	37%	30%	25%	39%	37%
065						50%			0%	0%
072, 073, 074	33%	33%	31%	32%	23%	30%	26%	26%	20%	23%
075	12%	18%	11%	37%	13%	12%	28%	23%	10%	26%
076, 077, 079, 081	28%	28%	27%	23%	18%	33%	22%	23%	17%	26%
078, 105 - 107, 109	40%	63%	58%	40%	42%	42%	44%	35%	45%	68%
091	40%	33%	100%	33%	0%	67%	25%	71%	60%	33%
101, 102, 103	38%	22%	23%	14%	15%	5%	11%	4%	16%	17%
104, 108, 121	43%	29%	48%	34%	38%	42%	29%	34%	42%	29%
108, 131, 132	33%	40%	38%	20%	16%	70%	30%	19%	39%	39%
111-115	28%	28%	39%	40%	46%	48%	48%	40%	44%	45%
144, 145				30%	20%	33%	11%	0%	17%	100%
161 - 164, 171 - 173	26%	18%	40%	40%	40%	44%	32%	44%	25%	29%
221 - 223	25%	27%	28%	32%	34%	47%	43%	39%	39%	25%
231*	25%	24%	36%	42%	40%	39%	35%	29%	30%	16%
241, 242								100%	50%	20%
262	0%	67%	0%	33%	0%	20%	20%	0%	67%	25%
<b>Statewide</b>	<b>27%</b>	<b>29%</b>	<b>32%</b>	<b>29%</b>	<b>26%</b>	<b>35%</b>	<b>32%</b>	<b>30%</b>	<b>29%</b>	<b>28%</b>

\*For 2008-2015, includes 50+ inch main beams from Unit Group 241, 242.

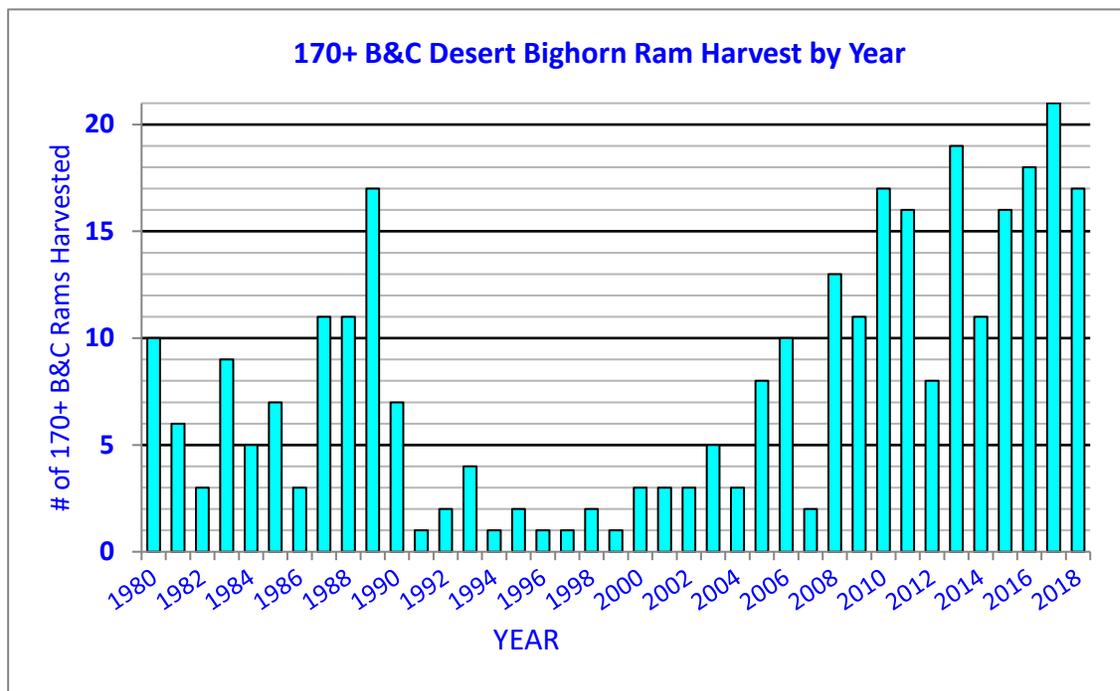


**TABLE 9. BIGHORN SHEEP RAM HARVEST HISTORY**

**DESERT BIGHORN BY YEAR**

Year	# Tags Issued	Percent Success	Avg Days Hunted	Average Age	Average B&C Score	Maximum B&C Score
1999	127	92%	5.8	6.0	147 4/8	179 2/8
2000	132	86%	5.9	6.3	147 4/8	173 2/8
2001	143	86%	5.8	6.2	150 5/8	178 2/8
2002	140	80%	6.4	6.3	148 4/8	183 2/8
2003	133	90%	6.2	6.4	150 7/8	173
2004	138	92%	6.1	6.1	150 3/8	174 6/8
2005	149	91%	4.7	6.5	153 1/8	176 5/8
2006	154	92%	5.5	6.7	152 3/8	177 6/8
2007	172	87%	6.1	6.4	149 5/8	172 7/8
2008*	173	88%	5.8	6.3	152 3/8	178 5/8
2009*	193	89%	5.2	6.2	153 4/8	177 4/8
2010*	216	86%	5.7	6.5	154 1/8	189 6/8
2011*	222	87%	4.9	6.6	153 6/8	181 6/8
2012	281	86%	5.7	6.5	154	182 2/8
2013	275	91%	5.8	6.3	153 2/8	182 3/8
2014	287	89%	4.6	6.4	152 2/8	183 3/8
2015	307	93%	4.7	6.4	152 5/8	182
2016	311	92%	4.4	6.5	153 6/8	182 7/8
2017	334	90%	4.5	6.7	154 4/8	178 7/8
2018	317	90%	5.4	6.4	151 4/8	179 7/8
<b>Total/Avg</b>	<b>4,204</b>	<b>87%</b>	<b>5.6</b>	<b>6.4</b>	<b>151 7/8</b>	<b>189 6/8</b>

\* Includes Rocky Mtn Rams harvested in Unit 131



**TABLE 9. BIGHORN SHEEP RAM HARVEST HISTORY****DESERT BIGHORN BY UNIT GROUP 2016 -2018**

Unit	# Tags Issued	Percent Success	Average Ram Age	Max Horn Length	Maximum Horn Base	Average B&C Score	Max B&C Score
044, 182	44	98%	5.9	35 6/8	16	151 1/8	168 6/8
045, 153	23	96%	5.8	35 4/8	16	147 6/8	161
131, 164	12	83%	6.2	35 7/8	15 1/8	147 4/8	168 2/8
132	7	86%	5.2	32 5/8	14 7/8	142 5/8	150
134	14	79%	6.6	33	15 1/8	150 7/8	161 5/8
161	33	91%	5.7	34 6/8	15 7/8	152 6/8	164 7/8
162, 163	26	88%	5.7	37 5/8	16 1/8	153 4/8	173 5/8
173	17	71%	5.3	36 4/8	15 7/8	148 3/8	165 4/8
181	52	96%	6.6	37 7/8	16	158	172
183	43	98%	6.0	36 1/8	16	155 4/8	170 2/8
184	14	86%	4.9	34	15	139 6/8	161 2/8
202	18	94%	5.9	34	15 7/8	150 2/8	163 2/8
204	2	50%	6.0	28 5/8	15	155 4/8	155 4/8
205	48	90%	6.2	36 7/8	16 2/8	156	177 2/8
206, 208	16	88%	5.9	31 5/8	15	146 4/8	156 4/8
207	29	100%	5.1	34 6/8	15	143 5/8	161 5/8
211	34	88%	6.5	38	15 5/8	150 5/8	171 1/8
212	45	89%	7.4	35 6/8	15 3/8	148 7/8	161 6/8
213	56	95%	6.0	34	15	142 5/8	159 3/8
223, 241	12	83%	5.8	36 6/8	15 4/8	151 6/8	175 6/8
241	7	86%	5.7	34 4/8	15 3/8	150	165 6/8
243	13	62%	6.5	40 1/8	15	153 6/8	177 2/8
244	17	100%	8.0	37 2/8	15 7/8	161 4/8	176 4/8
245	10	90%	5.9	35 1/8	15 2/8	145 1/8	165 2/8
252	21	86%	6.6	36 7/8	16	155	172 4/8
253	26	100%	6.6	41	15 7/8	163 1/8	180 4/8
254	9	89%	5.8	34	15 2/8	144 6/8	167 6/8
261	16	88%	6.4	35 4/8	15	145 3/8	164
262	17	94%	7.4	38 7/8	15 5/8	163 5/8	178 7/8
263	28	93%	7.4	39	16	165 1/8	178 6/8
264, 265	11	73%	7.1	35 2/8	15 6/8	143 1/8	161
266	3	33%	5.0	32	13 6/8	146 4/8	146 4/8
267	27	96%	7.1	41 3/8	15	158 2/8	170 4/8
268	89	98%	7.4	40 6/8	15 4/8	161 6/8	175 6/8
271	35	89%	7.4	38 2/8	15 3/8	159 1/8	179 7/8
272	6	50%	6.3	34 4/8	14 6/8	157 6/8	164
280	10	80%	9.0	37	14 4/8	157 6/8	164 2/8
281	20	90%	7.1	36 7/8	14 7/8	156 1/8	165 5/8
282	14	93%	7.8	39 5/8	16 1/8	170 1/8	179 2/8
283, 284	19	68%	7.2	36	15 5/8	156 3/8	171 2/8
286	10	90%	7.4	38	16 3/8	162 7/8	182 7/8

\* Includes Rocky Mtn or possible hybrid Desert/Rocky Rams

**TABLE 9. BIGHORN SHEEP RAM HARVEST HISTORY**

**ROCKY MOUNTAIN BIGHORN BY YEAR**

Year	# Tags Issued	Percent Success	Avg Days Hunted	Average Age	Average B&C Score	Maximum B&C Score
1999	5	100%	6.4	7.4	159	176
2000	4	100%	4.3	7.5	164 2/8	173 3/8
2001	3	67%	5.7	6.0	174 2/8	178 1/8
2002	3	100%	3.0	6.7	167 6/8	183 1/8
2003	6	100%	4.7	6.8	168 1/8	183 4/8
2004	6	83%	3.2	8.0	176 7/8	189 4/8
2005	6	83%	8.5	7.4	174 5/8	178 2/8
2006	6	83%	2.7	7.0	170 1/8	190 5/8
2007	9	100%	3.2	6.1	172	190 5/8
2008	13	92%	6.4	6.8	169 4/8	191 5/8
2009	11	100%	3.8	7.9	172 2/8	195 4/8
2010	4	100%	3.0	5.8	153 6/8	160 1/8
2011	5	60%	8.0	7.7	159 5/8	167 2/8
2012	8	88%	5.1	7.0	158	174 7/8
2013	7	100%	6.3	6.6	153 3/8	170
2014	5	80%	12.0	7.0	150	154 6/8
2015	4	25%	12.0	7.0	146 5/8	146 5/8
2016	5	40%	11.6	5.5	151 5/8	155 6/8
2017	6	67%	12.7	7.0	166 3/8	167 6/8
2018	5	100%	9.4	5.8	140 3/8	166 2/8
<b>Total/Avg</b>	121	86%	6.3	6.9	164 1/8	195 4/8

**ROCKY MOUNTAIN BIGHORN BY UNIT GROUP 2016-2018**

Unit	# Tags Issued	Percent Success	Average Ram Age	Max Horn Length	Maximum Horn Base	Average B&C Score	Max B&C Score
091	1	100%	9.0	33 6/8	14 1/8	162 6/8	162 6/8
114	12	67%	5.9	35	15 7/8	150 4/8	167 6/8
115	3	67%	6.0	28 4/8	15 4/8	150	152 4/8

**TABLE 9. BIGHORN SHEEP RAM HARVEST HISTORY**

**CALIFORNIA BIGHORN BY YEAR**

1999	47	77%	6.8	6.2	144 6/8	167 2/8
2000	43	91%	5.5	6.9	145 5/8	166 5/8
2001	37	92%	5.0	7.4	148 5/8	184 7/8
2002	41	83%	5.8	6.4	146 3/8	165 7/8
2003	39	87%	6.1	6.8	148 6/8	168 7/8
2004	35	91%	5.7	7.3	152 2/8	166
2005	39	90%	7.1	6.6	149 5/8	167 1/8
2006	42	88%	7.3	6.8	151 5/8	171 3/8
2007	43	100%	6.4	6.8	147 4/8	165 2/8
2008	42	95%	6.1	7.1	152 3/8	172 4/8
2009	48	98%	7.0	7.3	155 3/8	169 6/8
2010	52	100%	6.4	7.4	156	175 1/8
2011	57	95%	6.2	7.0	153 6/8	173 2/8
2012	59	90%	6.1	7.0	149	169 4/8
2013	67	91%	6.4	7.2	153 5/8	171 7/8
2014	66	88%	6.1	7.0	153 1/8	174
2015	63	89%	5.3	6.8	153	172 7/8
2016	57	95%	6.7	6.8	152 1/8	172 3/8
2017	57	93%	8.6	6.7	151 1/8	177 4/8
2018	61	97%	7.8	6.4	149	175 6/8
<b>Total/Avg</b>	995	90%	6.4	6.9	150 6/8	184 7/8

**CALIFORNIA BIGHORN BY UNIT GROUP 2016-2018**

Unit	# Tags Issued	Percent Success	Average Ram Age	Max Horn Length	Maximum Horn Base	Average B&C Score	Max B&C Score
012	13	92%	6.3	35.0	15 7/8	143 6/8	163 4/8
014	10	80%	6.3	33.5	14	137 4/8	157 1/8
021, 022	10	80%	6.4	33.0	16	152 1/8	164 4/8
031	16	100%	7.3	34.5	16	160 1/8	169 4/8
032	40	100%	6.5	35.0	15 4/8	149	164 3/8
033	6	83%	6.0	34.3	15 3/8	151 1/8	166 2/8
034	27	93%	7.1	33.4	15 2/8	149 5/8	166 2/8
035	16	100%	6.6	34.1	15 3/8	150 5/8	163 1/8
041	3	100%	5.7	35.8	15 1/8	156 4/8	172 3/8
051	13	100%	6.5	37.8	16 2/8	158 2/8	177 4/8
066	3	67%	8.0	32.5	14 6/8	152 7/8	155 6/8
068	18	100%	6.4	37.5	15 1/8	150 7/8	165 4/8

**TABLE 10. BIGHORN SHEEP RAM HARVEST AVERAGE AGE TRENDS 2010 - 2018**

Unit Group	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>DESERT BIGHORN</b>									
045, 153	6.0	5.5	8.0	4.3	6.6	5.4	5.5	6.1	5.6
131, 164	6.2	5.3	4.8	6.4	4.8	5.8	5.3	6.5	7.3
132	7.0	6.0	7.5	5.7	5.0		6.0	5.0	5.0
134	6.4	4.5	4.6	5.3	5.5	5.3	6.6	7.0	6.3
161	7.2	5.6	6.0	4.8	5.4	5.3	5.3	5.7	5.9
162, 163	6.0	5.8	5.4	4.0	4.7	6.1	5.9	5.5	5.8
173	6.8	6.0	6.3	8.8	5.5	7.0	4.8	5.0	7.3
181	5.8	7.3	7.3	7.1	7.0	7.1	6.6	7.3	5.8
182, 044	6.0	5.8	5.1	5.1	5.4	6.0	5.5	5.8	6.5
183	6.3	6.5	5.8	5.6	5.5	6.1	6.6	6.0	5.8
184	5.7	5.8	4.5	7.0	6.0	3.6	5.0	4.1	5.0
202	5.0	6.3	6.5	5.7	6.0	6.0	6.2	5.2	6.3
204	6.5	7.0		5.0	4.5				6.0
205	7.2	7.0	6.0	6.0	6.2	6.0	7.2	6.1	5.5
206, 208	9.5	4.5	6.5	6.7	6.8	6.4	5.0	6.5	6.3
207	5.3	5.8	5.6	4.6	6.2	6.6	5.3	5.0	5.0
211	8.0	7.0	6.6	5.4	6.9	6.0	6.3	6.7	6.6
212	7.0	7.2	7.2	7.2	7.1	6.6	7.0	7.3	8.0
213	6.4	5.7	6.4	5.7	5.9	6.3	6.4	5.6	6.1
223, 241	6.7	7.3	6.7	4.0		6.5	5.3	7.0	5.3
241	6.0		3.0		9.0	5.5	5.7	5.7	7.0
243	9.0		8.0	6.3	5.5	6.0	6.3	6.0	7.0
244	8.8	10.3	5.7	6.0	6.6	8.3	8.0	7.8	8.1
245, 133	9.0	7.0	5.0	5.7	4.0	6.0	8.0	5.3	4.3
252	6.2	6.8	6.4	6.6	8.1	7.3	7.6	6.1	5.7
253	6.6	7.7	8.4	8.0	7.0	7.6	6.6	7.3	5.7
254		6.3	8.0	5.0	5.5	7.0	7.3	5.5	4.3
261	6.4	7.8	7.1	7.9	7.2	7.2	6.0	6.8	6.0
262	7.0	7.6	8.5	7.8	7.3	7.5	6.7	8.4	7.4
263	7.8	7.3	6.8	5.8	6.9	6.3	6.3	8.3	7.2
264, 265	5.3	7.5	6.0	6.5	6.8	5.5	6.8	7.5	8.0
266	6.0	7.3	5.8	6.0	6.0	7.0			5.0
267	5.3	6.8	7.5	7.0	5.9	7.4	6.7	7.1	7.6
268	5.9	7.2	6.8	6.9	6.8	6.1	7.3	7.6	7.2
271, 242	6.1	6.6	6.8	7.5	6.4	7.9	7.6	7.8	6.8
272	6.0	2.0	8.0	8.0	5.0	3.0		7.5	4.0
280	9.5	3.5	7.0	6.5	13.0	6.0	9.0	9.7	8.3
281	7.0	6.4	8.3	7.3	7.6	7.0	6.4	7.7	7.3
282	5.0	7.5	7.6	6.8	7.0	6.0	7.5	8.3	7.8

**TABLE 10. BIGHORN SHEEP RAM HARVEST AVERAGE AGE TRENDS 2010 - 2018**

Unit Group	2010	2011	2012	2013	2014	2015	2016	2017	2018
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**DESERT BIGHORN**

<b>283, 284</b>	6.0	5.5	7.0	6.1	5.5	7.3	8.0	7.4	6.0
<b>286</b>	6.0	7.5	5.0	5.0	8.0	5.5	7.0	8.0	7.3

Cells are gray if average age fell below 6.0, the statewide harvest objective

**CALIFORNIA BIGHORN**

Unit Group	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>012</b>	8.5	6.7	7.7	7.0	8.0	6.0	6.0	7.3	5.5
<b>014</b>	10.0	6.7	5.3	6.8	5.8	5.4	7.7	7.0	4.3
<b>021, 022</b>	6.0	5.0	6.7	6.3	6.5	7.3	6.0	6.5	7.0
<b>031</b>	7.2	7.6	7.4	7.6	7.4	7.0	7.8	7.0	7.1
<b>032</b>	7.5	7.1	8.8	7.8	7.6	6.9	7.4	6.4	5.6
<b>033</b>	7.8	7.8	6.2	6.0	6.0	10.0	4.0	7.0	6.0
<b>034</b>	7.0	7.3	7.7	7.8	7.9	7.2	6.4	7.8	7.3
<b>035</b>	9.0	6.5	5.0	9.0	7.0	6.0	6.4	6.8	6.7
<b>041</b>						11.0	9.0	5.0	3.0
<b>051</b>	3.0	10.0	7.5	7.0	5.3	6.0	6.8	6.6	6.3
<b>066</b>						6.0	6.0		10.0
<b>066, 068</b>	6.6	6.5							
<b>068</b>			3.5	5.2	4.6	6.8	6.0	5.8	7.1

Cells are gray if average age fell below 6.0, the statewide harvest objective

**ROCKY MOUNTAIN BIGHORN**

<b>074</b>	5.5	7.5	7.0	5.3	7.0				
<b>091</b>			9.0	6.0		7.0		9.0	
<b>114</b>	6.0		2.0	6.5	6.0		6.0	6.3	5.5
<b>115</b>		8.0	8.0	11.0	8.0		5.0		7.0

**TABLE 11. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2003 - 2018**

Year	Harvest	Average Age	Average Left Horn	Average Right Horn	Average Days Hunted
<b>Unit 101 - East Humboldt Range</b>					
2003	8	3.5	8.6	8.6	1.9
2004	6	2.7	8.3	8.3	1.6
2005	5	3.0	7.9	7.9	2.2
2006	5	4.5	8.1	7.9	2.0
2007	5	4.8	8.8	8.9	1.8
2008	5	5.0	9.1	9.1	2.8
2009	7	7.0	9.2	9.3	1.7
2010	6	6.8	8.2	7.8	3.8
2011	3	3.0	8.3	8.3	2.0
2012	2	5.5	8.3	8.2	3.0
2013	1	4.0	8.3	8.4	5.0
2014	5	7.0	8.4	8.5	1.8
2015	6	6.2	8.0	8.2	2.2
2016	3	5.3	8.2	7.8	10.5
2017	1	7.0	9.4	9.3	1.0
2018	1	10.0	9.0	9.0	4.0
<b>5-Year Avg.</b>	<b>3</b>	<b>6.6</b>	<b>8.3</b>	<b>8.4</b>	<b>4.1</b>
<b>Long-term Avg.</b>	<b>4</b>	<b>5.0</b>	<b>8.5</b>	<b>8.4</b>	<b>2.8</b>

**Unit 102 - Ruby Mountains**

2003	13	5.0	9.1	9.2	5.2
2004	12	5.3	8.6	8.9	5.1
2005	18	4.6	8.7	8.6	2.6
2006	18	4.0	8.5	8.7	3.9
2007	22	4.9	9.0	8.9	2.6
2008	21	3.9	8.6	8.4	4.4
2009	20	4.5	8.7	8.8	3.4
2010	13	5.6	8.6	8.9	3.9
2011	7	4.9	8.8	8.9	3.3
2012	3	4.7	8.4	8.6	6.7
2013	4	6.3	8.5	7.3	4.0
2014	6	5.5	8.6	7.0	3.2
2015	5	5.0	8.1	8.8	7.4
2016	7	6.1	8.8	9.1	5.4
2017	5	4.8	8.7	8.3	8.3
2018	5	5.8	7.1	7.6	5.5
<b>5-Year Avg.</b>	<b>6</b>	<b>5.5</b>	<b>8.3</b>	<b>8.2</b>	<b>5.9</b>
<b>Long-term Avg.</b>	<b>12</b>	<b>4.8</b>	<b>8.7</b>	<b>8.6</b>	<b>4.3</b>

**TABLE 11. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2003 - 2018**

**Unit 103 - Pearl Peak Area, Southern Ruby Mountains**

Year	Harvest	Average Age	Average Left Horn	Average Right Horn	Average Days Hunted
2003	1	2.0	7.8	7.5	2.0
2004	1	4.0	9.3	9.5	4.0
2005	1	5.0	7.0	9.0	1.0
2006	2	7.0	9.4	8.9	3.5
2007	2	4.5	9.0	8.9	3.0
2008	1	3.0	9.0	9.3	7.0
2009	1	8.0	9.3	9.3	3.0
2010	1	3.0	9.3	8.9	6.0
2011	1	5.0	9.0	9.0	3.0
2012	1	6.0	9.9	9.9	7.0
2013	1	5.0	9.0	9.3	2.0
2014	1	6.0	9.4	8.3	2.0
2015	1	2.0	7.3	7.5	6.0
2016	1	6.0	8.5	8.1	6.0
2017	1	2.0	8.5	9.0	2.0
2018	0				
<b>5-Year Avg.</b>	<b>1</b>	<b>4.2</b>	<b>8.2</b>	<b>8.3</b>	<b>7.8</b>
<b>Long-term Avg.</b>	<b>1</b>	<b>4.8</b>	<b>8.8</b>	<b>8.8</b>	<b>4.8</b>

**ALL UNITS**

Year	Hunter Success	# of Tags	Harvest	# of Billies	# of Nannies	% Nannies
2003	96%	23	22	19	3	14%
2004	83%	24	20	17	3	15%
2005	85%	28	24	22	2	8%
2006	90%	29	26	23	3	12%
2007	100%	29	29	23	6	21%
2008	93%	29	27	21	6	22%
2009	96%	28	27	19	8	30%
2010	100%	20	20	12	8	40%
2011	100%	11	11	8	3	27%
2012	100%	6	6	4	2	33%
2013	86%	7	6	4	2	33%
2014	100%	12	12	9	3	25%
2015	100%	12	12	11	1	8%
2016	85%	13	11	8	3	27%
2017	78%	9	7	4	3	43%
2018	75%	8	6	4	2	33%
<b>Total/Avg.</b>	<b>92%</b>	<b>288</b>	<b>266</b>	<b>208</b>	<b>58</b>	<b>22%</b>

**TABLE 12. 2018 BLACK BEAR DRAW AND HUNT RESULTS**

Unit Group	Apps	Tags	Tags Avail	Demand	# Returns	% Returns	# Did not Hunt	# Succ. Hunters	% Hunter Success
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**RESIDENT BLACK BEAR HUNT**

Statewide	2,612	45	44	59 to 1	44	100%	8	12	27%
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**NONRESIDENT BLACK BEAR HUNT**

Statewide	196	5	4	40 to 1	4	100%	0	2	50%
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**BLACK BEAR HARVEST COMPOSITION**

Year	Gender	Harvest	Mean Age	3-yr Average Age	Average Days Hunted by Successful Tagholders
2018	Males	11	6.5	6.1	8.8
	Females	3	5	6.3	

Apps - # of unsuccessful applicants plus successful applicants in main draw.

Tags Avail - Available tags at season opener - accounts for tags returned for any reason and alternate tags issued

Demand - # of "Apps" for every one tag sold.

% Return - Percent of hunter questionnaires received compared to total tags sold

% Hunter Success - based on # of successful hunters divided by tag returns

**BLACK BEAR HARVEST BY UNIT**

Unit	# Bears		Total
	Male	Female	
194	1	2	3
196	1	0	1
201	1	0	1
203	1	0	1
204	2	0	2
291	5	1	6
<b>TOTAL</b>	<b>11</b>	<b>3</b>	<b>14</b>

**TABLE 13. FALL 2018 AND SPRING 2019 MULE DEER SURVEY COMPOSITION**

UNIT GROUP	2018	2018	2018	2018	2018	2018	2018	2019	2019	2019	2019	Spring 2018
	FALL BUCKS	FALL DOES	FALL FAWNS	FALL TOTAL	Bucks: 100 Does	Fawns: 100 Does	Fawns: 100 Adults	Spring Adults	Spring Fawns	Spring TOTAL	Fawns: 100 Adults	Fawns: 100 Adults
011 - 013, 033	82	236	108	426	35	46	34	445	147	592	33	38
014	33	88	40	161	38	46	33	72	22	94	31	41
015				--	--	--	--	204	65	269	32	42
021				--	--	--	--	260	87	347	33	43
022				--	--	--	--	68	20	88	29	35
031	51	171	75	297	30	44	34	618	217	835	35	49
032	4	39	20	63	10	51	47	154	47	201	31	45
034	9	31	15	55	29	48	38	79	24	103	30	43
035	37	98	54	189	38	55	40	132	28	160	21	40
041, 042				--	--	--	--			--	--	--
043 - 046				--	--	--	--	340	109	449	32	30
051	76	302	146	524	25	48	39	280	73	353	26	39
061,062,064, 066-068	453	1,299	931	2,683	35	72	53	4,194	1,194	5,388	28	36
065	82	231	118	431	36	51	38			--	--	--
071 - 079, 091	379	1,073	434	1,886	35	40	30	3,405	693	4,098	20	27
101 - 109	438	1,180	565	2,183	37	48	35	4,930	1,034	5,964	21	35
111 - 113				--	--	--	--	2,066	442	2,508	21	30
114 - 115				--	--	--	--	511	121	632	24	29
121	221	760	383	1,364	29	50	39	607	228	835	38	38
131 - 134	202	519	270	991	39	52	37	826	270	1,096	33	--
141 - 145	263	796	437	1,496	33	55	41	1,560	448	2,008	29	39
151, 152, 154-156				--	--	--	--	673	265	938	39	32
161 - 164	80	262	117	459	31	45	34	898	239	1,137	27	31
171 - 173	112	310	152	574	36	49	36	464	130	594	28	28
181 - 184	60	196	69	325	31	35	27	72	20	92	28	--
192	30	80	31	141	38	39	28	207	64	271	31	47
194, 196	88	215	92	395	41	43	30	677	162	839	24	45
201 - 206	87	479	121	687	18	25	21			--	--	--
221 - 223	134	458	207	799	29	45	35	1,200	305	1,505	25	--
231	172	596	238	1,006	29	40	31	886	247	1,133	28	--
241 - 244	144	324	124	592	44	38	27	469	150	619	32	--
<b>2018-19 TOTALS</b>	<b>3,237</b>	<b>9,743</b>	<b>4,747</b>	<b>17,727</b>	<b>33</b>	<b>49</b>	<b>37</b>	<b>26,297</b>	<b>6,851</b>	<b>33,148</b>	<b>26</b>	<b>35</b>
2017-18 TOTALS	4,729	14,493	6,462	25,684	33	45	34	16,872	5,892	22,764	35	

Spring fawn/100 adults ratios that are higher than its fall ratio are assumed to be biased high.

Units with ( -- ) were not surveyed.

**TABLE 14. LATE SUMMER/FALL/WINTER 2018 PRONGHORN SURVEY COMPOSITION**

UNIT GROUP	BUCKS	DOES	FAWNS	TOTAL	2018	2018	2017
					BUCKS: 100 DOES	FAWNS: 100 DOES	FAWNS: 100 DOES
011	92	228	88	408	40	39	38
012 - 014	176	375	138	689	47	37	46
015	143	397	147	687	36	37	47
021 - 022	48	160	47	255	30	71	44
031	1	7	5	13	14	29	27
032, 034, 035	18	147	34	199	12	23	36
033	164	366	115	645	45	31	25
041, 042	35	98	36	169	36	37	40
043-046	110	208	86	404	53	41	41
051	6	26	13	45	23	50	43
061 - 064, 071, 073	158	378	118	654	42	31	47
065, 142, 144	75	148	54	277	51	37	52
066				--	--	--	19
067 - 068	264	551	192	1,007	48	35	--
072, 074, 075	114	342	73	529	33	21	36
076, 077, 079, 081, 091	93	120	24	237	78	20	22
078, 105 - 107, 121	116	264	88	468	44	33	37
101 - 104, 108	217	389	91	697	56	23	36
111 - 114	293	757	93	1,143	39	12	31
115, 231, 242	57	115	40	212	50	35	--
131, 145, 163, 164	91	313	59	463	29	19	35
132 - 134, 245	64	182	39	285	35	21	34
141, 143, 151 - 155	300	717	297	1,314	42	41	47
161, 162	78	153	41	272	51	27	--
171 - 173	42	101	27	170	42	27	--
181 - 184	72	172	47	--	42	27	11
202, 204	26	50	14	--	52	28	33
203, 291	22	33	13	--	67	39	55
205, 206				--	--	--	36
211 - 213	7	22	8	37	32	36	--
221 - 223, 241	112	279	87	478	40	31	--
251	45	127	37	209	35	29	--
<b>2018 TOTALS</b>	<b>3,039</b>	<b>7,225</b>	<b>2,151</b>	<b>11,966</b>	<b>42</b>	<b>30</b>	
<i>2017 TOTALS</i>	<i>3,013</i>	<i>6,395</i>	<i>2,389</i>	<i>11,797</i>	<i>47</i>		<i>37</i>

Units with (--) were not surveyed.

**TABLE 15. LATE SUMMER/FALL 2018 DESERT BIGHORN SHEEP SURVEY COMPOSITION**

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2018	2018	2017	2016
					RAMS: 100 EWES	LAMBS: 100 EWES	LAMBS: 100 EWES	LAMBS: 100 EWES
045, 153	28	38	14	80	74	37	49	46
131, 164				--	--	--	11	41
132				--	--	--	58	43
134				--	--	--	28	35
153				--	--	--	--	--
161				--	--	--	41	--
162	8	11	4	23	73	36	--	--
163	41	86	23	150	48	27	--	42
173	15	18	10	43	83	56	42	--
181	27	74	18	119	37	24	28	47
182, 044	46	115	42	203	40	37	40	--
183	52	108	17	177	48	16	46	37
184	23	27	12	62	85	44	34	44
195	25	37	4	66	68	11	32	20
202				--	--	--	35	41
204				--	--	--	39	33
205, 207	20	60	20	100	33	33	49	51
206, 208				--	--	--	51	33
211				--	--	--	31	39
212	94	127	33	254	74	26	--	43
213	111	217	51	379	51	24	--	48
221, 223, 241 NW	24	65	14	103	37	22	33	21
241 SE	13	38	11	62	34	29	26	13
243	--	--	--	--	--	--	38	--
244	44	59	20	123	75	34	--	38
245, 133	36	77	27	140	47	35	--	33
252	24	83	10	117	29	12	9	10
253	76	69	3	148	110	4	--	28
254	41	84	8	133	49	10	19	--
261	22	45	15	82	49	33	--	15
262	35	89	28	152	39	32	--	13
263	53	157	16	226	34	10	--	8
264	5	25	0	30	20	0	--	6
265				--	--	--	--	--
266				--	--	--	25	--
267				--	--	--	16	--
268				--	--	--	42	43
269	47	123	8	178	38	7	--	15
271	49	101	26	176	49	26	35	--
272				--	--	--	33	--
280	48	90	25	163	53	28	36	32
281	36	51	11	98	71	22	25	43
282	9	35	5	49	26	14	20	38
283, 284*	8	19	6	33	42	32	16	26
286	29	59	25	113	49	42	42	45
<b>2018 TOTALS</b>	<b>1,089</b>	<b>2,187</b>	<b>506</b>	<b>3,782</b>	<b>50</b>	<b>23</b>		
<b>2017 TOTALS</b>	<b>1,571</b>	<b>2,798</b>	<b>967</b>	<b>5,336</b>	<b>56</b>	<b>35</b>		

Units with (--) were not surveyed. \* Partial survey - see report

**TABLE 16. LATE SUMMER/FALL 2018 CALIFORNIA BIGHORN SHEEP SURVEY COMPOSITION**

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2018 RAMS/ 100 EWES	2018 LAMBS/ 100 EWES	2017 LAMBS/ 100 EWES
011, 013	6	39	20	65	15	51	53
012	38	79	27	144	48	34	43
014	6	14	11	31	43	79	43
021, 022	7	11	3	21	64	27	80
031	29	49	19	97	59	39	45
032	34	63	12	109	54	19	34
033	29	31	13	73	94	42	45
034	19	64	27	110	30	42	40
035	4	8	6	18	50	75	38
041	7	8	3	18	88	38	67
051				--	--	--	35
066	12	21	8	41	57	38	40
068	27	54	27	108	50	50	30
<b>2018 TOTALS</b>	<b>218</b>	<b>441</b>	<b>176</b>	<b>835</b>	<b>49</b>	<b>40</b>	
<i>2017 TOTALS</i>	<i>256</i>	<i>610</i>	<i>245</i>	<i>1,111</i>	<i>42</i>	<i>40</i>	

**TABLE 17. SUMMER/WINTER/EARLY SPRING 2018 - 2019 ROCKY MOUNTAIN BIGHORN SHEEP SURVEY COMPOSITION**

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2018-19 RAMS/ 100 EWES	2018-19 LAMBS/ 100 EWES	2017-18 LAMBS/ 100 EWES
074	9	5	4	18	180	80	25
091	1	29	5	35	3	17	--
101	3	11	6	20	27	55	30
102	7	12	8	27	58	67	78
114	11	30	13	54	37	43	50
115	9	7	2	18	129	29	32
<b>2018-19 TOTALS</b>	<b>40</b>	<b>94</b>	<b>38</b>	<b>172</b>	<b>43</b>	<b>40</b>	
<i>2017-18 TOTALS</i>	<i>38</i>	<i>64</i>	<i>26</i>	<i>128</i>	<i>59</i>	<i>41</i>	

Units with (--) were not surveyed.

**TABLE 18. JANUARY 2019 MOUNTAIN GOAT SURVEY COMPOSITION**

UNIT GROUP	ADULTS	KIDS	TOTAL	2019 KIDS/ 100 ADULTS	2018 KIDS/ 100 ADULTS
101	44	6	50	14	35
102	70	17	87	24	--
103	20	2	22	10	--
<b>2019 TOTALS</b>	<b>134</b>	<b>25</b>	<b>159</b>	<b>19</b>	
<i>2018 TOTALS</i>	<i>40</i>	<i>14</i>	<i>54</i>	<i>35</i>	

**TABLE 19. WINTER 2018 - 2019 ROCKY MOUNTAIN ELK SURVEY COMPOSITION**

UNIT GROUP	BULLS	COWS	CALVES	TOTAL	2018-2019 BULLS/ 100 COWS	2018-2019 CALVES/ 100 COWS	2017-2018 CALVES/ 100 COWS
051	10	24	6	40	42	25	71
061, 071	209	750	309	1,268	28	41	44
062, 064, 066-068	24	224	111	359	11	50	54
065	5	18	5	28	28	28	58
072 - 074	359	347	124	830	104	36	43
075	37	65	20	122	57	31	49
076, 077, 079, 081	196	488	243	927	40	50	--
078,104, 105-107	101	151	68	320	67	45	33
091	31	80	27	138	39	34	--
104,108,121	77	338	148	563	23	44	49
108,131 - 132	47	99	29	175	48	29	65
111 - 115	438	1,145	381	1,964	38	33	31
221 - 223	188	513	176	877	37	34	36
161 - 164	106	312	107	525	34	34	36
171 - 173				--	--	--	--
231	103	179	69	351	58	39	56
241, 242				--	--	--	--
262				--	--	--	--
<b>2018-2019 Totals</b>	<b>1,931</b>	<b>4,733</b>	<b>1,823</b>	<b>8,487</b>	<b>41</b>	<b>39</b>	
<i>2017-2018 Totals</i>	<i>2,028</i>	<i>4,320</i>	<i>1,782</i>	<i>8,130</i>	<i>47</i>	<i>41</i>	

Units with (--) were not surveyed.

**TABLE 20. 2019 MULE DEER POPULATION ESTIMATES**

<b>UNIT GROUP</b>	<b>2019 ESTIMATE*</b>	<i>2018 ESTIMATE*</i>
011 - 013	1,150	1,300
014	650	850
015**	240	260
021**	440	470
022	550	650
031	2,000	1,800
032***	1,150	1,150
033	390	430
034***	290	280
035	1,000	850
041, 042	750	750
043 - 046	2,000	2,300
051	2,300	2,300
061,062,064, 066 - 068	8,600	9,100
065	800	800
071 - 079, 091	11,300	8,500
081	900	900
101 - 108	14,200	14,800
111 - 113	4,500	5,000
114 - 115	1,300	1,400
121	2,700	2,700
131 - 134	5,000	4,700
141 - 145	4,500	4,500
151, 152 ,154, 155	2,200	2,200
161 - 164	4,100	4,300
171 - 173	3,700	4,000
181 - 184	1,300	1,250
192**	450	540
194, 196**	1,100	1,050
195	500	500
201, 204**	550	550
202, 205 - 208**	450	450
203	500	500
211, 213	400	400
221 - 223	4,300	4,300
231	3,700	3,300
241 - 245	1,200	1,100
251 - 254	400	400

**TABLE 20. 2019 MULE DEER POPULATION ESTIMATES**

261 - 268	500	500
271, 272	240	240
291	600	600
<b>TOTAL</b>	<b>93,000</b>	<b>92,000</b>
<b>Percent Change</b>	<b>1%</b>	

\*Estimates - Values generated from computer models that reconstruct age and sex classes based on sampled herd composition, harvest data, and population demographic variables. The confidence limits around these estimates may be as high as + or - 20%.

\*\*Estimate based on apportionment of an interstate herd.

\*\*\*Estimate includes deer that primarily inhabit agricultural fields

**TABLE 21. 2019 ROCKY MOUNTAIN ELK POPULATION ESTIMATES**

<b>UNIT GROUP</b>	<b>2019 ESTIMATE*</b>	<i>2018 ESTIMATE*</i>
051	120	130
061, 071**	1,700	1,500
062, 064, 066 - 068**	450	500
065	80	140
072 - 074**	1,300	2,100
075	100	150
076, 077, 079, 081**	950	1,000
078, 105 - 107, 109	450	340
091	380	370
104, 108, 121	800	750
108, 131, 132	310	370
111 - 115	2,500	2,500
221 - 223	1,700	1,900
145	30	30
161 - 164	800	800
171 - 173	100	100
231	450	500
241, 242	150	150
262	170	180
<b>TOTAL</b>	<b>12,500</b>	<i>13,500</i>
<b>Percent Change</b>	<b>-7%</b>	

\*Estimates - Values generated from computer models that reconstruct age and sex classes based on sampled herd composition, harvest data, and population demographic variables. The confidence limits around these estimates may be as high as + or - 20%.

\*\*Estimate based on apportionment of an interstate herd.

**TABLE 22. 2019 PRONGHORN POPULATION ESTIMATES**

<b>UNIT GROUP</b>	<b>2019 ESTIMATE*</b>	<b>2018 ESTIMATE*</b>
011	1,000	900
012-014	2,000	2,000
015	1,000	950
021, 022	650	650
031	1,500	1,500
032, 034, 035	1,850	2,000
033**	1,200	1,200
041, 042	2,000	2,000
043 - 046	800	700
051	700	700
061, 062, 064, 071, 073	1,450	1,700
065, 142, 144	900	950
066	400	400
067, 068	1,200	1,000
072, 074, 075	1,100	1,200
076, 077, 079, 081, 091	600	625
078, 105 - 107, 121	1,000	1,100
101 - 104, 108, 109, 144	1,000	1,100
111 - 114	1,500	1,800
115, 231, 242	500	500
131, 145, 163, 164	850	900
132 - 134, 245	600	600
141, 143, 151 - 156	3,400	2,700
161, 162	450	450
171 - 173	380	360
181 - 184	850	950
202, 204	110	110
203, 291	90	75
205 - 208	300	310
211 - 213	90	90
221 - 223, 241	500	400
251	300	300
<b>TOTAL</b>	<b>30,300</b>	<b>30,000</b>
<b>Percent Change</b>	<b>1%</b>	

\*The confidence limits around these estimates may be as high as + or - 20%.

\*\*Estimate represents approximately 50% of the total pronghorn that inhabit the Sheldon NWR that are accessible during the hunting season.

**TABLE 23. 2019 DESERT BIGHORN POPULATION ESTIMATES**

UNIT GROUP	2019 ESTIMATE*	2018 ESTIMATE*
045	260	250
131, 164	100	110
132	120	120
134	220	220
153	20	20
161	500	450
162	210	50
163	310	310
173	190	190
181	500	500
182, 044	600	500
183	320	475
184	180	160
195	130	140
202	190	200
204	60	70
205, 207	750	750
206, 208	300	300
211	450	450
212	340	340
213	450	450
221, 223, 241	190	170
243	160	160
244	130	130
245, 133	130	120
252	180	190
253	170	200
254	130	100
261	150	150
262	140	140
263	220	200
264	50	70
265, 266	80	90
267, 268	1000	1000
269	200	210
271	320	300
272	90	90

UNIT GROUP	2019 ESTIMATE*	2018 ESTIMATE*
280	160	130
281	200	210
282	140	140
283, 284	230	230
286	150	150
<b>TOTAL</b>	<b>10,400</b>	<b>10,100</b>
<b>Percent Change</b>	<b>3%</b>	

\*Estimates - Values generated from computer models that reconstruct age and sex classes based on sampled herd composition, harvest data, and population demographic variables. The confidence limits around these estimates may be as high as + or - 20%.

**TABLE 24. 2019 CALIFORNIA BIGHORN POPULATION ESTIMATES**

<b>UNIT GROUP</b>	<b>2019 ESTIMATE*</b>	<i>2018 ESTIMATE*</i>
011, 013	80	70
012	160	150
014	90	130
021, 022	80	110
031	130	140
032	330	370
033	120	100
034	270	260
035	250	220
041	50	60
051	140	160
066	30	30
068	170	130
<b>TOTAL</b>	<b>1,900</b>	<i>1,900</i>
Percent Change	<b>0%</b>	

**TABLE 25. 2019 ROCKY MOUNTAIN BIGHORN POPULATION ESTIMATES**

<b>UNIT GROUP</b>	<b>2019 ESTIMATE*</b>	<i>2018 ESTIMATE*</i>
074	30	30
091	50	25
101	20	20
102	40	30
114	90	80
115	50	40
<b>TOTAL</b>	<b>280</b>	<b>230</b>
Percent Change	<b>22%</b>	

**TABLE 26. 2019 MOUNTAIN GOAT POPULATION ESTIMATES**

<b>UNIT GROUP</b>	<b>2019 ESTIMATE*</b>	<i>2018 ESTIMATE*</i>
101	70	65
102	200	200
103	40	45
<b>TOTAL</b>	<b>310</b>	<i>310</i>
Percent Change	<b>0%</b>	

\*Estimates - Values generated from computer models that reconstruct age and sex classes based on sampled herd composition, harvest data, and population demographic variables. The confidence limits around these estimates may be as high as + or - 20%.

**TABLE 27. BIG GAME POPULATION ESTIMATE HISTORY, 1985 - 2019**

YEAR	MULE		ELK	DESERT BIGHORN	CALIFORNIA BIGHORN	ROCKY	
	DEER	ANTELOPE				MOUNTAIN BIGHORN	MOUNTAIN GOAT
1985	155,500	12,000		3,300			
1986	180,000	12,500		3,500			
1987	220,000	13,000		3,500			
1988	240,000	13,500		3,600			
1989	212,000	14,000		3,700			
1990	202,000	15,000	2,000	3,800	480	140	
1991	180,000	16,500	2,400	4,000	530	150	
1992	183,500	18,000	2,700	4,100	650	190	190
1993	148,500	16,000	2,900	4,800	700	210	200
1994	115,000	15,000	3,100	4,700	800	220	210
1995	118,000	15,500	3,500	4,500	900	230	220
1996	120,000	15,000	4,000	4,900	1,000	230	230
1997	125,000	14,500	4,600	5,000	1,100	240	170
1998	132,000	15,000	5,000	5,200	1,200	250	200
1999	134,000	14,500	5,500	5,300	1,300	250	240
2000	133,000	16,000	5,900	4,900	1,400	210	280
2001	129,000	17,000	6,400	4,900	1,400	190	320
2002	108,000	18,000	6,600	5,300	1,500	210	340
2003	109,000	18,000	7,200	5,000	1,500	240	350
2004	105,000	18,500	7,400	5,200	1,500	290	370
2005	107,000	20,000	8,000	5,500	1,500	340	400
2006	110,000	21,500	8,200	5,800	1,600	360	410
2007	114,000	24,000	9,400	6,200	1,700	480	420
2008	108,000	24,000	9,500	6,600	1,700	500	450
2009	106,000	24,500	10,900	7,000	1,800	550	470
2010	107,000	26,000	12,300	7,400	1,900	240	340
2011	109,000	27,000	13,500	7,600	2,100	230	310
2012	112,000	28,000	15,100	8,600	2,000	220	290
2013	109,000	28,500	16,500	8,900	2,100	260	340
2014	108,000	27,500	17,500	8,900	1,900	260	340
2015	99,000	28,500	18,500	9,600	1,900	230	350
2016	94,000	29,000	16,000	9,700	1,800	210	330
2017	92,000	29,000	15,000	10,100	1,900	240	310
2018	92,000	30,000	13,500	10,100	1,900	230	310
2019	93,000	30,300	12,500	10,400	1,900	280	310
<i>10-YR AVG</i>	<i>102,000</i>	<i>28,000</i>	<i>15,000</i>	<i>9,000</i>	<i>2,000</i>	<i>200</i>	<i>300</i>
<b>%Diff to AVG</b>	<b>-9%</b>	<b>8%</b>	<b>-17%</b>	<b>16%</b>	<b>-5%</b>	<b>40%</b>	<b>3%</b>

**TABLE 28. BIG GAME TAG SALES AND HARVEST HISTORY BY SPECIES, 1988 - 2018**

YEAR	DEER		ANTELOPE		ELK		DESERT BIGHORN RAM		CALIFORNIA BIGHORN RAM		ROCKY MTN BIGHORN		MOUNTAIN GOAT	
	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST
1988	51,011	26,784	1,342	949	182	91	136	114	4	3	2	2	2	1
1989	34,847	17,782	1,378	980	200	103	133	111	3	3	2	0	4	4
1990	31,346	16,715	1,475	1,115	243	141	134	91	3	3	2	2	4	4
1991	26,584	12,442	1,913	1,311	240	141	126	85	5	5	1	1	6	6
1992	28,138	14,273	1,925	1,416	210	164	113	92	10	10	--	--	6	5
1993	16,017	6,276	1,569	1,020	215	176	123	102	12	12	--	--	7	7
1994	17,460	7,315	1,299	979	240	157	125	87	20	14	--	--	10	10
1995	20,014	8,114	1,387	878	306	183	126	90	25	19	2	2	12	11
1996	24,717	11,070	1,211	820	510	292	126	94	32	28	2	1	9	8
1997	20,186	8,263	1,173	805	783	389	113	85	35	30	3	2	6	6
1998	24,077	9,672	1,283	871	1,119	468	113	93	41	33	5	5	12	12
1999	24,023	11,020	1,521	1,173	1,274	577	126	110	47	36	5	5	11	10
2000	26,420	12,499	1,615	1,191	1,621	804	132	113	43	39	4	4	18	16
2001	23,813	9,791	1,518	1,121	1,359	701	143	124	37	34	3	2	23	22
2002	17,484	6,899	1,682	1,166	1,836	887	140	112	41	34	3	3	23	18
2003	14,892	5,982	1,846	1,278	1,821	1,055	133	119	39	34	6	6	23	22
2004	16,010	6,560	1,921	1,323	1,972	1,008	138	127	35	32	6	5	24	23
2005	16,920	7,112	2,393	1,608	2,616	1,246	148	135	38	34	6	5	28	24
2006	18,167	8,346	2,705	1,876	2,360	1,161	154	142	41	36	6	5	29	26
2007	18,599	8,743	2,737	1,847	3,080	1,396	172	150	43	43	9	9	29	29
2008	16,997	7,025	2,476	1,638	2,723	1,315	175	152	42	40	13	12	29	27
2009	16,728	6,837	2,757	1,814	2,972	1,420	193	172	48	47	11	11	28	27
2010	17,134	6,949	2,987	1,928	3,545	1,680	216	186	52	52	4	4	20	20
2011	14,919	5,834	3,121	1,973	4,838	2,007	222	194	57	54	5	3	11	11
2012	24,257	10,112	3,721	2,225	6,035	2,461	281	241	59	53	8	7	6	6
2013	22,992	9,367	3,814	2,336	7,936	2,857	275	251	67	61	7	7	7	6
2014	22,643	8,978	3,953	2,453	11,016	3,474	287	258	66	58	5	4	12	12
2015	20,998	9,155	4,105	2,595	11,271	3,365	307	285	63	56	4	1	12	12
2016	18,111	7,885	4,100	2,653	11,131	3,149	311	280	57	54	5	2	13	11
2017	16,548	7,307	5,086	3,320	9,776	2,693	334	302	57	53	6	3	9	7
2018	17,612	8,007	4,643	3,085	9,283	2,499	317	277	62	59	5	5	8	6
10-YR AVG	18,994	7,951	3,706	2,365	7,321	2,447	265	236	57	53	7	5	14	13
%Diff to AVG	-7%	1%	25%	30%	27%	2%	19%	7%	8%	11%	-25%	-7%	-43%	-54%

**TABLE 29. NEVADA MOUNTAIN LION TAG SALES, SPORT HARVEST, AND HUNTER SUCCESS, 1980 - 2018**

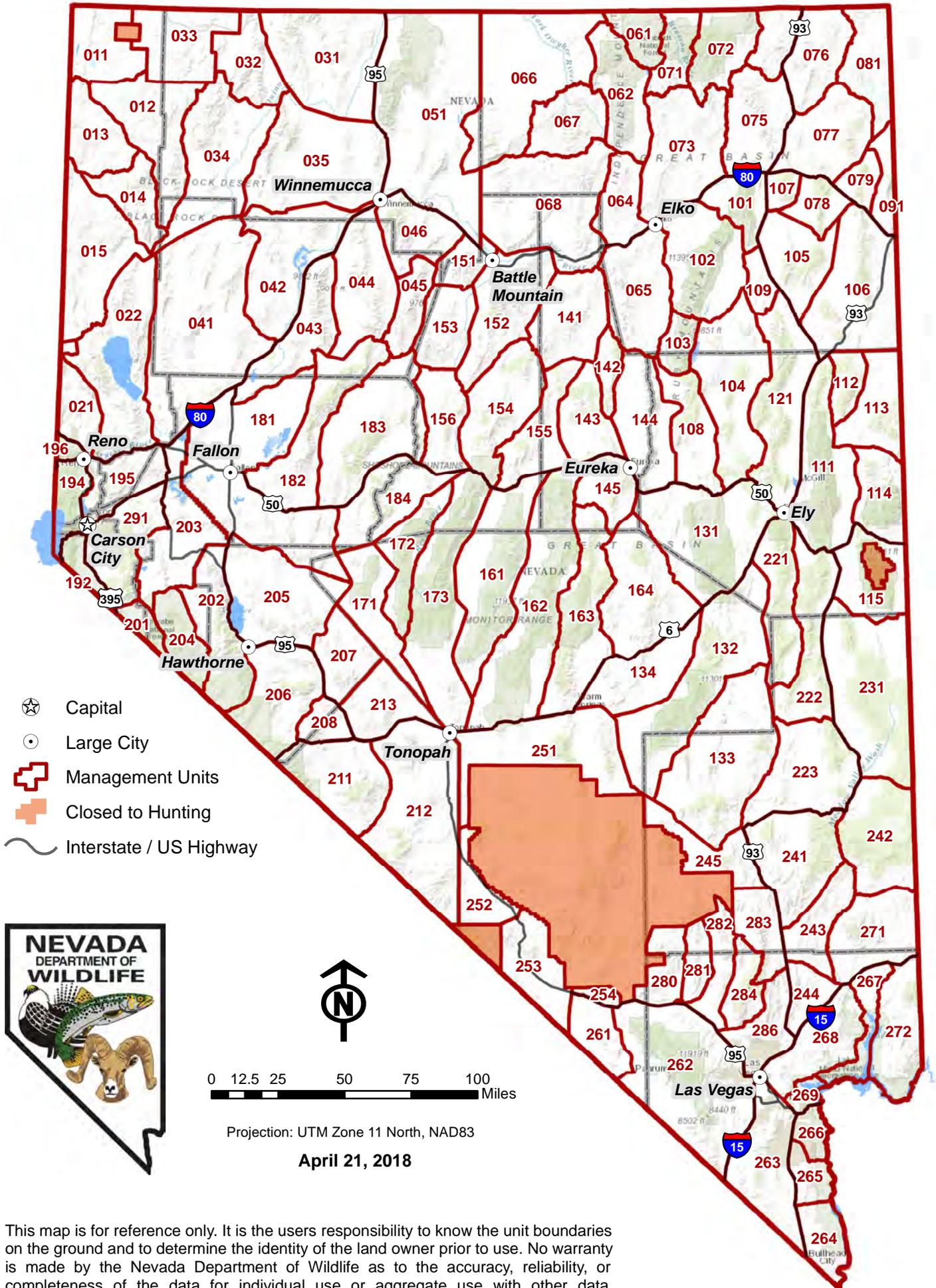
Year	Tag Sales			Harvest			Hunter Success		
	Resident	Nonresident	Total	Resident	Nonresident	Total	Resident	Nonresident	Total
1980 - 1981	313	61	374	24	14	38	8%	23%	10%
1981 - 1982	527	62	589	36	24	60	7%	39%	10%
1982 - 1983	519	61	580	41	20	61	8%	33%	11%
1983 - 1984	329	50	379	57	21	78	17%	42%	21%
1984 - 1985	352	107	459	60	46	106	17%	43%	23%
1985 - 1986	394	96	490	54	29	83	14%	30%	17%
1986 - 1987	345	114	459	51	36	87	15%	32%	19%
1987 - 1988	416	91	507	41	37	78	10%	41%	15%
1988 - 1989	383	124	507	65	53	118	17%	43%	23%
1989 - 1990	439	184	623	75	77	152	17%	42%	24%
1990 - 1991	318	112	430	55	33	88	17%	29%	20%
1991 - 1992	507	112	619	78	47	125	15%	42%	20%
1992 - 1993	348	149	497	75	75	150	22%	50%	30%
1993 - 1994	405	139	544	99	74	173	24%	53%	32%
1994 - 1995	403	151	554	89	72	161	22%	48%	29%
1995 - 1996	432	186	618	73	61	134	17%	33%	22%
1996 - 1997	480	137	617	80	63	143	17%	46%	23%
1997 - 1998	870	137	1,007	122	88	210	14%	64%	21%
1998 - 1999	643	124	767	73	67	140	11%	54%	18%
1999 - 2000	680	109	789	71	55	126	10%	50%	16%
2000 - 2001	883	169	1,052	104	90	194	12%	53%	18%
2001 - 2002	838	98	936	104	63	167	12%	64%	18%
2002 - 2003	1,060	131	1,191	89	39	128	8%	30%	11%
2003 - 2004	1,133	221	1,354	119	73	192	11%	33%	14%
2004 - 2005	1,186	206	1,392	62	43	105	5%	21%	8%
2005 - 2006	1,021	162	1,183	70	46	116	7%	28%	10%
2006 - 2007	1,366	121	1,487	95	39	134	7%	32%	9%
2007 - 2008	1,521	200	1,721	94	51	145	6%	26%	8%
2008 - 2009	3,484	284	3,768	83	34	117	2%	12%	3%
2009 - 2010	3,873	302	4,175	80	51	131	2%	19%	3%
2010 - 2011	3,942	275	4,217	96	50	146	2%	18%	3%
2011 - 2012	4,067	297	4,364	72	31	103	2%	10%	2%
2012 - 2013	4,735	354	5,089	122	60	182	3%	17%	4%
2013 - 2014	4,968	358	5,326	85	33	118	2%	9%	2%
2014 - 2015	5,325	384	5,709	73	26	99	1%	7%	2%
2015 - 2016	5,332	392	5,724	113	60	173	2%	15%	3%
2016 - 2017	5,346	446	5,792	115	64	179	2%	14%	3%
2017 - 2018	5,479	117	5,596	132	30	164	2%	26%	3%
2018 - 2019*	3,530	366	3,896	*	*	177	*	*	5%
<b>Totals</b>	<b>64,897</b>	<b>6,869</b>	<b>71,766</b>	<b>3,057</b>	<b>1,892</b>	<b>4,951</b>			
<b>Avg. (40 yrs)</b>	<b>1,664</b>	<b>176</b>	<b>1,840</b>	<b>78</b>	<b>49</b>	<b>127</b>			
<b>10-Year Avg</b>	<b>4,655</b>	<b>321</b>	<b>4,976</b>	<b>97</b>	<b>44</b>	<b>141</b>			

\*Due to a new accounting system, records may be updated next year.

**TABLE 30. NEVADA MOUNTAIN LION DEPREDATION HARVEST  
(Conducted by APHIS and Private Citizens)**

Year		Males	Females	Unknown	Total
1979	- 1980	12	11	0	23
1980	- 1981	19	3	0	22
1981	- 1982	20	17	0	37
1982	- 1983	11	10	0	21
1983	- 1984	13	12	0	25
1984	- 1985	12	16	0	28
1985	- 1986	16	9	0	25
1986	- 1987	22	15	0	37
1987	- 1988	21	20	0	41
1988	- 1989	26	23	0	49
1989	- 1990	23	24	0	47
1990	- 1991	37	20	0	57
1991	- 1992	27	22	0	49
1992	- 1993	32	17	0	49
1993	- 1994	21	15	0	36
1994	- 1995	16	8	0	24
1995	- 1996	13	10	0	23
1996	- 1997	11	9	0	20
1997	- 1998	12	10	0	22
1998	- 1999	8	3	0	11
1999	- 2000	8	8	0	16
2000	- 2001	5	10	0	15
2001	- 2002	8	11	0	19
2002	- 2003	7	6	0	13
2003	- 2004	16	12	0	28
2004	- 2005	9	7	0	16
2005	- 2006	15	4	0	19
2006	- 2007	10	9	0	19
2007	- 2008	18	19	0	37
2008	- 2009	10	16	0	26
2009	- 2010	16	15	0	31
2010	- 2011	13	17	2	32
2011	- 2012	12	17	1	30
2012	- 2013	8	12	1	21
2013	- 2014	9	10	1	20
2014	- 2015	8	9	1	18
2015	- 2016	22	12	0	34
2016	- 2017	11	10	0	21
2017	- 2018	21	21	0	42
2018	- 2019*	10	12	0	22
<b>Total</b>		<b>641</b>	<b>521</b>	<b>7</b>	<b>1191</b>
<b>Average</b>		<b>15</b>	<b>12</b>	<b>0</b>	<b>28</b>

\*Due to a new accounting system, records may be updated next year



This map is for reference only. It is the users responsibility to know the unit boundaries on the ground and to determine the identity of the land owner prior to use. No warranty is made by the Nevada Department of Wildlife as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.