Nevada Department of Wildlife

2019-2020 Big Game Status

STATE OF NEVADA
Steve Sisolak, Governor

DEPARTMENT OF WILDLIFE
Tony Wasley, Director

GAME DIVISION
Mike Scott, Chief

Mike Cox, Bighorn Sheep and Mountain Goat Staff Specialist
Pat Jackson, Predator Management Staff Specialist
Cody McKee, Elk Staff Specialist
Cody Schroeder, Mule Deer and Antelope Staff Specialist
Peregrine Wolff, Wildlife Health Specialist

Photo courtesy of Bureau of Land Management, Nevada State Office

Western Region	Southern Region	Eastern Region
	Regional Supervisors	
	Steve Kimble	Tom Donham
	Big Game Biologists	
Chris Hampson	Joe Bennett	Travis Allen
Carl Lackey	Pat Cummings	Clint Garrett
Kyle Neill	Cooper Munson	Sarah Hale
Ed Partee		Kari Huebner
Jason Salisbury		Matt Jeffress
		Kody Menghini
		Scott Roberts

NEVADA DEPARTMENT OF WILDLIFE

2019-2020 BIG GAME STATUS

This program is supported by Federal financial assistance titled "Statewide Game Management" submitted to the U.S. Fish and Wildlife Service (Service)'s CFDA Program 15.611 and is made under the authority of: Pittman-Robertson Wildlife Restoration Act of 1937, 16 U.S.C. 669-669k.

Compiled and Edited by:

Mike Cox, Bighorn Sheep and Mountain Goat Staff Specialist
Pat Jackson, Predator Management Staff Specialist
Cody McKee, Elk Staff Specialist
Cody Schroeder, Mule Deer and Antelope Staff Specialist
Mike Scott, Game Division Chief

Tom Donham, Regional Supervising Biologist
Steve Kimble, Regional Supervising Biologist

Federal Aid Project

TABLE OF CONTENTS FOR STATUS REPORTS

BIG GAME STATUS STATEWIDE SUMMARY

MULE DEER

The Nevada Board of Wildlife Commissioners approved a statewide quota of 16,868 mule deer tags for the 2019-2020 season. Of those, 400 tags were returned that could not be re-issued resulting in 16,466 deer hunters with valid tags when the season began. There were approximately 70,000 applications for regular mule deer hunts (not including PIW, Dream Tag, or Silver State applications) in the 2019 main big game draw. Total deer harvest for 2019 was 6,454 deer including bucks and does. Of those, approximately 5,595 were bucks and about 45% were 4-point or greater. Mule deer hunters averaged about 5.3 days in the field during 2019. Statewide success rates for all mule deer hunts was 45% in 2019 which was significantly lower compared to the previous year's success rate of 54%.

In 2019, Nevada Department of Wildlife game biologists classified about 10,500 mule deer during the fall survey. Statewide fawn production was slightly lower during 2019 with 45 fawns:100 does observed during post-season surveys, compared to 49 fawns:100 does during the fall of 2018. The observed post-season buck ratio was 28 bucks:100 does for 2019 which is slightly below the statewide management objective of 30 bucks:100 does for standard units. Unfortunately, over-winter fawn survival remained below the 5-year average for the 2019-20 winter, with a ratio of 27 fawns:100 adults observed during the spring survey. The low fawn recruitment may be attributed to above average snow and cold temperatures during March 2019 followed by a very dry summer and poor forage quality in many parts of Nevada.

ANTELOPE

The 2019 antelope season continued to provide excellent hunting opportunities for Nevada hunters. The Nevada Board of Wildlife Commissioners approved a statewide quota of 4,541 antelope tags for the 2019 season. Of those, 227 tags were returned that could not be re-issued resulting in 4,320 antelope hunters with tags when the season began. There were approximately 32,690 applications for regular antelope tags (not including PIW, Dream Tag, or Silver State applications) in the 2019 main big game draw. Antelope hunters averaged about 3.5 days in the field during 2019. About 2,800 antelope were harvested during 2019 for all seasons and weapon types. Overall, hunt success was 73% for all antelope hunts, which was right at the 5-year average. The percentage of bucks with horns 15 inches or greater was about 29% statewide during 2019, which was also close to the 5-year average.

In 2019, Nevada Department of Wildlife game biologists classified 10,938 antelope during autumn and early winter surveys with an observed buck and fawn ratio of 35 bucks:100 does:28 fawns. The Department uses a management objective of 25 bucks:100 does (for bucks 2 years old and older) when making quota recommendations. The 2019 statewide population estimate for pronghorn is about 30,000 animals including adults and juveniles.

The Nevada Department of Wildlife initiated a new GPS radio-collaring study on antelope in the fall of 2019 and winter 2020. The study was in response to Secretarial Order 3362, with an overall objective to identify, prioritize, and protect migration corridors and winter ranges for mule deer, elk, and antelope. Nevada Department of Wildlife captured and radio-collared approximately 85 animals in two study areas in northern Nevada for this effort. The data collected will be used to map migration corridors, identify crucial habitats, and to target areas for habitat enhancement projects in the future.

ROCKY MOUNTAIN ELK

The Department issued 6,764 tags for elk hunts during the 2019-2020 season. The harvest of 1,000 bulls, including those taken during spike-only hunts, was 17% lower than 2018-2019. An additional 964 antlerless elk were harvested, representing a 27% decline from the previous year. The decline in antlerless harvest

is reflective of tag reductions recommended in 2019 to maintain elk herds at or below the population objective.

Reported hunter success for all sex and weapon classes improved to 32% in 2019. Combined success for bull hunters was 45% with 32% of successful hunters reporting antler lengths of 50-in or longer. Hunters of antlerless elk reported a success rate of 29%. Following the hunting season, biologists with the Department classified 8,867 elk during aerial surveys. Ratios representing the statewide sex and age composition were 46 bulls:100 cows:32 calves.

Data collected from hunters and during aerial surveys suggest the Department's goal of reducing the statewide elk population has been successful. The 2020 population estimate is up slightly to 13,000 elk. Composition of antlered elk with 50-in antlers or longer is up from 2018, suggesting the Department's 2019 harvest recommendations successfully increased age structure in the harvest of antlered elk. Hunters should expect quota recommendations similar to the 2019-2020 quotas for most elk hunts to maintain elk herds near current population levels. One notable exception are antlerless elk management hunts, which the Department closed for the 2020-2021 hunting season.

DESERT BIGHORN SHEEP

In 2019, a slight decline to 311 total desert bighorn ram tags occurred compared to 317 issued in 2018 including the 5 specialty tags. Ewes tags also declined from 134 tags in 2018 (Units 212, 213, 253, and 268) to 122 tags in 2019 (Units 213 and 268 only). Total ram harvest was 268, down from 279 in 2018. The 2019 hunter success rate was 89%, excluding the 10 tags that were returned but not reissued to alternates. The long-term average is 88%. Average days hunted of 5.0 was just below the long-term average of 5.5. The most interesting metric of the 2019 season was reaching the highest average ram age of 7.0 since 1984, a span of 35 years. This even included a decade of hunts under the restricted 7 years or 144 minimum score.

The average B&C score was 154 compared to long-term average of 152. A considerable drop occurred in the number of 170+ B&C rams harvested to 10 from the last 4 years that averaged 18 rams. But there were still 9 different units that had a 170+ B&C ram harvested from. The demand for desert bighorn ram tags continued to increase with 9,900 residents and almost 11,000 nonresidents compared to 9,196 residents and 10,063 nonresidents in 2018.

The 2019 desert bighorn ewe hunt resulted in 86 animals harvested in Units 213 and 268. Nine tag holders chose not to hunt. Overall hunter success rate was 74% including those that did not hunt. The number of desert bighorn ewe applicants in 2019 of 970 was comparable to 979 in 2018 when there were 4 open units instead of 2 units open in 2019.

The 2019 statewide aerial desert bighorn survey efforts classified 4,376 animals. The observed lamb ratio was 34 lambs:100 ewes, up from the lowest lamb ratio on record in 2018 at only 23: lambs:100 ewes. We continue to see many herds inflicted with bronchial pneumonia having multiple years of compromised lamb ratios. As stated in last year's statewide summary, the impact of this multi-year poor lamb survival will be continued stable to declining ram quotas statewide over the next few years. Even if a dramatic increase in lamb recruitment is seen in the short-term, it will take 6-8 years to affect a change in ram tags.

A limited number of desert bighorn captures were conducted this past year. Captures in the East and Stillwater Ranges and Sou Hills occurred for both presampling in early October (n = 16) and on October 23 and 24 (n = 51) for translocation stock for Utah Division of Wildlife Resources' reintroduction to the Mineral Mountains near Cedar City, Utah. The East and Stillwater Range bighorn population has shown tremendous growth over the last decade reaching almost 700 animals, providing a great opportunity to share bighorn for reintroduction efforts. Small captures and GPS collar deployment (n = 7) were

conducted on Mount Moses (Fish Creek Mountains) and Quinn Canyon Range for disease surveillance and monitoring bighorn ram forays within an active domestic sheep allotment.

Polymicrobial pneumonia epizootics continue to plague desert bighorn herds. Similar to the "pathogen spillover" that occurred in 2018 in the Clan Alpine population, the Gabbs Valley and Gillis Ranges east of Walker Lake succumbed to a pneumonia event detected during the fall ram hunt. Almost every successful hunter reported nasal discharge, poor body condition, or other clinical signs of pneumonia. Of the hunter harvest samples tested from Units 205 and 207, test results revealed that 70% were actively shedding *Mycoplasma ovipneumoniae (M. ovi.),* the "trigger" pathogen for pneumonia die-offs. Based on reports of fresh carcasses found and body condition and lungs of live rams, a conservative estimate of adult losses is 100 and significant losses may be seen of the 2019 lambs. Retrospective assessment of the 2018-2019 Clan Alpine Range disease event with more field and survey data, reveals 150 adults may have been lost, 85% of the 2018 lambs, and over 90% of the 2019 lambs. Another pneumonia disease event was detected in the southern portion of the Stillwater Range during the November 2019 ram hunt. Three of 4 hunter harvest samples tested were positive for active infection of M. ovi. The demographic extent and spatial distribution northward are unclear until more data is collected in 2020. Conservative estimate of adult losses at this time is 75 bighorn sheep.

For the first time since 2003, the statewide desert bighorn sheep population estimate declined from the previous year from 10,200 in 2019 to 9,900 in 2020. This significant departure from the growth we have been accustomed to is directly related to the herd contractions caused by pneumonia disease events. The losses are the death of both adults and nearly all lambs from many herds for varied number of years post disease event dependent on the M. ovi strain and other covariates like drought conditions. Evaluating all desert bighorn disease events experienced since the early 2000s, over 1,500 desert bighorn sheep have been lost, including lambs that would have otherwise been recruited into herds if it were not for pneumonia killing the animals before reaching 1 year of age. This is 15% of today's statewide population, a very troubling statistic.

CALIFORNIA BIGHORN SHEEP

California bighorn ram tags have been reduced but stable the last 4 years after the unfortunate depopulation of the Montana Mountains herd. The 2019 hunter success rate declined from 97% in 2018 to 88%. Average days hunted continued to be over 7 days since 2017, with long-term average of 6.5 days. Good to see hunters spending more time in the field with a 60-day season. The average age of 2019 harvested rams rose to 6.9 years, the long-term average. Crazy to think those lucky enough to draw a California bighorn ram tag in 2019 competed with 7,700 resident and almost 9,600 nonresident applicants to have experienced this "hunt of a lifetime".

Aerial surveys classified 1,136 California bighorn sheep with a statewide average of 43 lambs:100 ewes ratio, slightly above the 2018 ratio. A lamb ratio above 40 provides for herd growth and was seen in 75% of our herds during this biological year. One herd that continues to struggle is the Santa Rosa Range with an average lamb ratio the last 6 years below 30. This is primarily due to pneumonia caused by several virulent pathogens that continue to circulate in both the Santa Rosa Range and adjacent bighorn herds in Oregon that form an interstate population. The 2020 statewide California bighorn population estimate of 2,000 adults is a 5% increase from 2018.

Was another busy bighorn capture season with many objectives to fulfill. Twelve Snowstorm Mountain bighorn were captured in early November and late January to assess *Mycoplasma ovipneumoniae* (M.ovi) carrier status and GPS collar to document timing of ram interaction with ewe subgroups. Test results unfortunately detected M.ovi in 5 individuals including a young ram that died during the capture due to severe pneumonia. Presampling for M.ovi and other pathogens in potential translocation source stock herds was conducted in the Double H Mountains, Sheep Creek, Pine Forest, and Black Rock Ranges. Additional animals and sub-herds were captured on the Sheldon National Wildlife Refuge to assess future augmentation needs. The Virginia and Jackson Mountains were the last 2 remaining California bighorn

herds to have disease surveillance conducted with 10 animals captured and sampled from each mountain in November 2019 and January 2020. The good news is all of the presampling herds, Virginia and Jackson Mountains, and Sheldon were negative for M.ovi by PCR and ELISA.

After discussions that went on for 2 decades and planning efforts commencing in 2018 with Pyramid Lake Paiute Tribe's (PLPT) Natural Resources Department staff, bighorn sheep were finally reintroduced to the PLPT's Lake Range. Original plans were to capture bighorn from the Black Rock Range but weather and severe winds caused the source stock to switch to the Sheep Creek Range. With fresh snow and clear skies, 22 bighorn were captured on January 13, 2020 with Quicksilver Air helicopter netgun crew, loaded into the transport trailer, transported, and released the same day just before sunset above the east shore of Pyramid Lake. Unfortunately, 3 capture-related mortalities occurred over the next 2 days. The initial monitoring through March showed all remaining animals doing well and exploring some of the best bighorn habitat that the Lake Range has to offer. Later in January, a capture was conducted using Double Hs and Pine Forest Range as source stock to augment 23 ewes and lambs into the Negro Creek subherd of the Granite Range north of Gerlach.

A domestic-wild sheep comingling event was witnessed in the Sahwave Mountains in February 2020. A domestic ewe was left behind from a band of sheep that are trailed every fall past the base of the Sahwave Mountains to their winter grounds. The ewe was observed feeding and bedding with 5 bighorn rams. Permission was received from Nevada Department of Agriculture after several attempts to reach the owner to remove the stray ewe. Pathogen samples were collected from the dead ewe and the 5 wild rams were monitored with 1 of the rams having a GPS collar. Tests came back negative for the primary pathogen of concern, M.ovi. Two weeks later 2 rams from the group died from presumed mountain lion predation. Samples collected from nasal cavities were both negative for M.ovi, providing further support that M. ovi. was not transmitted to the wild rams during the comingling event.

ROCKY MOUNTAIN BIGHORN SHEEP

Of the 7 ram tags issued, 1 was returned and not reissued and 5 hunters were successful. The 2019 season proved to be challenging for most of the tagholders with the lowest average age and average B&C score on record at 5.4 and 137 6/8, respectively. Hunter effort was the lowest since 2013 with average days hunted at 9 compared to short-term average of 12 days. The oldest ram taken was a 10-year old that scored 166 2/8 from Unit 091 with only 1 day hunted.

Aerial, ground, or camera surveys were conducted in late 2019 and early 2020 for all 6 Rocky Mountain bighorn herds with a similar lamb ratio to the 40 lambs:100 ewes from 2018. The statewide population of Rocky Mountain bighorn increased for a second consecutive year from 280 in 2019 from 310 from herd growth in the Badlands, East Humboldt Range, and Ruby Mountains.

During the fall 2019, a high elevation helicopter capture was conducted in the Great Basin National Park as part of the ongoing collaboration with the Natural Resources staff to monitor potential new habitat use areas and proximity of bighorn to domestic sheep grazed near the park boundary. Unfortunately, due to dense tree cover and unforeseen circumstances, only 2 GPS collars remain functional as of April 2020. In January 2020, 10 bighorn were captured and GPS collared in the Badlands and Ruby Mountains. Objectives for these collars are to assist with potential predator management activities in the Badlands and monitor or detect new seasonal use areas in the Ruby Mountains as the population grows.

MOUNTAIN GOAT

Six of 8 mountain goat tag holders in 2019 were successful. All tag holders are encouraged to take and study the mandatory Mountain Goat Hunting Orientation on the Nevada Department of Wildlife website to help hunters determine sex of mountain goats in the field. The 2019 total harvest was comprised of 5

billies and only 1 extremely old nanny (16%). The average age of all harvested mountain goats was 7.1 years old.

During the Unit 101 mountain goat aerial survey in January 2020, a total of 26 adults and 2 kids were observed. The flight was hampered by moderate winds which made it impossible to survey the northern portion of the unit. This dismal observed kid ratio follows 2 years with the average kid ratio of 25 kids:100 adults, with the 2020 sample similar to 2011-2017 average kid ratio of only 7 kids:100 adults. Kid survival has been depressed since 2009 due to the persistent circulation of *Mycoplasma ovipneumoniae* in this mountain goat herd.

During the Unit 102 mountain goat aerial survey in January 2020, a total of 87 adults and 17 kids were observed. The flight was hampered by moderate winds which made it impossible to survey much of the eastside of the mountain range. Following the 2009 pathogen outbreak, the average kid ratio for Unit 102 from 2011-2017 was 15 kids:100 adults. This is the third survey in a row with an observed kid ratio of 19 kids:100 adults or above, and leaves room for optimism moving forward.

No formal survey was conducted in Unit 103 this year. This herd has been relatively static in recent years with maintenance level recruitment rates.

The 2020 population estimate for all 3 herds is 290, which is down from 2019 estimate of 305. The population drop is attributed to the continued contraction of the Unit 101 herd. Multiple years of above average recruitment will be needed to curb the long-term population decline and maintain the limited hunting opportunities in Unit 101.

MOUNTAIN LION

In 2017 mountain lion harvest limits were changed from 3 regional to 1 statewide harvest limit of 245. A 2 mountain lion harvest limit for the interstate hunt with Utah in unit 091 remains unchanged.

In 2012, 6 unique genetic subpopulations were identified (Andreasen et al. 2012) and snapped to existing hunt units. These subpopulations consist of the following hunt 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 Department currently monitors to ensure hunter harvest does not exceed 35% adult female harvest (Anderson and Lindzey 2005) or 50% overall female harvest for any genetic subpopulation on a 3-year average.

No concerning trends were observed in adult female and overall female harvest. It is worthwhile noting the overall female and adult female harvest percentages are close for the central subpopulation.

	Overall Female Harvest	Adult Female Harvest
East	35%	25%
South	29%	27%
North	43%	29%
Central	49%	32%
West	39%	19%
Transient	42%	16%

BLACK BEAR

Forty-five resident and 5 nonresident tags were issued for the 2019 black bear season; 14 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 2019 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.

BIG GAME HERD STATUS REPORTS

MULE DEER

Units 011 – 013: Northern Washoe and Western Humboldt Counties
Report by: Chris Hampson

Survey Data

Due to weeks of inclement weather with high winds, snow squalls, and thick fog that did not lift from the valleys during the daytime hours, fall surveys for mule deer were canceled for 2019.

The post-season survey from early November 2018 obtained a sample of 325 deer that had a composition ratio of 34 bucks:100 does:44 fawns. The observed buck ratio from the survey was near the harvest objective.

Spring surveys took place in late February 2020 and a sample of 358 mule deer was classified. The sample provided a ratio of 37 fawns:100 adults. The previous year's spring sample provided a ratio of 33 fawns:100 adults.

Habitat

Storm fronts that occurred in mid-March 2020 dropped much needed snow and rain in areas of northwestern Nevada. This precipitation was needed to help bolster the snowpack and soil moisture following 2 consecutive very dry months in January and February 2020. Habitat conditions should be near average this year and water availability should be sufficient on important mule deer summer ranges. Prior to these recent storms, the Great Basin Outlook Report had the region sitting at 105% for Water Year Precipitation as of March 1, 2020; however, these percentages may drop.

Population Status and Trend

Mule deer populations in the northwestern corner of the state mostly appear to be stable to slightly increasing. Harvest records over the past 2 or 3 years would indicate things are slowly improving within the hunt unit group. The average fawn ratio for this unit group increased slightly this year compared to 2018. Spring fawn ratios in Unit 011 in the extreme northwestern corner of the state appeared to be stronger this year.

Recommended quotas for this unit group are expected to be similar to or slightly higher for the 2020 season.

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

Survey Data

No fall mule deer surveys were conducted in any of the Washoe County hunt units in 2019 due to inclement weather.

Spring surveys were difficult in this hunt unit due to both the current lower densities of mule deer and the very mild conditions during the months of January and February (driest on record) that scattered deer. The late February survey obtained a sample of 103 mule deer which had a spring composition ratio of 30 fawns:100 adults. In comparison, the 2019 spring survey saw an observed ratio of 36 fawns:100 adults.

Due to the lack of precipitation during the usually very wet months of January and February, mule deer were scattered over wide areas and not entirely concentrated on extreme winter ranges. A few groups of deer were found to be scattered on the lower elevation winter ranges in both Units 014 and 015.

The Washoe County mule deer telemetry study continued in 2019-2020. The collar data showed mule deer moving back and forth from lower elevation winter ranges to mid-elevation transitional ranges during milder conditions. Densities of mule deer decrease under these conditions.

Lion control was instituted in the northern half of Unit 014 late in 2019. The control effort was designed to reduce lion densities ahead of a scheduled bighorn release in the NE corner of Unit 014. Over the winter, Wildlife Services removed 3 mountain lions from the vicinity of Fox Mountain, Red Mountain Creek and Buckhorn Peak.

As of this writing, control efforts continue. To date, three collared California bighorns have been killed over the winter by lions in Unit 014.

Habitat

Habitat conditions are expected to be good summer 2020. Storm fronts forecast for mid-March are expected to provide additional moisture and will help to bolster the below-average snowpack and precipitation totals. The very dry months of January and February 2020 caused precipitation totals to fall below average levels. It is hoped that even more snow and rainfall will occur in the coming spring months to help maintain water flows at spring sources.

Streamflow forecasts for spring and early summer 2020 are expected to be near or slightly below the long-term average for the Nevada portion of the Northern Great Basin.

Population Status and Trend

The average recruitment level is expected to result in stable to slightly reduced herd estimates. Herd performance over the past few years has been poor and has led to decreasing trends for this deer herd. The recommended quotas are expected to remain similar to 2019 levels.

As expected, hunter success rates increased slightly with the month-long hunting season but remain much lower than the long-term averages for this hunt unit.

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

Report by: Chris Hampson

Survey Data

No fall data was collected by California biologists this year as helicopter surveys focused effort in adjacent California hunt units. Nevada biologists typically fly only the spring surveys since most deer are still in California during the fall months. The California Interstate mule deer generally do not move onto winter range in Nevada, Unit 015, until mid-to-late November or early December; however, there is a small resident deer herd that lives within Unit 015 and remains in Nevada year-round.

The very dry and mild conditions during the months of January and February 2020 allowed the interstate mule deer that wintered in Nevada to begin moving back towards the summer ranges in California early. Mule deer appeared to be absent from typical Nevada winter ranges during the survey. Biologists then shifted the surveys to the west attempting to catch up to the migrating deer. A few fairly large groups of deer were located that were moving back to California summer ranges. A sample of 106 mule deer

was classified and resulted in a composition ratio of 34 fawns:100 does. Spring fawn ratios were similar to those in surrounding hunt units.

Habitat

After the very dry and mild conditions in January and February 2020, more storms are forecast for the middle of March that will hopefully provide some much-needed snowfall and precipitation. Water Year Precipitation totals for the northwestern portion of the state were sitting at 82% of average as of March 1, 2020.

The limiting factor for this interstate deer herd is the loss of habitat from past wildfires. The quality of the mule deer habitat on both the summer ranges in California and the important winter ranges here in Nevada have been negatively impacted by past wildfires. The loss of the brush communities important to mule deer for both forage and cover has decreased the overall carrying capacity for this deer herd. These burned areas at the mid-to-lower elevations have, in most cases, been invaded by cheatgrass and Medusahead. Juniper invasion has also affected the quality of mule deer habitat in some of the unburned areas of the unit.

Population Status and Trend

The average recruitment observed this year will allow for a stable trend for this interstate deer herd. Hunter success rates over the past few years have been somewhat consistent but remain below the long-term average.

The recent wildfire (2018) in the Parsnip Wash and Buffalo Creek areas burned important brush communities that deer depended upon to survive the winter. Overtime, the quality and quantity of the mule deer winter ranges in Unit 015 has declined significantly.

Quota recommendations for this interstate deer herd are expected to be similar to those allocated in 2019.

Unit 021: Interstate Deer Herd; Petersen Mountains, Dogskin Mountains, Fort Sage Mountains

Report by: Chris Hampson

Survey Data

California biologists flew surveys in Hunt Units X6b and X7a in early January 2020 and classified good numbers of mule deer on the California side of the line. The survey resulted in 839 adults and 314 fawns being classified for an observed ratio of 37 fawns:100 adults. This was the first aerial survey of these California hunt units that biologists have conducted since 2016.

Nevada biologists located a smaller sample this year due to the very mild conditions in January and February. The surveys were conducted in Unit 021 in late February and many of the interstate deer that wintered in Nevada were already headed back to California. A sample of 201 mule deer had a ratio of 34 fawns:100 adults.

Habitat

Habitat restoration efforts continued in this hunt unit with the Nevada Department of Wildlife planting an additional 2,000 sagebrush seedlings this past winter in the Sand Hills. The Sand Hills lie to the east of the Petersen Mountains. The area was burned during a wildfire in 2018 and habitat was lost on the northern portion of the range. The big game guzzler on the north end of the Sand Hills was rebuilt in 2018.

The Nevada Department of Wildlife is involved with the Bureau of Land Management's Carson City District on other projects such as the construction of fire breaks and green stripping projects along some of the major road systems within or bordering Units 021 and 022. It is hoped that these fire breaks will help firefighters contain future wildfires and help prevent large devastating fires from occurring. Also, pinyon-juniper removal on the north end of the Dogskin Mountains continues and may be expanded to include additional areas near spring sources further to the east in the Virginia Mountains of Unit 022.

Population Status and Trend

The recruitment values observed this year will allow for stable to slightly increasing trends for this interstate mule deer herd. Hunters continue to have good success hunting this unit and the percent 4-pt or better in the harvest remains strong.

Quotas for the 2020 hunting season are expected to be similar to those allocated in 2019.

Unit 022: Virginia Mountains, Pah Rah Mountains, Fox Range

Report by: Chris Hampson

Survey Data

Spring aerial helicopter surveys for mule deer were conducted in late February 2020. Only 1 hour of helicopter time was expended in this hunt unit. Deer were scattered and no longer concentrated on lower elevation winter ranges as is usually the case this time of year. A record dry month of February, which followed a very mild and dry month of January, allowed mule deer to move up in elevation and scatter over wide areas. Additional ground surveys that followed the aerial survey located a few more groups of deer. The final sample of 95 mule deer provided a ratio of 34 fawns:100 adults.

Habitat

Additional moisture is expected in March that will hopefully help to offset some of the effects of the very dry months of January and February. Snowfall and precipitation totals are expected to be below long-term averages this year.

Restoration projects will continue in 2020 as additional work involving green stripping for firebreaks, pinyon-juniper removal, and seedling planting are planned. The Nevada Department of Wildlife and the Bureau of Land Management's Carson City District have been working together to try to restore some of the these burned areas to the north and east of the Reno-Sparks area.

Population Status and Trend

The loss of a significant amount of mule deer habitat over the past several years will affect this mule deer herd into the future. Restoration efforts continue but will only result in comparatively small portions of these large burned areas being restored. It is hoped that much of the habitat lost at the upper elevations of the Virginia and Pah Rah Mountains will naturally return to a healthy native shrub-grass dominated community over the next decade or more.

The recruitment rate observed this year will result in a stable trend for this mule deer population this year; however, loss of habitat from recent wildfires will continue to limit this population over the long-term.

Tag quotas for 2020 hunting season in Unit 022 are expected to be similar to the previous year's allocation.

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 3 days in early November 2019. During these flights, 330 deer were classified which is about half of what was observed during the previous year's flights. Ratios obtained from these surveys were 24 bucks:100 does:55 fawns.

Spring aerial surveys were conducted over a 2-day period in mid-March 2020. Conditions during this survey were ideal with sun and no wind. During this survey, 1,319 deer were observed yielding a ratio of 32 fawns:100 adults. The number of deer classified on this flight was up slightly from last year and may be attributed to weather conditions during the time of the survey.

Habitat

Habitat conditions continue to be in good shape within Area 3. With 2 previous wet winters, conditions have improved over the last 3 years. As of March 1, 2020, the snowpack for these units is at 91% of average. Despite being less than what was received the last 2 years, conditions remain good due to the amount of moisture received thus far. With the great conditions that were experienced last year as well as good snow conditions this year, habitat conditions should continue to respond in a positive manner. The current water year is sitting at 79% of normal at this point. Spring and summer moisture will be needed to sustain the current conditions.

Rehabilitation work on past fires has continued cooperatively between the Nevada Department of Wildlife and the Bureau of Land Management.

Population Status and Trend

Most mule deer herds within Area 3 are remaining stable with one showing a slight drop in the population. Fawn and buck ratios are mostly stable with only minor fluctuations due to overwinter fawn loss. We may see a slight drop overall in population numbers, but on a very small scale. With continued positive responses in the habitat and continued moisture receipts throughout the spring there should be a decent recruitment of fawns into the population. Population levels at this time are expected to remain relatively constant with existing habitat conditions.

Unit 033: Sheldon National Wildlife Refuge; Washoe and Humboldt Counties
Report by: Chris Hampson

Survey Data

Early season snowstorms forced mule deer that live on the Sheldon to migrate to crucial winter ranges located outside of the Sheldon's borders. This results in mule deer scattering and moving to winter ranges north into Oregon, east into Unit 032 and south into Unit 012. Mule deer were also observed on crucial winter ranges in adjacent Unit 011.

The spring sample for the Unit Group 011-013, 033 was 358 mule deer with a composition ratio of 37 fawns:100 adults. No fall surveys were completed within the unit group or on the Sheldon in 2019. Weather related delays finally forced the cancelation of flights.

The 2018 fall surveys for the entire unit group provided a composition ratio average of 35 bucks:100 does:46 fawns. The Sheldon survey sample provided a slightly higher ratio of 38 bucks:100 does:53 fawns.

Habitat

Late winter storms in March 2020 helped to offset a drier-than-average start to the winter. As of March 1, 2020, precipitation totals were between 82% and 105% of average. Strong storms are forecast for March that may help to push these totals back to near-average levels. The late winter moisture will help to provide improved habitat conditions and allow for more water to be available for all wildlife living on the Sheldon in summer 2020.

US Fish and Wildlife Service personnel continued to remove invading juniper from important brush communities in 2019. Additional work is once again planned for the coming year on the western portion of the Sheldon. Habitat improvement projects such as these will help to increase flows at spring sources and help to maintain the important browse communities that mule deer and other wildlife need for survival.

Population Status and Trend

The hunter success rates for those tagholders hunting on the Sheldon have improved in recent years when compared with the lower success rates from just a few years ago. Tag quotas, however, remain low and the smaller numbers of tags allocated can influence these percentages. Overall, deer numbers remain low on the Sheldon but are slowly increasing.

Recommended tag quotas for this hunt unit are expected to be similar to those allocated during the 2019 hunting season.

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 a Resident Any Legal Weapon hunt success rate of greater or equal to 45%. Last year's success rate was 34%, with the 3 year mean at 37%. A reduction in the Resident Any Legal Weapon hunt quota for 2020 will be recommended to attempt to meet management objectives.

Population Status and Trend

This herd appears to be declining based on reduced Resident Any Legal Weapon harvest rates. Also, high numbers of burros and feral horses around limited water sources throughout the unit group have provided a consistent prey base for mountain lions. Trail camera photos from previous years have revealed increased presence of mountain lions on water sources throughout the unit group; therefore, possible increases in mountain lion predation may also be occurring.

Units 043 – 046: Eastern Pershing and Southern Humboldt Counties

Report by: Kyle Neill

Survey Data

Post-season mule deer surveys were accomplished on November 6 and 7, 2019. Randomly generated polygon methodology was utilized via helicopter. All random polygons were surveyed within the unit group. Observers counted a total of 83 mule deer, which was the lowest fall sample size ever recorded. Observed ratios were 25 bucks:100 does:25 fawns. The post-season buck ratio is below the unit group objective of 30 bucks:100 does. The fawn ratio equates to extremely poor production.

Aerial spring mule deer surveys occurred in early March 2020 over a 2-day period. Survey methodology used was directed search (same method as previous spring surveys), with all units being surveyed. A total of 289 mule deer was classified as 26 fawns:100 adults. Also, this was the lowest spring sample size since 1995.

Habitat

One major wildfire occurred in July 2019 that was started by lighting. The Buffalo Fire in Unit 046 burned 6,298 acres on the west end of the Buffalo Mountains. Most of this area had previously burned in 1985, 2006 and 2007. Rehabilitation efforts include aerially seeding 2,401 acres and aerially seeding an additional 3,897 acres in an alternating pass application. This fire is not expected to negatively impact mule deer in the short term as little utilization was occurring in this area before the fire. Annual wildfires continue to convert sagebrush into annual grasslands that do not favor mule deer propagation. Overall, winter range condition within all units remains deplorable.

Population Status and Trend

This herd has been on a declining population trend since 2013 and has diminished by approximately 49% from 2013 to 2020. The Units 043-046 population estimate for 2020 is 1,800 mule deer. Declining spring fawn ratios from 2013 to 2020 (average of 30 fawns:100 adults) have been observed as well as a noticeable decline in survey sample sizes (fall and spring). It is thought that a combination of factors continue to lead to this rapid decline. These include periodic drought conditions, poor winter range, continued wildfires and predation. Future management objectives should include predator removal and aggressive re-seeding efforts of habitat impacted by future wildfires.

Unit 051: Santa Rosa Mountains; Eastern Humboldt County

Report by: Ed Partee

Survey Data

Post-season helicopter surveys were conducted in early November 2019. A total of 234 animals was classified during this survey which is down from last year and the previous 5-year average. During this survey there was a lack of snow which dispersed animals from the top of the range to the valley floor. Surveys resulted in an observed ratio of 40 bucks:100 does:49 fawns. The buck ratio may be slightly biased due to a comparatively small sample size.

In mid-March 2020, spring surveys were conducted in this unit. During this survey a total of 547 animals was classified yielding a ratio of 35 fawns:100 adults. Conditions were ideal for this flight allowing coverage of a large area in a short period. With this range's higher elevations, snow conditions are better than those observed in other areas of Humboldt County. The number of deer observed during these flights is higher than what has been seen the last 2 years. The Osgood Mountains and the Hot Springs Range contribute a great deal to the survey numbers in this unit in addition to the Santa Rosa Range.

Habitat

As of March 1, 2020, precipitation values are at 79% of normal with a 91% snowpack. Despite having lower snowpack this year, positive results from the seeding efforts are still being seen that are continuing on the Martin Fire. Herbicide treatments as well as seeding efforts were implemented again this winter on the Martin Fire to control cheatgrass that has invaded as a result of the fire. The timing of the seeding efforts this year was ideal and should yield good results. The Nevada Department of Wildlife and the Bureau of Land Management have been in close contact and involved with a significant amount of rehabilitation efforts for this fire. Continued support from sportsman's organizations have assisted in rehab efforts. Continued spring moisture should benefit these areas.

Population Status and Trend

Over the last 2 years, the population has remained stable. The last 3 winters have been favorable in regard to the amount of moisture received. Overwinter winter mortality the last 2 years has contributed to the stable population. Minimal growth is taking place currently due to the above-average winters the last few years. Lower harvest coupled with low overwinter fawn loss should help this population along. The limiting factor for this herd is the winter range. Summer range still seems to be intact; however, with past fires the winter range has suffered catastrophic losses. With the continued moisture, summer range conditions should sustain these herds into next winter along with the continued rehabilitation efforts on past fires. This population should remain relatively stable over the next few years with no major losses predicted.

Units 061 – 062, 064, 066 – 068: Independence and Tuscarora Ranges; Elko County

Report by: Travis Allen

Survey Data

A fall helicopter survey was conducted over a 4-day period in late November 2019. A sample of 1,920 deer was obtained with observed sex and age ratios of 35 bucks:100 does:68 fawns.

Due to the Covid-19 outbreak, air operations within the Nevada Department of Wildlife were ceased before the spring helicopter survey for Area 6 was conducted. An attempt at a ground survey was made before fieldwork was discontinued, but underrepresentation of certain sub-herds and the extremely small sample size observed during the ground survey resulted in a data set that was unusable for modeling purposes. With the mild and open winter conditions experienced in 2020, percent overwinter fawn loss is expected to have been comparatively low relative to the last few years which experienced heavier winters. Overwinter fawn loss was lower in neighboring herds in 2020 as well.

Habitat

The harsh, long winter 2018-2019 had a negative effect on fawn recruitment leading into 2019. Overwinter fawn loss was recorded at 50% for the second time in 3 years. Although the winter was tough on the population, the above average snowpack and prolonged wet spring 2019 created favorable range conditions, providing great forage leading into the fawning season and throughout summer. Deer entered winter 2019-2020 in much better body condition than in previous years, when severe drought and heavy winters lowered body condition. Due to the mild winter, deer should be coming out of winter into this spring in great shape. This should have positive effects on both recruiting fawns into the breeding population and for the 2020 fawn crop.

Much of the winter range for Area 6 mule deer has been compromised by wildfire. While no new fires burned in 2019, the 284,000-acre South Sugarloaf fire of 2018 will continue to impact mule deer in the Bull Run and North Independence Mountains. Fortunately, native grasses are recovering in portions of the burned area, which will help compete with invasive annuals. Additionally, 88,300 acres burned north of the State line along the Bruneau River, much of which has been drill seeded since the fire. Deer that migrate to the Sheep Creek Range spend much of winter on a patchwork of overlapping historic and recent burns where habitat restoration will continue to be essential in providing desirable habitat for this herd. 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 infestation of cheatgrass and other weeds, the likelihood of that site burning again increases 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 Nevada

Department of Wildlife is working with the Bureau of Land Management, Nevada Gold Mines, and Halliburton to ensure adequate mule deer migration corridors are maintained.

Population Status and Trend

The 2020 population estimate for the Area 6 deer herd is slightly above last year. Given the compromised nature of winter range the management objective for this herd is between 8,000-9,000 deer. Female harvest should continue in order to meet the management objective. Without female harvest this population would likely experience higher overwinter rates of fawn and adult mortality and maintaining the population below carrying capacity to avoid boom-and-bust population cycles benefits sportsmen and citizens of the state more than a herd susceptible to large, broad-scale winter die-offs.

Unit 065: Piñon Range; Southwestern Elko County

Report by: Matthew Jeffress

Survey Data

This unit has typically not been surveyed on an annual basis primarily due to a relatively small population size and trouble obtaining an ample sample size during spring surveys. Given the unit is currently managed very conservatively as an alternative unit within the Eastern Region, the unit will no longer be surveyed from the air. In place of air surveys, harvest metrics such as hunter success and percentage of bucks harvested supporting 4-points or better will be used to adjust recommended quotas.

Habitat

Summer 2019 range conditions responded favorably to above average moisture received the prior winter. Winter 2019-2020 has been relatively mild, which should allow deer to enter summer in excellent condition. As of March 2020, snowpack is well below average. Spring and summer rains will be needed to avoid drought conditions summer and fall 2020.

Fires have impacted this hunt unit over the past 2 decades. Range rehabilitation projects, including post-fire seeding, have worked to offset some of the negative impacts from range fires. Additional work targeting winter range will be explored to continue to offset habitat loss from range fires as well as impacts from anthropogenic disturbances.

Mineral exploration is taking place at an accelerated rate throughout the Piñon Range. Opportunities to monitor mule deer that summer on the Piñon Range are being pursued to gain a better understanding of movement corridors, habitat selection and to identify important winter ranges. Location data obtained from GPS collars will allow managers to better direct habitat restoration projects.

Population Status and Trend

This deer herd has been relatively static over the past decade. Recommended quotas will be based on a 10-year average.

Units 071 – 079, 091: Northeastern Elko County

Report by: Kari Huebner

Survey Data

Post-season aerial composition surveys were conducted in December 2019. A total of 1,440 mule deer was classified yielding a ratio of 28 bucks:100 does:50 fawns. The observed buck ratio was lower than the 2018 ratio of 35 bucks:100 does, but identical to the previous 5-year average of 28:100. The observed

fawn ratio represents an increase from the 2018 ratio of 40 fawns:100 does. This was the second year using a more statistically valid random polygon survey methodology for post-season surveys. An abbreviated spring ground survey was conducted in March 2020 with biologists classifying 1,310 mule deer with an observed ratio of 34 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. Fall fawn ratios in 2016-2018 were the lowest on record for the Area 7 deer herd, however this fall showed an increase towards average ratios. This indicates that the herd may be showing early signs of recovery. 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. Summer 2019 had increased quality and quantity of forage from a wet spring that contributed to increased body condition going into winter.

Since 2008, 203 deer were radio collared in a collaborative effort between the Nevada Department of Wildlife, Newmont Mining Corp., and University of Nevada, Reno, on the Pequop and Toano winter ranges. As of spring 2020, 52 collars remain active.

Observed fawn ratios were higher this year than since 2016. Due to improved range conditions, mule deer went into winter with larger fat reserves. This coupled with mild winter conditions resulted in a comparatively low overwinter fawn loss. The pregnant does should be in better condition to migrate back to summer range and successfully rear fawns than in the past few years.

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. Summer 2019 the Goose Creek Fire burned an additional 100,000 acres in both Nevada and Utah. Seeding efforts on public lands in both states were extensive. The Nevada Department of Wildlife also partnered with private landowners to seed private lands as well. The planting of Bitterbrush seedlings 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 decreased slightly this past year during the Any Legal Weapon season (61% success in 2019 compared to 78% success in 2018). The reduction in hunter success may have been impacted by the heavy snow loads in the unit during the hunting season. The percentage of 4-points harvested remained stable at 88%.

Units 101 – 109: Southern Elko and Northwestern White Pine Counties

Report by: Scott Roberts

Survey Data

A post-season composition survey was conducted in November 2019 employing a randomly generated stratified polygon approach. The polygon survey classified 1,488 deer yielding sex and age ratios of 32 bucks:100 does:41 fawns. A spring helicopter survey was scheduled for the last week in March 2020 but was cancelled due to COVID-19 concerns. This is the first time that the Area 10 spring survey was missed since 1976.

Habitat

In July 2019 the Corta Fire burnt on the west side of Harrison Pass on the boundary of Unit 102 and 103. The fire burnt approximately 16,500 acres of exceptionally productive summer, transition, and crucial winter range. The burn scar lies directly in the path of where the eastside migration and the westside migration routes converge so it is annually utilized to some degree by most of the Area 10 deer herd. The significance of this area cannot be overstated, and for that reason the Department and several partners aerially seeded 8,108 acres with a number of native shrubs and grasses. In September 2019, the Cherry Fire burnt approximately 3,500 acres on the westside of the South Ruby Mountains in Unit 103. The fire burnt important transition and winter range and was located only 9.5 miles south of the Corta Fire. The short-term loss of seasonal range was amplified by having both fires in such close proximity to each other within the westside migration corridor. The Department and partners aerially seeded 1,900 acres of the burn scar with several native shrubs and grasses.

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 5 years. The wildlife habitat improvement project is a collaborative effort between the Bureau of Land Management, the 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 majority of the 2019 work was focused on the eastern bench in Unit 103, and the west side of Unit 108. 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 5 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 fire rehabilitation efforts will be closely monitored in the coming years to ensure seeding success and to combat the invasion of winter annual grass species. 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

Survey Data

Aerial post-season surveys were conducted in December 2019. A composition survey sample of 1,881 mule deer yielded sex and age ratios of 28 bucks:100 does:35 fawns. Spring mule deer surveys were conducted in conjunction with post-season elk surveys in late February 2020. A composition survey sample of 2,076 mule deer yielded a ratio of 21 fawns:100 adults. The previous 5-year average (2015-2019) fawn recruitment is 28 fawns:100 adults for this herd.

Habitat

The National Weather Service recorded 149% of normal precipitation at the Ely Airport in 2019. Spring 2019 was the wettest recorded in Ely. National Weather Service precipitation data measured at the Ely Airport from June to December 2019 was 49% of normal. Habitat quality improved through the first half of 2019, but progressively deteriorated due to a dry summer and fall. The 2019-2020 winter has been warm and dry, with the National Weather Service recording 57% of normal precipitation between December 2019 and February 2020. The Berry Creek SNOTEL site recorded 71% of the long-term average snowpack during the 2019-2020 winter (accessed 5 March 2020, www.nrcs.usda.gov). At the time of this writing, spring conditions have continued to be warm and dry. Habitat conditions will continue to deteriorate in 2020 unless precipitation patterns improve.

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. To combat this decline, over the last decade, the 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

aerially 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 2019, 36% of the bucks harvested were 4-points or greater which is above the 10-year (2009-18) average of 29%. The current population estimate reflects a decrease from the published estimate in 2019. Low recorded fawn recruitment in the springs of 2019 and 2020 is the main factor for the population decline.

Units 114 – 115: Snake Range; Southeastern White Pine County

Report by: Kody Menghini

Survey Data

Post-season surveys were not conducted in 2019. Spring mule deer surveys were conducted in conjunction with post-season elk surveys and bighorn surveys in late February 2020. A composition survey sample of 554 mule deer yielded a ratio of 23 fawns:100 adults. The previous 5-year average (2015-2019) fawn recruitment is 29 fawns:100 adults for this herd.

Habitat

Like Units 111-113, above average precipitation was observed in the Snake Range units during the 2018-2019 winter and 2019 spring. Habitat conditions improved in the short-term but deteriorate during the very dry summer and fall 2019. No green-up was available to benefit mule deer prior to winter. Below average winter precipitation in 2019-2020 will negatively impact the quality and quantity of habitat available for mule deer in the short-term. As of March 18, 2020, the Wheeler Peak SNOTEL site had received 10.6” of precipitation since October 1, 2019, compared to 27.0” of precipitation in 2019 during the same period. At the time of this writing, spring conditions have continued to be warm and dry. Habitat conditions will continue to deteriorate in 2020 unless precipitation patterns improve.

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 (2010-2019) average percent 4-point or greater buck harvest at 51% compared to the statewide average of 40%, indicating an older age structure in the population. For 2020, 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: Kody Menghini

Survey Data

Post-season surveys were not conducted in 2019. Spring mule deer surveys were conducted in conjunction with post-season elk surveys in March 2020. A composition survey sample of 964 mule deer yielded a ratio of 17 fawns:100 adults. The previous 5-year average (2015-2019) fawn recruitment is 36 fawns:100 adults for this herd. This is the lowest recorded spring fawn ratio on record for this unit.

Habitat

The National Weather Service recorded 149% of normal precipitation at the Ely Airport in 2019. Spring 2019 was the wettest recorded in Ely. National Weather Service precipitation data measured at the Ely Airport from June to December 2019 was 49% of normal. Habitat quality improved through the first half of 2019, but progressively deteriorated due to a dry summer and fall. The 2019-2020 winter has been warm and dry, with the National Weather Service recording 57% of normal precipitation between December 2019 and February 2020. The Berry Creek SNOTEL site, in Unit 111, recorded 71% of the long-term average snowpack during the 2019-2020 winter (accessed 5 March 2020, www.nrcs.usda.gov). At the time of this writing, spring conditions have continued to be warm and dry. Habitat conditions will continue to deteriorate in 2020 unless precipitation patterns improve.

Pinyon-juniper encroachment occurs across a substantial portion of this unit. Several large-scale habitat enhancement projects are proposed in the unit. The Egan and Johnson Basin Restoration Project started in 2019 and treated approximately 3,300 acres of pinyon-juniper woodlands. The Bureau of Land Management and the Nevada Department of Wildlife have plans to treat additional acres in 2020. The Combs Creeks project was designed to reduce pinyon-juniper encroachment on 7,000 acres in the southern portion of the unit. The treatment concluded summer 2016 when the final 353 acres were cleared.

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. Although this fire 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 2020 adjustments were made to the population model to more accurately reflect observed sex ratios and high sample sizes on past surveys. The 2020 population estimate was increased over that reported in 2019. The low fawn ratio in 2020 resulted in a declining population estimate.

Units 131 – 134: Southern White Pine, Eastern Nye and Western Lincoln Counties
Report by: Clint Garrett

Survey Data

For 2019, no post season aerial survey was conducted. In March 2020, an aerial spring survey was conducted with 771 deer classified yielding ratios of 27 fawns:100 adults. The 2020 spring observed fawn ratio is noticeably below the previous 5-year average of 36 fawns:100 adults, with last year's ratio being 33 fawns:100 does.

Weather and Habitat

As of March 2020, the valley summary report shows lower elevations for the Ely, Eureka and Tonopah areas have received below-normal precipitation and temperatures are slightly warmer than normal (March 2020, Nevada Water Supply Outlook Report, NRCS). The White River watershed snowpack analysis has dropped from 127% to 59% of median for 2020 and soil moisture dropped from 33% to 26% saturation for the area (March 2020, Nevada Water Supply Outlook Report, NRCS). Although these units experienced above average precipitation last year, current conditions and soil moisture levels in March 2020 were below normal and are trending towards drought like conditions. As of early March 2020, the Western Regional Climate Center's Eureka site and Hiko site, the northern and southern ends of the unit groups, respectively, both show below normal precipitation at the lower elevations. For late March and early April 2020, the Western Regional Climate Center's Hiko site is showing above normal precipitation and looks promising for spring precipitation; however, unless spring weather conditions change in Eureka, forage will be less prevalent on the landscape compared to late spring and early summer 2019, especially for the northern portion of Management Area 13.

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 are also beneficial to mule deer. Increasing feral horse numbers are degrading habitat in the Mount 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, Fiore Mine 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.

Population Status and Trend

Deer were radio collared in 2017 and 2018 throughout Area 13 to gain a better understanding of seasonal movement patterns, potential effects of mining related development, pinyon-juniper encroachment and oil and gas exploration. Specifically, this collaring effort has helped identify movement corridors and stop over areas the deer use during transition from summer to winter ranges. Hopefully with this knowledge there can be avoidance of potential habitat loss and support for habitat improvement projects that could improve herd health in the future. Within the last 5 years fawn recruitment rates have fluctuated noticeably, with the past 2 years in particular having below average rates. The winter precipitation of 2018-2019 was above normal and winter like conditions extended through the spring followed by a dry summer and early fall, which likely contributed to below average fawn production and recruitment. For 2020, the population estimate is showing a slight decrease but remains consistent with the previous 5-year average.

Units 141 – 145: Eureka and Western White Pine Counties
Report by: Clint Garrett

Survey Data

For 2019, no post season aerial survey was conducted. In March 2020, an aerial spring survey was conducted with 1,324 deer classified yielding ratios of 26 fawns:100 adults. The 2020 spring observed

fawn ratio is noticeably below the previous 5-year average of 37 fawns:100 adults, with last year's ratio being 29 fawns:100 does.

Weather and Habitat

As of March 2020, the Western Regional Climate Center's Beowawe site and Eureka site, the northern and southern ends of the unit group, respectively, both show below normal precipitation at the lower elevations. The US Drought Monitor currently shows the southern half of Eureka county as abnormally dry. The eastern Nevada watershed snowpack analysis has dropped from 130% to 65% of median for 2020 and soil moisture is still below normal at 24% saturation for the area (March 2020, Nevada Water Supply Outlook Report, NRCS). The valley summary report shows lower elevations for the Elko, Austin and Eureka areas have received below-normal precipitation and temperatures are slightly warmer than normal (March 2020, Nevada Water Supply Outlook Report, NRCS). Although these units experienced above average precipitation last year, current conditions and soil moisture levels in March 2020 were below normal and are trending towards drought like conditions. Unless weather conditions change, forage will be less prevalent on the landscape compared to the late spring and early summer 2019.

No impacts from fire were seen in Area 14 during 2019. Recovery of ~16,000 acres continues in prime mule deer and sage-grouse habitat within Units 141 and 144 that burned in 2017 and 2018. This includes the 2017 and 2018 hand planting of ~4,000 serviceberry, snowberry and bitterbrush shrubs within the Pinto burn. Plans are still underway to fence and protect Robinson Spring in 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. Feral horse numbers are still high in the Cortez Range, and during the spring deer survey the number of horses observed outnumbered deer 4 to 1. Large concentrations of horses remain above Appropriate Management Level within the Diamonds, Roberts-Kobeh Valley, Antelope Valley and Fish Creek Valley. These concentrations are negatively affecting resources and wildlife in those areas.

Population Status and Trend

Deer were radio collared again in Area 14 this last winter to gain a better understanding of seasonal movement patterns, potential effects of mining related development, pinyon-juniper encroachment and oil and gas exploration. Specifically, this collaring effort has helped identify movement corridors for the Roberts Mountain segment of this deer herd. Current and potential habitat impacts from increased mining activity within Units 141 and 143 are being recognized. Hopefully with this knowledge there can be avoidance of habitat loss and support for habitat improvement projects that could improve herd health in the future. Within the last 5 years fawn recruitment rates have fluctuated noticeably, with the past 2 years in particular having below average rates. Winter conditions for 2018-2019 were above normal and extended through spring with a wet and cold May. This was followed by a lack of precipitation into summer and early fall, which likely contributed to below average fawn production and recruitment. For 2020, the population estimate is showing a decrease and is below the previous 5-year average.

Units 151 – 156: Lander and Western Eureka Counties

Report by: Sarah Hale

Survey Data

An aerial post-season survey was conducted in Area 15 in November 2019. The survey resulted in the classification of 665 mule deer and yielded an observed ratio of 26 bucks:100 does:44 fawns. An aerial spring survey was conducted in March 2020, during which 626 deer were classified with an observed ratio of 26 fawns:100 adults. The calculated 2019-2020 overwinter fawn loss was 32%. For both surveys, warmer than average temperatures and lack of snow cover created less than ideal conditions for locating deer.

Weather and Habitat

In contrast to 2018, northcentral Nevada received above average precipitation in 2019; however, the 2019-2020 overwinter fawn loss was similar to that of 2018-2019, which was above normal. Extremely dry conditions during 2018 resulted in deer entering winter 2018-2019 in comparatively poor body condition. In addition, a series of severe storms occurring during the late winter and early spring 2019 exacerbated the situation and impacted the number and overall fitness of fawns born last spring. Poor fawn recruitment rates observed this spring are likely a result of those impacts.

A rapid increase in feral horse numbers is occurring throughout Lander and Eureka counties. Several Bureau of Land Management Horse Management Areas are significantly above established Appropriate Management Levels, and horses are currently using designated “horse free” areas. Both situations have resulted in continual negative effects on mule deer habitat.

Population Status and Trend

This population has continued to be 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 resulted 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

Survey Data

2019 marked the second consecutive year that a new randomized aerial survey design was conducted in Management Area 16. The 2019 post-season composition survey sample included 345 deer, which were classified as 58 bucks, 202 does and 85 fawns. In comparison, the 2018 aerial survey yielded a sample size of 459 deer comprised of 80 bucks, 262 does and 117 fawns. With the new aerial survey strategy, lower sample sizes are expected since only portions of each hunt unit are being surveyed. Observed fawn and buck ratios stabilize at this lower sample size, so larger samples are not necessary to obtain statistically reliable ratios.

No formal spring aerial composition surveys were completed in 2020. The most recent aerial spring survey, which was conducted in 2019, yielded a sample of 1,137 deer classified as 898 adults and 239 fawns. The survey was drawn from portions of Units 161, 162,163 and 164 to include a well-distributed sample.

Population Status and Trend

The Management 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 January 2019 to January 2020, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 119% of the 30-year average. Spring precipitation (March, April, and May) resulted in 54% of 2019’s precipitation accumulation and winter precipitation (November, December, January) resulted in 25% of the 2019-2020 accumulation with the majority falling as snow. The one SNOTEL site located in central Nevada measured snowpack levels at 82% of average in February 2020. Mild winter conditions and below average winter precipitation can plausibly reduce forage vigor during the 2020 growing season. Drought conditions in the summer 2018 coupled with harsh 2018 and 2019 winter conditions, followed by a cool wet spring plausibly explains the depressed fawn recruitment observed while on post season surveys.

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 217 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 to slightly decreasing due to depressed fawn recruitment.

Units 171 – 173: Northwestern Nye and Southern Lander Counties

Report by: Joe Bennett

Survey Data

No formal post season aerial surveys were conducted in Area 17 in 2019. The most recent post-season aerial survey was conducted in late November 2018. The 2018 post-season aerial survey yielded a sample size of 574 deer which were classified as 112 bucks, 310 does, and 152 fawns. Since 2017, a new stratified-randomized survey has been implemented in Area 17. With the new aerial survey strategy, lower sample sizes are expected since only surveying portions of each hunt unit are being surveyed. Fawn and buck ratios stabilize at this lower sample size, so larger samples are not necessary to obtain statistically reliable ratios.

No formal aerial surveys were conducted in Area 17 during spring 2020. The most recent spring aerial survey, which was conducted in 2019, yielded a sample size of 594 deer, classified as 464 adults and 130 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 January 2019 through January 2020, according to Community Environmental Monitoring and Planning precipitation data, central Nevada received 119% of the 30-year average. Drought conditions in summer 2018 coupled with harsh 2018-2019 winter conditions, followed by a cool wet spring can plausibly explain the depressed fawn recruitment observed in adjacent areas. The SNOTEL site located in central Nevada measured snowpack levels at over 82% of average in February 2020. Mild winter conditions and below average winter precipitation can plausibly reduce forage vigor during the 2020 growing season.

In 2018, a radio collaring and habitat enhancement project (pinyon-juniper removal) was implemented on Carver's Bench, on the east side of the Toiyabe range from Broad Canyon to Summit Canyon, in Unit 173. Two thousand six hundred acres of pinyon-juniper was treated on the bench, and 30 adult female mule deer were collared to study response to the removal. The collaring effort occurred over 2 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. Presently, collaring data has validated expected seasonal habitat use and movements. One interesting aspect that the collaring data has depicted is that this population only moves on an elevational gradient based off seasonality, meaning movement is from the top of the mountain to the bottom of the mountain and there are no large-scale migrations along the mountain range.

Due to depressed fawn recruitment observed in adjacent areas, the Management Area 17 mule deer population is also expected to be experiencing a stable or slightly decreasing trend.

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

Survey Data

A brief ground survey in March 2019 resulted in the classification of 86 mule deer; yielding a ratio of 32 fawns:100 adults.

Habitat

In 2019, a fire ignited on the east side of the Stillwater Mountains near Wood Canyon. This fire consumed a pinyon and juniper woodland habitat. This 1,200-acre burned area was seeded by the Nevada Department of Wildlife in January 2020, and will provide an important new resource area for the mule deer herd.

Over the past 3 years, fire has 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 and 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 have a negative effect in drawing in feral horses which will compete with the mule deer herd.

Feral horses need to be kept within Appropriate Management Levels to allow for successful establishment of plants and a thriving mule deer herd. In 2019, 430 horses were removed from the Desatoya Mountains which will help alleviate some competition between native and non-native populations of animals.

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 fences 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. The 2019 hunter data indicates that 57% 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 approximates last year's success. 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 December 2019 and resulted in the classification of 237 deer with a ratio of 30 bucks:100 does:35 fawns. The timing of this flight was likely prior to the fall interstate migration, meaning primarily resident deer were surveyed. The spring survey flight was conducted in early March 2020; too early to have surveyed only resident deer. Temperatures were above normal, causing the deer to shade up early and not be as visible. The result was the classification of only 104 deer, with a ratio of 24 fawns:100 adults. The results from both surveys were lower than average. Most deer were found between 6,200-6,500 feet, which is very typical for the Carson Range.

Habitat

There were no significant changes to the habitat occupied by this deer herd in 2018-2019. 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 2020 population estimate is about 1,300 animals. For the last several years this herd has fluctuated between 1,100 and 1,500 deer, indicating a fairly stable population. The resident portion of this population does not migrate into California and is estimated at around 500 deer.

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 December 2019 and resulted in the classification of 584 deer with a ratio of 25 bucks:100 does:31 fawns. The timing of this survey was intended to gather data on the resident herd, prior to the fall migration. The spring survey was conducted earlier than desired and was likely prior to the spring migration back into California summer range. Survey conditions were not favorable, with temperatures around 50 degrees. This made the deer less visible and resulted in the classification of only 372 deer, about 20% below average, and with a ratio of 18 fawns:100 adults.

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. There were no significant changes to the habitat occupied by this deer herd in 2018-2019.

Population Status and Trend

The 2020 population estimate is 1,800 and it has fluctuated around this level for several years. 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 2020 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

A spring flight will be conducted in early April 2020 by California Fish and Wildlife and data from the survey will be incorporated into the model once data is received.

Habitat

The Baldwin Canyon Project is being completed on over 4,000 acres and will remove pinyon and juniper along the western slope of the Wassuk Mountains. Projects like this will increase the summer range as well as the winter range for the migrating herd.

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 and juniper encroachment are 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 brush communities which in turn will benefit the mule deer herd.

Population Status and Trend

California Fish and Wildlife has been capturing mule deer in X-12 and Area 20 for the past 3 years. The purpose of this collaring project is to look at body condition of individuals over an extended time frame. Individuals with neck collars were marked as well as satellite collars during the study. This information will be used for a mark and re-site project that will aid in identifying population size. This information will be used to understand population trends.

The population decline this herd is experiencing may suggest a density-dependent response due to limited resources. Mule deer appear to be in poor body condition. This assumption is based on continued low fawn ratios. 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 buffalo berry and salt desert shrub communities. The Mason Valley Wildlife Management 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 Management Area include revegetating tracts of non-irrigated land. Additionally, new water developments will be added to the management 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 at this time. The Any Legal Weapon hunt is an indicator of stability. The 2019 overall hunter success rate was 42% with 52% of the bucks being 4-point or better.

Units 211, 212: Esmeralda County

Report by: Joe Bennett

Survey Data

Currently, no formal surveys are conducted in Management Area 21. Past survey efforts have not resulted in sufficient 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 Management Area 21 mule deer population appears to have remained stable at comparatively low levels for quite some time. During 2019-2020, central Nevada received 119% of the 30-year average on precipitation. Throughout spring 2019, central Nevada received an uncharacteristic amount of moisture. This plausibly provided better forage quality and quantity during the 2020 growing season. Below average winter precipitation in winter 2019-2020 will plausibly provide less forage vigor during the growing season. 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 Management Area 21.

Aerial survey data gathered in adjacent hunt units indicate that fawn production in this region of Nevada remain somewhat stable or slightly decreasing. The same situation likely exists in Management Area 21. Currently, the Management Area 21 mule deer population is considered to be 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 November 2019. Survey effort in this management area was shifted from a direct search to a sub-watershed stratified survey. This experimental survey effort also shifted the timing of survey 2 weeks earlier in the year, making distribution of deer slightly less predictable. Warm conditions and the lack of snow also made survey efforts difficult. A total of 257 deer were classified during 9 hours of survey and composed of 57 Bucks, 158 Does, and 49 Fawns. This provides for an observed ratio of 36 bucks:100 does:31 fawns.

No spring deer surveys were conducted in 2020 due to weather delays and the COVID-19 pandemic, shutting down all non-essential operations. A fairly mild winter should have limited the fawn loss during the reporting period.

Habitat

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 overutilization. According to Community Environmental Monitoring Program (CEMP) precipitation data, Lincoln and White Pine Counties received approximately 140% of the previous 10-year average of precipitation during 2019, most of which fell throughout spring and became very dry over the summer months. Spring plant growth was exceptional and tapered off over the course of the year. Many of the ephemeral springs that normally only flow in response to precipitation were flowing throughout the summer and into early fall. Multiple threats exist for mule deer throughout Management 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, the Nevada Department of Wildlife and the 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, over 27,000 acres have been treated to decrease pinyon-juniper within the unit to increase suitable and productive wildlife habitat. 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 current computer modeling suggests that the population is similar to 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 November 2019 resulting in the classification of 887 deer. Composition of surveys resulted in a post hunt ratio of 12 bucks:100 does:37 fawns. Many of the deer were encountered in the Wilson and Fortification mountain ranges and near agricultural areas that have been developed on historical winter range.

No spring deer surveys were conducted in 2020 due to weather delays and the COVID-19 pandemic, shutting down all non-essential operations. A fairly mild winter should have limited the fawn loss during the reporting period.

Habitat

Habitat conditions were slightly above average for most of Unit 231 throughout the year due to heavy precipitation in the spring and becoming much drier than normal in summer and fall. Minimal snowpack was observed during early winter but quickly accumulated after January 2019, recharging aquafers and improving some riparian areas and upland vegetation affected by drought in the recent past. Deer likely went into winter in fair condition due to the timing and accumulation of precipitation in 2019. According to Community Environmental Monitoring Program (CEMP), this portion of Lincoln County received 150% of the 10-year average annual precipitation during 2019, but is slow to recover from recent drought.

Landowners in Area 23 continue to encourage mule deer to utilize alfalfa and other agricultural lands in late fall and early winter and thus receive landowner compensation tags. 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 continued invasion of pinyon-juniper in 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 the Nevada Department of Wildlife to remove and decrease dense pinyon-juniper from thousands of acres in Unit 231. Often the primary focus of projects is to increase sage-grouse habitat, but also benefits mule deer and other wildlife. Excessive numbers of feral horses continue to cause degradation of habitat and water sources. February 2020 over 1,700 feral horses were gathered in Unit 231 and along the state line of Utah. This should slow the habitat degradation in the area and allow some areas to recover from over utilization. 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 23 prohibits the completion of any habitat projects beneficial for mule deer in vast areas of mule deer habitat.

Population Estimates and Trend

The Area 23 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

No aerial surveys were conducted in Management Area 24 during the reporting period.

No spring deer surveys were conducted in 2020 due to weather delays and the COVID-19 pandemic, shutting down all non-essential operations. A fairly mild winter should have limited the fawn loss during the reporting period.

Habitat

Habitat conditions are moderate throughout the majority of Management Area 24 due to a lack of consistent precipitation and increasing competition for resources with feral horses and livestock. According to Community Environmental Monitoring Program (CEMP), approximately 150% of the previous 10-year average precipitation was received during 2019, most of which was received in early spring and becoming much drier throughout the year, potentially reducing the risk of drought in the area. Thus far in 2020, Area 24 has received 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 of which are also found associated with 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. Feral horses in both Units 241 and 242 are in very high densities, despite both areas have Appropriate Management Level set at zero by the Bureau of Land Management.

Population Estimates and Trend

The 2020 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

Management Area 25 has limited amounts of quality mule deer habitat. The greatest quantity and quality of mule deer habitat in Management 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. Although, above average precipitation in 2018-2019 should have alleviated some of the detrimental effects of recent droughts. Winter 2019-2020 had below average precipitation and may not produce the same forage vigor during the 2020 growing season.

The aerial survey data from 2019-2020 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

In Management Area 26, the majority of the mule deer 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 2020, environmental conditions are good due to moisture producing storms in the first quarter of 2020. 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 does not reflect the onset of drought conditions for the second quarter in 2019. Based on favorable mule deer harvest data in 2019 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 Units 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 an incredible 172% of the 15-year average precipitation during 2019. So far in 2020, the area has received very little precipitation. This will likely result in slightly reduced habitat conditions from what has been observed in recent years in Management Area 27.

Population Status and Trend

Although no population model exists for Management 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. The Nevada Department of Wildlife and the 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 2020 population for Area 29, estimated at 500-700 adult animals, 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

Survey Data

Helicopter surveys for antelope occurred during September 2019, but were impacted significantly by poor weather conditions. The cancelation of 2.5 days of surveys reduced survey effort by around 50%. Sample sizes obtained during the 2019 surveys were lower for this reason. In Unit 011, a sample of 274 antelope was classified and resulted in a composition ratio of 40 bucks:100 does:23 fawns. In 2018, the ratio was 40 bucks:100 does:39 fawns. Buck ratios remained constant at 40 bucks per 100 does over the past 2-year period.

Fawn ratios were observed to be much lower this year for those herds in the northern most hunt units in Washoe and western Humboldt Counties. In Unit 011, the composition ratio of 23 fawns per 100 does represents the lowest fawn ratio observed in this hunt unit since the year 2000. In 2018, fawn ratios were observed to be well above maintenance levels at 39 fawns per 100 does.

The percentage of yearling bucks within the overall buck sample was measured at 28% in 2020. In 2018, the yearling sample was measured at 32%.

Habitat

Winter 2019-2020 is currently near average and should provide an adequate amount of water on antelope summer ranges. Late storm fronts in March 2020 provided significant precipitation to the region that will help to maintain water at upper elevation lake beds in summer 2020. Forage quality should be near average as well but could dry out should summer thundershowers fail to provide additional moisture.

Population Status and Trend

Thirty-five antelope were captured this year and fitted with satellite telemetry collars in Unit 011. The collaring project is part of a west-wide effort to document antelope migration corridors. Prior to this study, very little information on antelope movement was available within this hunt unit in extreme northwestern Nevada. The Bureau of Land Management Applegate Field Office paid for both the capture and collaring costs for 25 of the 35 antelope captured in Unit 011. The remaining 10 animals captured in Unit 011 were part of another antelope capture and collaring project that scattered a total of 35 satellite collars on animals throughout Units 011, 013, and 015 in northwestern Nevada.

The antelope population that lives in Unit 011 has had a stable to increasing trend over the past few years; however, the lower recruitment values observed this year will reverse this recent upward trend. Estimates for this herd will be lower this year due to the decrease in fawns being recruited into the population.

Tag quotas recommended for the 2020 hunting season for this hunt unit are expected to be lower than those allocated in 2019.

Unit 012 – 014: High Rock, Little High Rock, Hays Canyon, Boulder Mountain, Granite Range, Calico Range

Report by: Chris Hampson

Survey Data

Composition survey occurred in September 2019. Unusual early storm fronts and poor weather conditions caused cancellation of flights and resulted in reduced survey effort. The cancellations reduced the amount of survey time by approximately 50%. A total of 390 antelope was classified during the 2019 survey and had a computed composition ratio of 43 bucks:100 does:31 fawns. In 2018, the ratio was observed to be 47 bucks:100 does:37 fawns.

Buck ratios remain strong in this hunt unit group but the fawn ratio of 31 fawns per 100 does will only allow for a static or stable trend this year; however, the herd has experienced strong increasing trends for several consecutive years due to above average recruitment.

Yearling bucks made up only 27% of the total buck sample. The previous 5-year average for the percentage of yearlings in the total buck sample was 41%.

Habitat

Winter 2019-2020 has been an odd year weather-wise but was near or just below average for both precipitation and snowfall as of January 1, 2020. The very dry months of January and February caused these water year averages to dip lower. Fortunately, March 2020 has been excellent in terms of the amount of precipitation received and has provided significant moisture to the region. As of March 25, 2020, the Northern Great Basin was calculated to be at 91% of average for Snow Water as Percent of Median.

Upper elevation summer ranges should continue to be in good shape and there should be an adequate amount of water available to antelope summer 2020. Forage quality in spring and summer 2020 should also be good.

Population Status and Trend

In October 2019, 15 antelope were captured and fitted with satellite telemetry collars in Unit 013. The capture and collaring effort were part of a study to document migration corridors of antelope in northwestern Nevada. Several western states are also conducting research on movements of antelope. Animals were captured in the Hays Canyon Range and Cherry Mountain areas of Unit 013. The study will last for a few years and has already documented some very interesting corridors and information on important use areas.

The lower recruitment rate of 31 fawns per 100 does will result in a decreasing trend for this population of antelope. In recent years, the herd has experienced a strong increasing trend due to several consecutive years of above average fawn recruitment and increased overall survival. Fawn recruitment ratios in many of the hunt units in the northern portion of the state have been observed to be lower and the trend for these antelope populations are static to decreasing this year.

The recommended tag quotas for this unit group are expected to be similar to the 2019 hunting season.

Unit 015: Buffalo Hills, Dry Valley Rim, Coppersmith Hills
Report by: Chris Hampson

Survey Data

Surveys for antelope in Unit 015 were conducted in late September 2019. Due to inclement weather more than 2 days of surveys had to be cancelled. Despite the weather cancellations, most hunt units in the northwestern portion of the state were surveyed.

The survey in Unit 015 classified a total of 428 antelope with a composition ratio of 28 bucks:100 does:39 fawns. In 2018, surveys were expanded in this unit to cover more of the area and a sample of 683 antelope was classified. Biologists computed a ratio of 36 bucks:100 does:36 fawns in 2018.

Buck ratios were observed to be lower this year than in 2018 and were measured at 28 bucks per 100 does. The most recent year's survey was most comparable to the 2016 survey which had an average buck ratio of 29 bucks per 100 does.

Habitat

Habitat improvement projects, in cooperation with both the Eagle Lake and Applegate field offices of the Bureau of Land Management, are ongoing within this hunt unit and have included post-fire restoration, spring improvement and protection, pinyon-juniper removal, and the spraying of chemicals to combat the invasion of annual grasses such as cheatgrass and Medusahead.

Fire breaks are also being implemented to try to diminish the number of wildfires and the amount of habitat lost during these large fire events. Improving and protecting the water sources and riparian areas available to antelope and other wildlife is also critically important in these typically dry environments.

Forage conditions should be good this year and may have been benefited the most by the much-needed moisture received in March 2020. Water availability should also be adequate as lakebeds at the upper elevations start to fill once snowmelt and runoff occurs. Summer thundershowers will also be important to increase the amount of water available for antelope on their summer ranges.

Restoration of last year's wildfire in the Buffalo Creek and Parsnip Wash areas is ongoing. Chemical treatments to ward off cheatgrass invasion prior to the re-seeding of the burned areas was accomplished this year. Some areas may need to be chemically treated a second time in order to ensure that the annual grasses do not compete with the native plants that are being reseeded.

Population Status and Trend

Ten telemetry collars were attached to antelope in the Smoke Creek and Buffalo Hills areas of Unit 015. The captures took place in October 2019 and the study is part of a west-wide effort to document the movements of antelope. This hunt unit in northwestern Nevada was chosen as one of the 2 areas of the state where the study was to be initiated in Nevada. Animal movements will be closely followed and documented over the next few years. Interesting movement data and important seasonal use areas have already been documented.

Antelope populations in the Buffalo Hills and Dry Valley Rim areas of western Nevada have been on an increasing trend in recent years. This slow increasing trend will continue with the above average recruitment observed again this year. Hunter success rates have also increased in this hunt unit over the past few years as the population has increased.

Quotas in 2020 should be similar to or slightly higher when compared with the 2019 season due to the continued increasing trend in this population of antelope. Increased buck quality should also be observed as the population continues to thrive and more bucks reach maturity.

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

This hunt unit group remains one of the most sought-after tags for residents to draw due to its close proximity to the Reno-Sparks area. The trophy quality that exists within this population of antelope also has more hunters putting in for this hunt unit. In 2019, resident hunters had just a 3% chance to draw this unit.

Survey Data

Surveys within this low-density hunt unit were canceled due to high winds and storm cells moving through the area. The adjacent hunt units that were surveyed had observed fawn ratios of between 31 and 39 fawns:100 does. Fawn ratios for most areas in northwestern Nevada were lower this year when compared with recent years. An average fawn ratio of 35 fawns:100 does will be used for modeling purposed this year.

In 2018, a strong sample of 143 animals was located during surveys in Unit Group 021-022. The sample was the largest obtained in recent years and provided a composition ratio of 30 bucks:100 does:44 fawns. Over the past decade the Unit Group 021-022 antelope population has slowly expanded, and densities are increasing in areas such as the Petersen Mountains of Unit 021.

Buck ratios have remained near or above the managed buck ratio objectives for this unit group in recent years. This would indicate that the recommended quotas, and harvest levels for this herd are in line with current objectives for this population of antelope.

Habitat

The loss of important shrub cover due to the numerous large wildfires over the past decade will have a lasting negative affect on wildlife populations living in the area. Restoration efforts have been partially successful depending upon the amount of moisture received following the reseeding or planting efforts. Such large areas of habitat were lost in the fires that many of the areas at the lower elevations have been invaded by undesirable annuals such as cheatgrass and mustard.

A few low elevation areas adjacent to spring sources have been found to have a moderate invasion of Medusahead. The Bureau of Land Management Carson City District has chemically treated some of these infested areas to prevent further spread.

Upper elevation burned areas should see the most natural recovery over the long-term due to the better moisture received. The drier lower to mid-elevation burned areas may be the most impacted and are the hardest or most challenging areas to restore.

Spring protection projects completed in recent years at the upper elevations of the Virginia Mountains have helped to maintain flows to critical springs and riparian areas and will help antelope and other wildlife maintain reliable water sources into the future.

Population Status and Trend

The loss of habitat from out of control wildfires over the past 5 to 10 years will have a lasting effect on the wildlife populations living to the north and east of Reno-Sparks. Future human encroachment and urbanization into these wild areas will also have a long-term negative effect on all wildlife.

The average recruitment value used in this year's modeling process will result in a static trend for this population. In recent years, the herd has increased in number due to better recruitment and survival.

Hunter success rates and buck quality remain strong in this unit group. Recommended quotas for hunting this antelope herd in 2020 are expected to be similar to the number allocated in 2019.

Units 031, 032, 034, 035, 051: Humboldt County

Report by: Ed Partee

Survey Data

Post-season aerial composition surveys were conducted in late September into early October 2019. During these surveys weather conditions were good throughout the survey period. The 2019 ground survey does not compare to the aerial surveys that are normally conducted. On aerial surveys, 4 times the number of animals were classified than from the ground in less time. Despite finding much better numbers, animals were still scattered due to the great amount of forage and water available even at that time of year. Flying this late in the year ambient temperatures are much cooler therefore animals are not tied to water sources as much. Animals were spread out and many small groups were classified. (Table 1).

Table 1. 2019 Post-season antelope composition for Humboldt County

Hunt Unit	Total	Bucks:100 Does: Fawns
031	275	24:100:30
032-035	470	20:100:28
051	276	35:100:25
2019 Totals	**1021**	**25:100:28**
2018 Totals	257	14:100:29

Habitat

As of March 1, 2020, the snowpack for these units is nearly normal at 91%. With the great conditions that were experienced last year as well as good snow conditions habitat conditions should continue to respond in a positive manner. The Bureau of Land Management and the Nevada Department of Wildlife have continued to do habitat work on past fires within these units. Over the course of the last 2 years the 2 major fires that took place in these units have seen over 100,000 acres treated. These areas have been drilled, treated with herbicide and aerial seeding has taken place. There has been a lack of precipitation in the form of rain for the water year and is currently sitting at 79% of normal. Spring and summer moisture will be needed to sustain the conditions currently seen and hopefully provide positive results on seedings that took place. Fortunately, with the last couple of years of good moisture range conditions are in decent shape to date. With the added moisture, these fire scared areas may recover more quickly. With the past fires, habitat type conversions have appeared from shrub to grasses and in turn may have a positive effect on these antelope populations.

Population Status and Trend

Over the last several years these units have continued to show a stable trend with populations remaining relatively static. During the 2019 survey, Units 031 and 051 have both seen a drop in fawn production and are lower than the 5-year average. Units 032, 034, and 035 had a slight increase in fawn production this year but remains slightly below the 5-year average. This year's winter was much drier than last year; however, range conditions as of this reporting period remain in good condition. Spring rains will be needed to sustain the habitat conditions that have been seen over the last couple of years. The horns-shorter-than-ears hunts have been successful in keeping these populations from increasing and staying

within the habitat capabilities. Units 032-034 have seen a slight drop in success in the horns-shorter-than-ears and is well below the statewide average. With the amount of moisture that has been received this year group sizes are expected to be small and spread out due to the amount of free water available.

Unit 033: Sheldon

Report by: Chris Hampson

Hunt Results

Hunter success rates on the Sheldon for resident rifle hunters was measured at 66% for the early season and 75% for the late season. Eight tagholders returned tags this year reducing the number of hunters participating in this year's hunts. Buck quality as measured by the percentage of hunters who harvested bucks with 15-inch horns or longer was measured at 32% in the early season and 38% in the late season.

Survey Data

Helicopter antelope composition surveys were hampered by poor weather conditions in 2019. Only a single 2-hour survey was completed due to the inclement weather. A sample of 236 antelope with a ratio of 28 bucks:100 does:24 fawns was classified during the survey.

Fawn ratios were below maintenance levels for 2 out of the last 3 years. The 24 fawns:100 does ratio from the Sheldon survey was very similar to the 23 fawns:100 does ratio observed this year in Unit 011 which is located just to the west of the Sheldon.

Buck ratios are believed to be skewed lower this year due to the lack of animals being located on their typical summer ranges. The cold nighttime temperatures that occurred in early September 2019 forced antelope to move off their summer ranges and head to lower elevation winter ranges. These remote summer ranges that had only a handful of animals left on them by mid-September typically hold higher buck ratios and when animals are present give a more representative buck ratio for the Sheldon population.

Habitat

Winter 2019-2020 started slowly with the months of October and November 2019 being fairly dry. December was well above average and helped to increase these precipitation totals to near the long-term averages for the Northern Great Basin. January 2020 was the third driest on record in northwestern Nevada and the following month of February set a record for lack of precipitation. Fortunately, the month of March has provided significant moisture and has brought the water year precipitation totals to near average.

Population Status and Trend

Lower recruitment rates over the past few years has resulted in a slow downward trend for the Sheldon antelope population. In 2019, the fawn ratio was measured at 24 fawns:100 does. Maintenance level or stable recruitment values are believed to be around 30 fawns:100 does. In 2018, fawn ratios were measured at 31 fawns:100 does.

Hunter success rates have remained fairly consistent over the past few years. Success rates vary between the early and late season hunts on the Sheldon and which of the 2 seasons has the higher success rate changes from year to year. Currently, the buck quality on the Sheldon appears to be about average but horn growth can vary from year to year due to the current climate, animal body condition and the current years maintenance needs. Recommended quotas for the 2020 antelope hunting season on the Sheldon are expected to be slightly lower.

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

Survey Data

Ground composition surveys were accomplished over a 7-day period in mid-September 2019. Previous surveys expended 4 to 5 days. This year's effort was ramped up to attempt to observe more animals than previous years. Past surveys indicate survey samples have declined since 2013 in all areas of the unit group. Survey results are summarized in Table 1. The 2019 post-season buck ratio minus yearling bucks was 21 bucks:100 does. The desired post-season buck ratio minus yearling bucks was 26 bucks:100 does. Survey data suggests the model was overestimating the buck segment of this population.

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

Year	Bucks	Does	Fawns	Total	Bucks:100 Does: Fawns
2018	35	98	36	169	36:100:37
2019	**81**	**259**	**91**	**431**	**31:100:35**
5-year average	78	220	88	385	36:100:40

Habitat

Habitat improvements for Units 041, 042 include construction of one new big game guzzler in the Kamma Mountains near Wildrose Spring scheduled for 2020. Future construction of big game guzzlers in Unit 041 should provide antelope with a competition free water source. Livestock permitees in Unit 041 are also beginning to construct pipe-rail fences around their water sources to exclude feral horses and burros.

Population Status and Trend

The 2020 population estimate for this herd is 1,700 animals which is a 15% decline from what was published in 2019. Plausible reasons for this decline may be attributed to increases in feral horse and burro numbers, which leads to increased competition on water sources. Also, high numbers of burros and feral horses around limited water sources has provided a consistent prey base for mountain lions. Trail camera photos from previous years have revealed an increased presence of mountain lions on water sources throughout the unit group. Therefore, possible increases in mountain lion predation may also be occurring. Past survey and field trip data both indicate a decline in antelope observations in all areas of Units 041 and 042. Additionally, fawn ratios have been gradually declining over the last 3 years.

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

Survey Data

Composition surveys were accomplished from the ground over 4 days in late February 2020. All units were surveyed, and all roads were accessible this year. This timeframe remains conducive for ground surveys due to most antelope being located near valley floors. A record 789 antelope were classified with a resulting ratio of 51 bucks:100 does:37 fawns. Additionally, approximately 30 antelope were observed but not classified being too far away. All observed ratios are near their respective 5-year and long-term averages. It is apparent that the buck ratio in Unit 046, particularly the east side of the unit is considerably higher than the other units. Also, Unit 043 had the lowest observed buck ratio. These values could indicate less pressure from hunters in Unit 045 and 046.

Habitat

One major wildfire occurred in July 2019 which started from lighting. The Buffalo Fire in Unit 046 burned 6,298 acres on the west end of the Buffalo Mountains. Most of this area had previously burned in 1985, 2006 and 2007. Rehabilitation efforts include aerially seeding 2,401 acres and aerially seeding an additional 3,897 acres in alternating pass application. This fire should benefit antelope use in the future. Units 043-046 habitat is thought to be very conducive in promoting herd growth. Abundant water sources occur and ample forage that antelope favor exist in all the units.

Population Status and Trend

This herd continues to grow at a rapid pace. The 2020 population estimate is 1,200 animals, which is an increase of 50% over last year's estimate. High growth rates can be attributed to recruitment rates that have averaged 41 fawns:100 does over the last 5 years. Record survey sample size, increasing any legal weapon hunter success rates and increased field observations have been observed within all units. Additionally, it is possible that continued immigration from adjacent Management Area 15 has also spurred such a rapid growth rate.

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

Report by: Travis Allen

Survey Data

A ground survey was conducted in this unit group in late September and early October 2019. Eight hundred and eighty-two antelope were observed yielding ratios of 44 bucks:100 does:48 fawns. Both the observed fawn and buck ratios are near the previous 10-year average.

Habitat

Mild winter conditions will potentially have little negative effect on over winter fawn loss, resulting in recruitment of many of these fawns into the breeding population. Since 2017, large fires have occurred across both summer and winter ranges used by the migratory sub-herds of this population. In 2018, the 233,500-acre South Sugarloaf Fire burned the core of available summer range for antelope, burning a large swath of habitat from the Petan Ranch to Tennessee Mountain northeast of the Gold Creek Ranger Station. Only a small percentage of this fire was seeded, 2,700 acres. In 2017, portions of the burned areas from the Tabor Flats, Oil Well, and Rooster's Comb Fires were seeded while other portions were treated with herbicide and fallowed for a year, then followed by seeding in 2018. In 2019, forage kochia was seeded on 1,700 acres of the Oil Well Fire to further increase forage and to compete with invasive annual grasses. Since 2017, several other large fires have occurred on migratory antelope winter ranges and these ranges were aggressively seeded by the Bureau of Land Management, the Nevada Department of Wildlife, and private landowners. These habitat restoration efforts remain essential to the long-term viability of this antelope population as well as the health of individual animals and range conditions. 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 Interstate 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 capacity of compromised winter range to support them. Two emergency hunts were initiated in 2017 to reduce the herds to a population size within this capacity. In addition to these emergency hunts, since 2017 a total of 205 antelope was trapped and translocated to lands held by two Native American Tribes in Washington State, to reestablish and augment populations on Native lands. It is imperative to limit the growth of this herd to the carrying capacity of winter ranges. As habitat restoration efforts come to fruition and the carrying capacity of the habitat increases, antelope

populations will have the potential to grow; however, with the high likelihood of the current fire cycle to continue in this region, it is important to control population growth. Successful rehabilitation of habitat and sustainable rangeland practices will determine the long-term outlook of this herd.

Units 065, 142, and a portion of 144: Southern Elko County, Northern Eureka County

Report by: Matthew Jeffress

Hunt Results

The percentage of bucks harvested supporting 15-inch or greater horns for the resident any legal weapon hunt in this unit group was 23% in 2019. This represents a slight decline over the 3-year average. Please see the appendix for more detailed harvest results.

Survey Data

A ground survey was conducted in late December 2019 resulting in the classification of 353 antelope yielding age and sex ratios of 33 bucks:100 does:28 fawns. This was the second lowest observed fawn ratio in the last 10 years. The low fawn ratio is likely attributed to above average snowpack in early 2019 and the cool, wet spring and early summer 2019.

Habitat

Summer range conditions greatly benefited from the above average moisture received winter 2018-2019. Average winter snowpack this winter, with overall open conditions along lower elevation winter range, should allow animals to enter summer 2020 in excellent condition.

Much of the unit group has been affected by fires. Seedings implemented post fire are benefiting antelope, as are sagebrush islands throughout the unit. Immigrant forage kochia is an important food source for many antelope that winter on the Diamond Hills. Due to continuing high utilization of Immigrant forage kochia on the north side of the Diamond Hills, additional range restoration opportunities should be explored in this area to expand fuel breaks and provide additional forage for wintering wildlife.

Mining exploration is taking place at an accelerated rate throughout the Piñon Range. Opportunities to monitor antelope that summer on the Piñon Range are being pursued to gain a better understanding of movement corridors and habitat selection.

Population Status and Trend

The population estimate is slightly below that of previous years, primarily due to recent low fawn recruitment.

Unit 066: Owyhee Desert; Northwestern Elko County

Report by: Travis Allen

Survey Data

Formal antelope surveys in Unit 066 have been discontinued due to the remoteness of the unit, and statistically unreliable samples from past surveys.

Habitat

In 2018, 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. Since the burn, substantial portions of the fire have been rehabilitated by the Bureau of Land Management in coordination with the Nevada Department of Wildlife and private landowners. Since 2018, over 10,000 acres have been treated with pre-emergent herbicide to eliminate invasive grasses before sprouting occurs, allowing for post treatment seeding with wildfire appropriate seed mixes benefitting both the landscape and wildlife.

Between 2018 and 2020, over 110,000 acres were seeded using both aerial and drill seedings applications, with additional projects planned for the upcoming fall. In addition to wildland rehabilitation, the Bureau of Land Management Tuscarora Field Office, in coordination with the Nevada Department of Wildlife, is proposing to widen existing fuel breaks within the Owyhee Desert to increase the effectiveness of wildland fire management. These fuel break modifications will further aid in preserving remaining critical intact habitats, while protecting past rehabilitation efforts. Furthermore, the expanded fuel breaks will be primarily seeded with a mix of native and non-native perennial species, potentially including a component of forage kochia that would be largely beneficial to wildlife. In addition to being a highly palatable and protein rich forage, forage kochia's ability to successfully outcompete invasive annuals and respond positively to both grazing and wildfire is a valuable tool within this application.

Below average snowpack and total precipitation in the region will likely have an undesirable effect on range productivity and herd health at least in the short-term. There were no fires in the Owyhee Desert during 2019, however the cumulative impacts of previous fires have the potential to negatively affect antelope. 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

Due to the difficulty of obtaining useable survey data in this unit, a computer-based population model is not maintained for this herd. Tag quota recommendations for Unit 066 are based on harvest data parameters such as success rates and percentage of bucks harvested with 15-inch horns or greater.

Units 067, 068: Western Elko and Northern Lander and Eureka Counties

Report by: Travis Allen

Survey Data

A ground survey was conducted in Units 067-068 during February 2020. A sample of 571 antelope was observed yielding ratios of 32 bucks:100 does:31 fawns While the observed fawn ratio is 16% below the 10-year average, compared to fawn ratios observed in neighboring herds within the region, the Unit 061-073 and 067-068 antelope herds have fared well over what has been a challenging year. This can be attributed in part to outstanding summer range and the benefit of past fire rehabilitation and range restoration efforts. The observed buck ratio is in line with the previous 10-year average observed buck ratio for this herd.

Habitat

Wildfire has continued to have an adverse effect on winter range for antelope, and deer, in the unit group. While there were no substantial fires in 2019, the long history of fire in the area provides a challenge to land managers regarding recovery efforts of vital sagebrush communities. A substantial portion of the Sheep Creek Range burned in 2017 during the Roosters Comb Fire, however the critical west face of the range, for the most part, did not burn. Since the fire, approximately 3,700 acres have been treated with herbicide to prevent the spread of invasive annual grasses. The acres treated with herbicide in 2018 were seeded with forage kochia in 2019 to create green strips along roads. To help

further combat cheatgrass in the area, additional acres treated with herbicide in 2019 are planned for seeding in 2020. These herbicide treatments are fallowed for 1 year, followed by seeding the consecutive year. As part of the seed mix, forage kochia outcompetes undesirable invasive plants while providing vital forage of both antelope and deer during the winter months. Ongoing rehabilitation and appropriate management of this vegetative resource should be implemented to ensure adequate forage for wildlife during the critical winter months with use by livestock not starting until early spring.

Population Status and Trend

The population estimate for Units 067-068 has decreased since 2007 and can be attributed to active harvest management. Through harvest and translocation, the size and growth of this herd has been limited to maintain the herd within carrying capacity of compromised winter range along the Interstate 80 corridor.

Male and female harvest levels in 2019 were consistent with this management objective. 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 2019 resulted in the classification of 373 antelope. The observed sex and age ratios were 33 bucks:100 does:31 fawns. The observed buck ratio was the same as the 2018 ratio, and the fawn ratio was higher than the 2018 observed ratio of 21 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 regularly throughout the last 15 years, with about 700,000 total 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.

Range conditions were excellent this year in northeast Elko County. The above normal snowpack followed by a wet spring precipitated an increase in forage quantity and quality. This left antelope spread out across the landscape resulting in challenging survey conditions and a lower sample size.

Population Status and Trend

Winter 2018-2019 approximately 25 antelope were killed on the train tracks near Deeth, Nevada. Because of the reduction of antelope observed around the Tabor pivots summer and fall 2019, it can be assumed that these were likely antelope that had migrated south from there.

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. Because of tremendous forage conditions during the summer followed by a mild winter, the overwinter survival of antelope is expected to be better than last year.

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

Report by: Kari Huebner

Survey Data

Ground surveys conducted in September 2019 resulted in the classification of 296 antelope. The observed sex and age ratios were 45 bucks:100 does:15 fawns. The buck ratio was lower than the 2018 ratio of 77 bucks:100 does, and the fawn ratio was also lower than the 2018 ratio of 20 fawns:100 does.

Habitat

Major fires affected wildlife habitat in this unit group in 2007 with about 244,000 total 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.

Range conditions were excellent this year. The above normal snowpack followed by a wet spring precipitated an increase in forage quantity and quality.

Population Status and Trend

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: Matthew Jeffress

Survey Data

A total of 428 antelope was classified from the ground in early 2020. The sample yielded sex and age ratios of 31 bucks:100 does:16 fawns. Animals were widely distributed throughout the unit group and this year's survey yielded an average sample size.

Habitat

Habitat conditions greatly benefited from the above average moisture received winter 2018-2019. Below average winter moisture this winter, coupled with dry conditions and a lack of green-up along lower elevation winter ranges, may negatively affect fawn recruitment in 2020 if a dry pattern continues into the spring months.

Feral horse populations continue to pose challenges for this unit group. While horse gathers and birth control measures have been undertaken by the Bureau of Land Management in recent years, additional efforts should be made to maintain the population of feral horses in this unit group at or below Appropriate Management Levels.

Population Status and Trend

The early 2020 antelope survey resulted in the lowest observed fawn ratio on record for this unit group. Many antelope within this unit group reside in less productive basin and range habitats. Range habitat improvements associated with many wildlife water development sites within this unit group will be explored in future years to improve antelope production and recruitment.

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

Report by: Scott Roberts

Survey Data

A ground survey was conducted in November 2019 during which 726 individuals were classified yielding sex and age ratios of 49 bucks:100 does:20 fawns. The observed fawn ratio was significantly lower than the previous 10-year mean of 32 fawns:100 does.

Habitat

Winter 2018-2019 was above average in snowpack, total precipitation, and duration. The difficult winter was followed by an exceptionally dry summer that saw only 0.22 inches of precipitation recorded at the Elko airport from June through August (www.usclimatedata.com). The combination of the above average winter and the dry summer led to very poor recruitment rates throughout eastern Nevada. The 2019-2020 winter has been mild in temperature and snowpack. As of March 1, 2020, the water basins within this unit group range between 66%-80% of average precipitation for water year to date (https://www.wcc.nrcs.usda.gov/). Adult antelope should make it through the winter in relatively good shape, which will hopefully translate into elevated fawn production in summer 2020.

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 most recent estimate for the Triple B Complex is 3,842 wild horses, where the Appropriate Management Level is 472 to 884 horses as dictated in the Wild and Free-Roaming Horses and Burro Act of 1971 (http://www.blm.gov/programs/wild-horse-and-burro/). The fenced area has shown promising results by limiting 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. The second phase included the mowing and drill seeding of 388 acres and was 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

One factor that is limiting hunter opportunity in this unit group 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 the necessary steps have yet to be taken.

The buck ratio has gradually been lowered over the past 4 seasons by increasing annual harvest. The lower buck ratio coupled with the second year in a row of below average fawn recruitment will translate into lower quotas and a notable population contraction.

Units 111 – 114: Eastern White Pine County

Report by: Kody Menghini

Survey Data

In July 2019 a pre-season aerial survey was conducted to better understand summer antelope distribution and as a comparison to normal post-season ground surveys. A total of 831 antelope was classified, resulting in observed sex and age ratios of 29 bucks:100 does:19 fawns. An abbreviated post-season ground survey was conducted from December 2019 to January 2020. A total of 834 antelope was classified, resulting in observed sex and age ratios of 34 bucks:100 does:14 fawns. In comparison, observed ratios of 39 bucks:100 does:12 fawns were obtained in winter 2018-2019. The observed fawn ratio of 14 fawns:100 does is below the 5-year (2014-2018) mean of 32 fawns:100 does and is the second lowest recorded for this unit group. The lower buck ratio observed during the pre-season aerial survey was likely a result of the lower detection probability of single bucks and small bachelor groups prior to the rut. Typical post-season ground surveys are conducted when antelope are congregated in winter groups with little sexual segregation and a more accurate buck ratio is obtainable.

Habitat

National Weather Service precipitation data measured at the Ely Airport for the 2019 calendar year was 149% of normal. Spring 2019 was the wettest recorded in Ely. National Weather Service precipitation data measured at the Ely Airport from June to December 2019 was 49% of normal. Habitat quality improved through the first half of 2019, but progressively deteriorated due to a dry summer and fall. No fall green-up was observed prior to winter to benefit antelope. Winter 2019-2020 was warm and dry. National Weather Service precipitation data for winter measured at the Ely Airport was 57% of normal. At the time of this report, spring weather has continued to be warm and dry. Habitat conditions will continue to deteriorate in 2020 unless precipitation patterns improve.

Over the last decade there have been many habitat projects and fires that have increased and improved antelope habitat within this unit group. While the number of habitat projects being pursued has decreased in this area, the Nevada Department of Wildlife is still working with the Bureau of Land Management and the US Forest Service on a few 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 group. These water developments may be completed over the next few years to benefit antelope as well as many other species of wildlife.

Feral horse populations continue to increase in this unit group. One thousand one hundred forty-four feral horses were observed on the pre-season aerial antelope survey. The habitat improvement projects, and guzzler construction will help decrease competition between antelope and feral horses, though at current levels, feral horses will continue to negatively impact native vegetation and will ultimately reduce the carrying capacity of antelope in this unit group.

Population Status and Trend

In 2018 adjustments were made to the population model for this unit group to more accurately reflect observed sex ratios and high sample sizes obtained on survey. The lowest observed fawn ratios on record were observed in 2018 and 2019 which is resulting in a population decline. The effects of the last 2 years' poor recruitment rates will continue to manifest in future years with depressed cohorts. Despite the decreasing population trend the buck ratio remains high in this unit group.

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 hunt unit during December 2019. Survey conditions were fair although some early snowmelt made access into some areas difficult or impossible. One hundred and thirty-nine antelope were observed and classification of 113 individuals consisted of 33 bucks, 57 does, and 23 fawns. This total provides a ratio of 58 bucks:100 does:40 fawns. Antelope were classified in Lake, South Spring, and Hamlin 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 agriculture production.

Habitat

Habitat conditions during the survey were fair, but minimal precipitation events between mid-summer through late fall 2019 resulted in many depleted water resources. Overall, this portion of Lincoln County experienced approximately 130% of the 10-average precipitation during 2019 according to the CEMP data, most of which fell in spring and early summer. Antelope were observed utilizing many of the recent habitat enhancements and water developments. Following this survey, the Bureau of Land Management conducted a horse gather. In this operation, the Bureau of Land Management was able to remove over 1,700 excess horses from the herd complex within Unit 231. This should allow for habitat and rangelands to recover in the future while reducing impacts to rangelands and limited water resources. Pinyon-juniper expansion into lower elevations continues to slowly reduce available habitat for antelope. Sagebrush 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 in 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 in between 2016 and 2019 to increase the recruitment of young into the population by removing coyotes in the area. The computer-generated population estimate for 2020 is consistent with the estimate from 2019, showing a total estimate of 500 individuals.

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

Report by: Clint Garrett

Survey Data

The 2019 post-season antelope ground survey was conducted in October 2019. Four days were spent classifying 407 antelope, yielding sex and age ratios of 22 bucks:100 does:17 fawns. The 2019 observed buck and fawn ratios are below those obtained during the 5-day 2018 survey when a sample of 463 antelope yielded sex and age ratios of 29 bucks:100 does:19 fawns. Surveys were conducted in Antelope, Fish Creek, Jakes and Hot Creek Valleys. The observed fawn ratio is below the previous 5-year average of 29. Past observed fawn ratios in this unit group have ranged from 5 to 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 2020, data from the Western Regional Climate Center's Eureka site, at the northern end of the units, show well below normal precipitation for the calendar year. Well-above normal precipitation was recorded at this site for winter and spring 2019; however, very little precipitation was recorded for summer and fall 2019. The US Drought Monitor currently shows all units in this group abnormally dry, which is an improvement for a small portion of Unit 131. Soil moisture is below normal and is at 24% saturation for eastern Nevada according to the NRCS's Nevada Water Supply Outlook Report for March 2020. For 2020, drier conditions may lead to less grass and fewer forbs available to antelope in comparison to last year.

Pinyon-juniper removal efforts for sage-grouse within the northern portion of Unit 131 by the Bureau of Land Management's Ely Office during this past year increased available habitat for antelope. Feral horses, which are currently above Appropriate Management Levels in the northern portion of these units, compete for forage and water, limiting antelope carrying 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 primarily targeting 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 850 to 950 adult antelope, with the 2020 population estimate being 750 adult antelope. This year's survey saw a decrease in the observed fawn to doe ratio and less total antelope observed during survey in 2019 compared to 2018. This antelope herd is currently showing a decline, possibly due to the harsh winter and dry summer, 2019, as well as rising feral horse numbers increasing competition for limited resources on the rangeland.

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

Report by: Clint Garrett

Survey Data

The 2019 post-season antelope ground survey was conducted for this unit group in October 2019. Three days were spent classifying 364 antelope, yielding sex and age ratios of 25 bucks:100 does:20 fawns. The 2019 observed buck and fawn ratios are below those obtained during the 6-day 2018 ground survey when 285 antelope yielded sex and age ratios of 35 bucks:100 does:21 fawns. Surveys were conducted in Railroad Valley, Sand Springs Valley, Coal Valley, Garden Valley, Twin Springs, Lunar Lake, and the Rachel area. The 2019 observed fawn ratio is below the previous 5-year average of 28. Past observed fawn ratios in this unit group have 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 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 2020, data from the Western Regional Climate Center's Hiko site, at the southern end of the unit group, show well below normal precipitation for the calendar year. Above normal precipitation was recorded for winter, spring and fall 2019, but is currently below normal for March 2020. The US Drought Monitor currently shows the units to be abnormally dry. Soil moisture for this year is below normal at 24% saturation for Units 132 and 134 in eastern Nevada, and soil moisture for Unit 133 in southern Nevada is below normal at 26% according to the NRCS's Nevada Water Supply Outlook Report for March 2020. For 2020, drier conditions may lead to less grass and fewer forbs available to antelope in comparison to last year.

Six big game water developments, primarily targeting 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 5 years have been consistent at 600 adult antelope with the 2020 population estimate being 550. This year's survey showed a decrease in the observed fawn to doe ratio and 79 more total antelope observed on survey in 2019 compared to 2018. This antelope herd is showing a slight decline, probably due to last year's harsh winter and dry summer.

Units 141, 143, 151 – 156: Eastern Lander and Eureka Counties

Report by: Sarah Hale

Survey Data

Post-season ground surveys for antelope were conducted in October 2019 and January-February 2020. Areas surveyed included Antelope Valley, Crescent Valley, the Simpson Park Mountains, and Pine Valley along the east bench of the Cortez Range. A total of 864 antelope was classified, yielding age and sex ratios of 42 bucks:100 does:25 fawns. Observed fawn ratios were noticeably below the previous 5-year average of 45 fawns:100 does.

Habitat

Above average precipitation during 2019 resulted in favorable range conditions for antelope in northcentral Nevada, which reduced pressure on agricultural fields compared to previous years.

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.

Population Status and Trend

The depressed observed fawn ratio followed the statewide trend and was likely due to drought conditions in 2018 followed by a long, wet 2018-2019 winter and spring. These conditions likely contributed to poor body condition of does, thus reducing fawn production during spring 2019. During the previous several years, however, this herd has experienced generally high fawn recruitment, so it is unlikely that 2019's reduced recruitment will have long-term adverse effects on the population.

As with most wildlife populations in Nevada, the amount and timing of precipitation will affect this population's ability to grow and expand. Female harvest should continue to be used as a method to maintain 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

An aerial post-season antelope composition survey was conducted in Units 161 and 162 on September 8, 2019. Supplemental ground surveys were completed in September 2019. In total, survey efforts yielded a sample of 132 antelope, which were classified as 34 bucks, 79 does, and 19 fawns. In comparison, the 2018 survey yielded a sample of 272 antelope which were classified as 78 bucks, 153 does, and 41 fawns. 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 January 2019 to January 2020, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 119% of the 30-year average. Spring precipitation (March, April, and May) resulted in 54% of the precipitation in 2019 and winter precipitation (November, December, January) resulted in 25% of the 2019-2020 total, with most falling as snow. The one SNOTEL site located in central Nevada measured snowpack levels at approximately 82% of average in February 2020. Harsh winter conditions in 2018 and 2019 coupled with a cool, wet spring may explain the slightly depressed fawn recruitment observed on fall surveys. Below-average precipitation accumulations during the 2019-2020 winter can plausibly provide reduced forage vigor compared to last year. 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.

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 approximately 2,400 acres south of Danville Canyon had pinyon-juniper removed via lop and scatter techniques. During summer 2019, 217 acres of pinyon-juniper were removed near Pasco Canyon, Unit 161, with the help of local resource conservation programs. 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.

Population Status and Trend

Due to depressed fawn recruitment in 2019, 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 and October 2019. The survey yielded a sample of 111 antelope, which were classified as 20 bucks, 73 does, and 18 fawns. In comparison, the 2018 survey yielded a sample of 170 antelope which were classified as 42 bucks, 101 does, and 27 fawns.

Habitat

In January 2019 through January 2020, according to Community Environmental Monitoring and Planning precipitation data, central Nevada received 119% of the 30-year average. In spring 2019, above-average precipitation was observed. The one SNOTEL site located in central Nevada measured snowpack levels at approximately 82% of average in February 2020. Below-average winter precipitation in 2020 may produce lower quality and quantity nutritional forage for does approaching the critical fawning period which can have negative implications on body condition. Spring precipitation is necessary for forage quality and provides the 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 2019 has this population on a stable or decreasing trend.

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 considered 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 Management Area 18 during fall 2019. There were 317 antelope classified as 78 bucks, 173 does, and 66 fawns yielding sex and age ratios of 45 bucks:100 does:38 fawns.

Habitat

Winter 2020, the Bureau of Land Management conducted a horse removal on the Desatoya Herd Management Area located in Unit 184. Four hundred and fifty horses were removed. Feral horses within the Desatoya Herd Management Area compete heavily for forage and water and have a negative effect on the antelope population.

The Crown Peak water development was upgraded in spring 2019. The increased apron size as well as the increased storage capabilities of 12,000 gallons will provide a much-needed dependable water source for antelope in the Lauderback Hills. Additionally, a new water development was constructed on the north face of the Cocoon Mountains in 2019 and already has antelope use on it.

A pipe rail fence was constructed in the summer 2018 around an important antelope water source. Previously, a dilapidated buck and rail 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.

Population Status and Trend

This year's fawn ratio is significantly higher than previously experienced over the past 3 years. The high productivity experienced in the recent past will provide ample opportunity for future harvest. Hunter success for the general rifle hunt was 87% with 34% of the bucks being 15 inch or greater horn length.

Units 202, 204: Lyon and Mineral Counties

Report by: Jason Salisbury

Survey

No post-season composition surveys occurred in 2020. The last survey occurred in early February 2019 and resulted in 90 antelope being classified. The resulting sex and age ratios for the sample were 52 bucks:100 does:28 fawns.

Habitat

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 crown sprouted bitterbrush. This area is recovering nicely and should provide new areas for the antelope to occupy.

Two water developments located near the Baldwin Canyon area will be replaced in 2020. 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.

The Baldwin Canyon Pinyon-Juniper Removal Project is nearing completion on over 4000 acres and will remove pinyon and juniper along the western slope of the Wassuk Mountains. Projects like this will increase the summer range available to the antelope herd.

Population Status and Trend

The 2019 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. Hunter success for the general rifle hunt was 83% with 40% of the bucks being 15 inch or greater horn length.

Units 203, 291: Lyon, Douglas Counties
Report by: Jason Salisbury

Survey Data

No formal surveys were conducted in these units in 2019.

Habitat

Large areas of pinyon-juniper within the Pine Nut Mountains have been cut down or masticated 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.

In early 2019 the Bureau of Land Management conducted a horse removal on the Pine Nut Herd Management Area. Three hundred and fifty-four horses were removed from a target goal of 500 horses. Feral horses within the Pine Nut Herd Management Area compete heavily for forage and water and have a negative effect on the antelope population.

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.

Population Status and Trend

This population of antelope has remained stable with low fawn ratios in recent years. Overall, the herd is considered stable in population trend. Hunter success for the general rifle hunt was 75% with 23% of the bucks being 15 inch or greater horn length.

Units 205 – 208: Eastern Mineral County
Report by: Jason Salisbury

Survey Data

A post-season antelope population survey was conducted in Units 205-208 in fall 2019. The survey yielded a sample of 86 antelope, which were classified as 14 bucks, 48 does, and 24 fawns.

Habitat

Small subgroups of antelope occupy a large geographic area in and 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.

Between 2013 and 2015, 7 new water developments were built in the Candalaria Hills, Miller Mountain, Garfield Hills, and Eastside Mine area. These new water sources will be vital to establishing new populations of antelope in a very water-limited resource area.

Population Status and Trend

This population of antelope is currently showing a relatively stable trend. Hunter success for the general rifle hunt was 96% with 23% of the bucks being 15 inch or greater horn length.

Units 211 – 213: Esmeralda County
Report by: Joe Bennett

Survey Data

A post-season antelope composition survey was conducted in Units 211-213 in fall 2019. The survey yielded a sample of 57 antelope, which were classified as 9 bucks, 38 does, and 10 fawns. In comparison, the 2018 survey yielded a sample of 37 antelope classified as 7 bucks, 22 does and 8 fawns.

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 in the areas inhabited 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. Slightly below-average winter precipitation for 2019 and 2020 may result in depressed rangeland conditions in spring and summer 2020 for Area 21. Depressed fawn recruitment coupled with compromised rangeland conditions has this population slightly decreasing.

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 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.

Due to depressed fawn recruitment in 2019 this population is considered stable or slightly decreasing.

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 2019. The brief survey resulted in 92 antelope that were classified as 25 bucks, 46 does, and 21 fawns, which results in a ratio of 54 bucks:100 does:45 fawns. Antelope were classified in Delamar, Dry Lake, and Cave Valleys. Previous surveys had resulted in classification of over 400 individuals where approximately 100 antelope were classified in near vicinity of the management unit boundary of Unit 222 and Unit 111. This may be attributed to seasonal habitat use and weather conditions. Antelope were observed utilizing guzzlers, livestock waters, and natural water resources throughout the area but many of which were being rapidly depleted.

Habitat

Habitat conditions appeared to be very good during the survey due to precipitation events in the spring and early summer 2019. Antelope seem to utilize 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 in late 2018 which will reduce competition for resources on the range. A solar energy zone has been designated in Dry Lake Valley that will be a threat to antelope habitat in that area consisting of 24,000 acres slated for development. 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 provide more productive habitat for wildlife.

Population Status and Trend

Although this population has previously shown low fawn recruitment, it seems to be doing reasonably well. A record harvest of 34 bucks were taken in 2019. Habitat improvements and water developments are allowing antelope to utilize increased habitat throughout the area. The computer-generated population estimate for 2020 is showing an increasing trend over the past 5 years and estimates 500 individuals for this management area.

Unit 251: Central Nye County

Report by: Joe Bennett

Survey Data

A post-season aerial antelope survey was conducted in Unit 251 during early September 2019. The survey yielded a sample of 280 antelope, which were classified as 46 bucks, 169 does, and 65 fawns. In comparison, the 2018 survey yielded a sample of 209 antelope which were classified as 45 bucks, 127 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 feral animal 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 2019, according to Community Environmental Monitoring and Planning precipitation data, central Nevada received 119% of the 30-year average. Most of that precipitation fell last spring. Our current snow loads for central Nevada are below average. The one SNOTEL site located in central Nevada measured snowpack levels at over 82% of average in February 2020. Unless additional precipitation falls before the growing season, forage vigor will be slightly depressed, and wildlife will not see the same nutritional benefits as last year heading into the fawning period.

Population Status and Trend

The Unit 251 antelope population is currently relatively stable to slightly increasing due to strong fawn recruitment. During dry summer months, these antelope can find reprieve in the lush agricultural lands. The appeal of agricultural lands is drawing 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 at the end of January 2020. During this flight 30 elk were classified yielding a ratio of 27 bulls:100 cows:73 calves. This flight was to take place over a 3-day period. Due to weather conditions, the first day was cut short and the third day, the clouds prevented anything from being surveyed. The lack of snow that was experienced this year made it extremely difficult to locate animals. Of the 30 animals classified, only 4 bulls were located on survey. This is nearly half of what has been classified over the last 3 years. One single cow was observed in the Hot Springs and 25 cows and calves in the Fairbanks. With the open conditions and the size of this unit, elk could be nearly anywhere within this unit. With the small sample sizes, the ratios can be very skewed resulting in something much different then what is happening. Areas surveyed included the Osgood Mountains, Hot Springs Range, and the Santa Rosa Range.

Habitat

This unit is slowly recovering after the major hit the winter range took 2 summers ago with the Martin Fire. This fire has had 2 winters of rehab working taking place and the plans call for future rehab efforts as well. With the good winter precipitation after the first year, conditions improved significantly. Most of the drill and aerial seeding that took place responded very well after all the moisture that was received. Despite less moisture this winter, conditions were still favorable for much of the seedings that took place. With much of the transitional areas for these elk being burned major movements are not being seen. The summer range is intact and in excellent condition and should remain that way if more spring and summer precipitation is received. In the past with any significant snow those animals are seen moving from the high country to these lower elevations. At this point the elk are only using those areas still intact with brush species. As soon as the areas treated after the fire areas begin to recover, more elk may be seen moving into these areas.

Population Status and Trend

The population estimate over the last 3 years has remained constant. Winter conditions were much different than what was experienced last year. The amount of moisture received early in the year was good then tapered off throughout the remainder of the year. Elk remained in the upper elevations for most of the year and that big push into the lower country was not seen. With the addition of more rehab taking place on the Martin Fire, it is expected that elk may start using these areas again which may in turn cause an additive effect on the population estimates to Unit 051. This population is expected to see fluctuations in numbers depending on annual winter conditions. The objective is to maintain this herd below 200 animals. Currently, there is no growth in this population.

Units 061, 071: Bruneau River and Merritt Mountain Area; Northern Elko County
Report by: Travis Allen

Hunt Results

Harvest success rates for antlerless elk were consistent with previous years for most hunts in the unit group.

There were several recent changes to season dates within the hunt structure for the unit group. The late antlerless elk any legal weapon season was changed from November 21 – January 31, to November 6 - January 5. Hunt seasons lasting late into January were used as a tool to reduce elk numbers to within

population objective, as many elk herds in the region are now at or below population objective, this structure is no longer necessary and this change was made to remain consistent with dates across the region. Success rates with this new season structure remain consistent with last year's harvest. The mid-season for spike elk was removed in 2019 because this management tool was no longer needed, and dates were changed to match that of antlerless elk seasons. Harvest for spike elk was similar to that of 2018. To improve hunter access to mature bulls and meet antler length management objectives, seasons were shifted earlier for all hunts following the standard September rifle cow hunt. Antlered elk harvest success was close to 50% for both seasons. After a long, wet spring, even with a dry summer, elk took advantage of water sources not usually available during the hunt seasons, creating a wide distribution of animals and making bulls harder to locate. Despite this difficulty, antlered harvest success rates were consistent with the 2019 statewide average.

Survey Data

One thousand nine hundred and seventy-one elk were classified during an aerial survey in February 2019. The observed sex and age ratios of the sample were 48 bulls:100 cows:42 calves. The observed calf ratio was 3 points below the previous 10-year average and the bull ratio was well above the previous 10-year average of 36 bulls:100 cows.

Habitat

As in other years with average snow loads, most of the Unit 061-071 elk herd spent the 2019-2020 winter in Idaho. In 2018, 2 large fires burned north of the Nevada border within the winter range of the herd. On the west side of the Bruneau River was the Cat Fire, and on the east side the Bruneau Fire. These 2 fires combined for a total of 88,300 acres burned. Much of the lands administered by the Bureau of Land Management were rehabbed over the past 2 years and the drill seedings look to be responding well. Elk were observed using the seeding on survey. Elk, and other wildlife, should benefit from these rehabilitation efforts. A 2017 vegetation monitoring evaluation, funded by the Nevada Department of Wildlife, Elko Bighorns Unlimited, and Nevada Bighorns Unlimited-Reno studied the effects of elk use in the Bruneau Watershed. The outcome of the study was not intended to represent elk use at a landscape scale but to evaluate effects of elk at high use sites. Results from the study show elk use at identified high use sites to be no higher than those observed at high use sites utilized by domestic livestock.

Population Status and Trend

Elk movement dynamics in this population are complex. While it is modeled as one population, several sub-herds utilize different regions throughout the year. A substantial portion of the herd resides exclusively on the Duck Valley Indian Reservation and in Idaho. Additionally, a proportion of elk that winter in the Bruneau River drainage and on the Diamond A Desert summer in Units 072, 073, and 075. Due to this temporal and spatial distribution across multiple administrative boundaries, the published population estimate of the 061-071 Bruneau elk herd represents only a portion of the total combined estimate of the larger population. It was determined through telemetry data, that in 2019 elk utilizing the Diamond A Desert as winter range spent about three-quarters of the year within the 061, 071-unit group.

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.

The modeled population has shown slight growth since 2019. The current management objective, based on the 2017 resource modeling report, is to sustain the population near current levels.

Units 062, 064, 066 – 068: Independence and Tuscarora Ranges; Western Elko, Northern Eureka and Lander Counties

Report by: Travis Allen

Survey Data

Aerial surveys were conducted in February 2020 resulting it the classification of 298 elk, yielding ratios of 64 bulls:100 cows:24 calves. This is the lowest sample size in 10 years. The bull ratio is well above the 10-year average and is attributed to the extensive search of the unit group during survey. The low observed calf ratio is concerning, down 50% from the previous 10-year average. Depressed calf production and recruitment could potentially be the first signs of population level effects of the massive loss of summer range due to wildfires. The elk population in this unit group is broken into 2 sub-herds, one sub-herd wintering on the YP Desert and the other in the southern portion of the Owyhee Desert. Elk that winter in the Owyhee Desert are available to hunters for the entirety of the hunt seasons, while the YP Desert sub-herd spends a significant amount of time on the Duck Valley Indian Reservation, on private land, and in Idaho, making them unavailable for harvest for a portion of the hunting seasons. Due to the full-time susceptibility to harvest of the Owyhee Desert sub-herd, a comprehensive search was conducted of this region to obtain a more accurate population assessment. Ideal survey conditions and adequate search time lends confidence that no large groups of elk were missed from this sub-herd; a total of 144 elk were observed. A less comprehensive search was conducted in the YP Desert and the 154 elk observed should be considered a smaller representation of that sub-herd.

Habitat

During the 2018 fire season, the Martin and South Sugarloaf Fires burned a combined 669,000 acres. Large portions of seasonal habitats this elk herd relies on burned, resulting in a patchwork of previous burns that covers a majority of this unit group. These fires have created a landscape where segments of elk summer range have been limited to islands of suitable habitat. The lack of cover on summer range following the South Sugarloaf fire will have a negative effect on habitat suitability for 1-2 years post-fire. These effects were observed on survey in the form of the all-time-low recruitment of calves from the 2019 calving season. In addition to the severe impacts of wildfire are the undesirable precipitation patterns observed the last few years. Elk in Nevada often respond more negatively to drought than to harsh winter conditions. A prolonged period of drought leading into the above average winter of 2018-2019 likely had a negative effect on body condition of cow elk leading into the calving season of 2019. This, coupled with wildfire impacts, could have played a large part in recent depressed calf ratios. Fire does however provide some positives for elk habitat. The flush of perennial grasses and forbs following the burn on key summer range is beneficial, however this elk herd was not limited by summer range prior to the recent fires. While deep-rooted perennial grasses may recover, it is likely that conversion to less desirable annual invasive grasses will occur over some portion of the landscape, especially with the minimal post-fire rehabilitation done following the South Sugarloaf fire. Since very little of the acreage affected by the South Sugarloaf fire was seeded in restoration efforts, successful natural response of the affected area will rely on the native seed bank stored within the soil and seasonal precipitation.

Population Status and Trend

Based on telemetry data from a representative sample of radio collared elk in 2019, about 250 animals from this population spend most of the year outside the unit group boundaries. When considering this segment of the population, the current population estimate for adult elk permanently residing in Nevada is below objective. The modeled population for 2020 has fallen 30% below the management objective due to various factors that may include the above-mentioned distribution of elk outside the unit group, impacts of wildfire such as the decline in calf ratios, and seasonal elk mortality currently under investigation.

Despite continued 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 or 2019 hunting season, suggesting continued population decline, however the negative effects of the South Sugarloaf fire on the population are likely contributing to the lack of success as well.

While maintaining this herd near the currently mandated 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 use of private land on the west side of the Bull Run Mountains. The 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.

In 2019, 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. The Nevada Department of Wildlife continues to work with landowners to reduce conflicts with elk using private land.

In January 2020, an additional 5 elk were radio collared from the Owyhee Desert sub-herd of this population. Telemetry data continues to provide a better understanding of population demographics and seasonal movements. In addition, these new collar deployments are intended to help the 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: Matthew Jeffress

Survey Data

A ground survey was conducted in March 2020. A total of 23 elk was classified yielding ratios of 13 bulls:100 cows:40 calves. Two active elk collars were used to locate a single group of elk on Cedar Ridge. Both collared cow elk were located together. Additional collared cow elk were observed with the same group. The additional collared elk represent cow elk collared between 2014-2017, however those collars are no longer transmitting location data. Given the high number of collared cow elk observed, this single group likely represents a significant portion of the population.

A survey is planned for September 2020 to gain a better understanding of elk distribution and the occurrence of mature bulls associated with collared cow elk.

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 this herd. It is odd elk have not expanded more into the higher elevations and more productive portions of Piñon Range. Anecdotal observations over the last 10 years suggest bulls use portions of the Piñon Range, with little to no use by cow elk.

Mine exploration is taking place at an accelerated rate along the entirety of the Piñon Range. Impacts from drilling activities on elk distribution are unknown.

Population Status and Trend

Four radio collared cow elk have died of unknown causes since 2017. In March 2019, 2 additional cow elk were marked with telemetry collar or bolus style units to identify the cause of unknown spring and summer elk mortalities. One of the 2 newly collared elk perished in May 2019 and department staff were able to necropsy this animal within 4 hours of death. Histological findings of the elk that died on Cedar Ridge indicate similar heart lesions to those discovered in Area 6 elk that mysteriously die during the

same timeframe. Since elk first pioneered into this unit the expectation was to see the population grow steadily; however, all observations and data indicate this herd is stagnant to decreasing. Given the seemingly static to decreasing trend of the herd, largely in the absence of harvest pressure from sport hunting, the practicality of elk hunts in this unit will be evaluated following the 2020 hunting season.

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

Report by: Kari Huebner

Survey Data

Surveys conducted in February 2020 resulted in the classification of 1,026 elk with observed sex and age ratios of 118 bulls:100 cows:36 calves. The observed bull ratio was considerably higher than the 2019 bull ratio of 71 bulls:100 cows and the observed calf ratio was the same as the 2019 ratio.

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 (±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 reflect that situation.

In recent years, data from radio collared elk have 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 have indicated that some elk reside solely in Idaho. 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 350 elk in this metapopulation reside either outside of Nevada or spend time in surrounding unit groups and are not included in the population estimate for Units 072, 073, 074.

Because there are known elk movements between Unit 075 and surrounding units, it is necessary to model Units 072,073,074 and Unit 075 together as a single, large population; however, it will be important to continue to manage harvest in Unit 075 separately to maintain the population at the 100 elk objective. To accomplish this the antlered and antlerless hunts will continue to target elk in Unit 075 and Units 072,073,074 separately.

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

Survey Data

Surveys in February 2020 resulted in the classification of 103 elk yielding age and sex ratios of 38 bulls:100 cows:49 calves. The observed bull ratio was lower than the 2019 bull ratio of 57 bulls:100 cows. The observed calf ratio was higher than the 2019 calf ratio of 31 calves:100 cows.

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 winters of 2018-2019 and 2019-2020 saw 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 (±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 unit (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 restricts the use of motorized vehicles. While some 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.

Because there are known elk movements between Unit 075 and surrounding units, it is necessary to model Units 072,073,074 and Unit 075 together as a single, large population; however, it will be important to continue to manage harvest in Unit 075 separately to maintain the population at the 100 elk objective. To accomplish this the antlered and antlerless hunts will continue to target elk in Unit 075 and Units 072,073,074 separately.

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

Survey Data

Surveys conducted in February 2020 resulted in the classification of 1,264 elk yielding age and sex ratios of 24 bulls:100 cows:38 calves. The observed bull ratio was lower than the 2019 bull ratio of 40 bulls:100 cows. The observed calf ratio was also lower than the 2019 calf ratio of 50 calves:100 cows.

Habitat

Nearly 240,000 acres burned in this unit group during summer 2007. Since then, at least that many acres have burned again. In 2018, the Goose Creek Fire burned 126,000 acres, including portions extending into Utah. Extensive reseeding work was conducted to rehabilitate burned areas. The long-term outlook of this habitat for elk is favorable.

Much of the unit group includes private lands or allotments managed by the Winecup Gamble Ranch. The ranch is currently working through an Outcome Based permit renewal with the Bureau of Land Management. If the permit renewal goes through as proposed, the improved timing and season of grazing should improve habitat in this unit group. The proposed permit will also include increased water distribution and spring protection that will benefit a multitude of wildlife species across the units, including elk.

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 45 elk incentive tags for providing additional elk habitat on private rangeland during 2019. This is down from 49 elk incentive tags in 2018.

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

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 2020.

Unit 078, and portions of 104, 105 – 107, 109: Spruce Mountain; Elko County

Report by: Scott Roberts

Hunt Results

The 2019 total harvest of 71 elk for this unit group was the highest on record. Please see the appendix for more detailed harvest results.

Survey Data

An aerial survey was conducted in January 2020, where 442 elk were classified yielding sex and age ratios of 34 bulls:100 cows:29 calves. Included in the sample are 183 elk that were located on the border of Unit 109 and Unit 121. It is presumed that this group was comprised of elk from both units and the proportion of animals from each unit is unknown. The observed calf ratio is the lowest since 2013.

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 2019 Bureau of Land Management population estimates, these 4 Herd Management Areas ranged from 372-1, 777% of Appropriate Management Level (www.blm.gov/programs/wild-horse-and-burro/).

Work on the Spruce Mountain Restoration Project continues with about 8,200 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 1,800 additional acres near Spruce Mountain are scheduled to be treated within the next 4 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 species.

Population Status and Trend

The current population estimate is slightly lower than the previous year, which is a direct result of the elevated harvest level and the below average recruitment rate. 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 on public land during hunting season decreases.

Unit 091: Pilot Range; Eastern Elko County

Report by: Kari Huebner

Survey Data

Surveys were not conducted in 2019.

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, 682 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.

For the 2019 hunting season, antlered quotas remained at 100 tags split between 2 seasons with a cumulative hunt success rate of 42%. The antlerless quota was increased to 150 tags for the single 6-month season, which had an 10% hunt success rate. There were 202 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 are not conducted for this unit group. Landowner reports of elk damage have been minimal the last 10 years. The one property with heavy documented use had an exclusionary fence installed in summer 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 2020 Management Area 11 post-season composition survey for elk was combined with spring deer surveys. A sample of 1,629 elk was collected yielding sex and age ratios of 49 bulls:100 cows:27 calves. Sex and age ratios have averaged 30 bulls:100 cows:37 calves over the previous 5 years.

Habitat

The National Weather Service recorded 149% of normal precipitation at the Ely Airport in 2019. Spring 2019 was the wettest recorded in Ely. National Weather Service precipitation data measured at the Ely Airport from June to December 2019 was 49% of normal. Habitat quality improved through the first half of 2019, but progressively deteriorated due to a dry summer and fall. The 2019-2020 winter has been warm and dry, with the National Weather Service recording 57% of normal precipitation between December 2019 and February 2020. The Berry Creek SNOTEL site recorded 71% of the long-term average snowpack during the 2019-2020 winter (accessed 5 March 2020, www.nrcs.usda.gov). At the time of this writing, spring conditions have continued to be warm and dry. Habitat conditions will continue to deteriorate in 2020 unless precipitation patterns improve.

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 construction and sale of private parcels in quality habitat is occurring as well. Nevertheless, elk are benefiting from thousands of acres of pinyon-juniper chainings, thinnings, and other tree removal projects recently completed by Bureau of Land Management, US Forest Service, and the Nevada Department of Wildlife. Future projects are planned in the south Schell Creek Range, Duck Creek Basin, Kern Mountains, and south Snake Range. 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 existing guzzlers in this unit group. 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 for many species of wildlife.

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

Previously, there was a great deal of elk movement between Area 11 and Area 22, but that has decreased over time. Prior to 2019, these 2 herds were modeled as a single population, but due to the change in elk movement and distribution, each herd will now be modeled separately. Bull quotas have been split since 2012. This change should allow the Nevada Department of Wildlife to carry out more specific management actions for each area.

Adjustments were made to the population model to more accurately reflect observed sex and age ratios and high sample size on survey. The most recent population estimate has been increased over the reported population estimate in 2019 due to these model changes; however, the current population is showing a decrease due to low calf recruitment.

Unit 121, 104 and a portion of Unit 108[A]: Cherry Creek, North Egan, Butte, Maverick Springs and Medicine Ranges; Northern White Pine and Southern Elko Counties

Report by: Scott Roberts

Hunt Results

In addition to regularly occurring elk seasons, due to increased elk use on private property on the border of Unit 109 and Unit 121, a private land antlerless hunt was initiated in November 2019. The effort involved 2 seasons, each running for approximately 1 week with a combined total of 6 tags being issued resulting in a 50% harvest rate. Please see the appendix for more detailed harvest results.

Survey Data

An aerial survey was conducted in March 2020, where 502 elk were classified yielding sex and age ratios of 11 bulls:100 cows:18 calves. The calf ratio is significantly lower than the previous 5-year average of 41 calves:100 cows.

Habitat

Pinyon-juniper tree encroachment occurs across a substantial portion of this unit group. Several large-scale habitat enhancement projects are currently being implemented within this unit group. The Egan and Johnson Basin Restoration Project is permitted to treat roughly 24,000 acres of pinyon-juniper trees in sagebrush communities in Unit 121. During the 2019-2020 work season the Ely Bureau of Land Management District treated approximately 2,400 acres using a combination of hand-thinning and mastication processes.

Snowpack recorded at SNOTEL sites in water basins located within and adjacent to this unit group ranged from 65-94% of the long-term average with water year-to-date totals at 66-73% of average as of March 1, 2020 (www.nrcs.usda.gov). Due the below average winter, summer range conditions will be dependent on the amount of spring and summer rains that are received.

Population Status and Trend

This year's population estimate is slightly higher than the 2019 estimate due to population model adjustments made to account for the number of adult cows observed on survey. The observed calf ratio was the lowest ever recorded within this unit group, and, caused a slight population contraction. The Nevada Department of Wildlife is committed to maintaining this elk herd below the population objective set in the Wells Resource Area and White Pine County Elk Plans. 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[B]: White Pine, Grant and Quinn Canyon Ranges; Southern White Pine and Eastern Nye Counties

Report by: Clint Garrett

Survey Data

An aerial survey was conducted in January 2020. During this survey, 130 elk were classified yielding ratios of 60 bulls:100 cows:21 calves. In comparison, the survey sample in 2019 totaled 175 elk with observed ratios of 48 bulls:100 cows:29 calves. The previous 5-year average observed calf ratio is 41 calves:100 cows.

Weather and Habitat

As of March 2020, the valley summary report shows lower elevations for the Ely and Eureka areas have received below-normal precipitation and temperatures are slightly warmer than normal (March 2020, Nevada Water Supply Outlook Report, NRCS). The White River watershed snowpack analysis has dropped from 127% to 59% of median for 2020 and soil moisture dropped from 33% to 26% saturation (March 2020, Nevada Water Supply Outlook Report, NRCS). Although these units experienced above average precipitation last year, current conditions and soil moisture levels in March 2020 were below normal and are trending towards drought like conditions. Unless weather conditions change, grasses and forbs will be less prevalent on the landscape compared to late spring and early summer 2019.

On-going removal of pinyon-juniper trees encroaching into bunchgrass and sagebrush communities is being led by US Forest Service and the 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 Mount 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 as well as many other species of wildlife.

Population Status and Trend

The White Pine County Elk Management Plan established a population objective of 300 adult elk (±20%) for Units 131 and 132. The elk herd is currently within population objective.

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 50 bulls and 37 cows harvested. There was a hunt structure and quota change for the 2019 season and 6 hunts were offered with a combined quota of 30 tags. Overall harvest success during the 2019 season was 13% compared to 4% in 2018. Please see the appendix for more detailed harvest results.

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, 2018-2019, and 2019-2020 are 10, 12, 0 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 February 2020. The aerial survey yielded a sample size of 424 elk comprising of 93 bulls, 260 cows, and 71 calves. Snow conditions had elk dispersed at lower elevations in large herds during survey. Elk were exclusively observed in Unit 162. In comparison, the January 2019 survey observed a sample of 524 elk comprising of 105 bulls, 312 cows, and 107 calves.

Habitat

According to precipitation data collected in January 2019 to January 2020 by the Community Environmental Monitoring and Planning (CEMP), central Nevada received 119% of the 30-year average. Spring precipitation (March, April, and May) resulted in 54% of the 2019-2020 precipitation total. Winter precipitation (November, December, January) for 2019-2020 resulted in 25% of the precipitation total. The one SNOTEL site located in central Nevada measured snowpack levels at 82% in February 2020. Harsh winter conditions in 2018-2019 coupled with a cool, wet spring plausibly explains the slightly depressed calf recruitment observed on winter surveys. Slightly depressed precipitation accumulations during the winter of 2019-2020 may provide reduced forage vigor compared to 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. During summer 2019, 217 acres of pinyon-juniper were removed near Pasco Canyon with the help of local resource conservation programs. 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 (CNEP). The plan included updated elk population objectives, which allowed for modest increases in elk numbers in Area 16. More than 15 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 2020 is about 750 adult elk, warranting a slight reduction in harvest. Recent harvest strategies and depressed calf recruitment 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 2020. 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 January 2019 to January 2020 by the Community Environmental Monitoring and Planning (CEMP), central Nevada received 119% of the 30-year average. Spring precipitation (March, April, and May) resulted in 54% of 2019-2020 precipitation total. The one SNOTEL site located in central Nevada measured snowpack levels at 82% in February 2020. The majority of that precipitation fell last spring. Our current snow loads for central Nevada are below average. The one SNOTEL site located in central Nevada measured snowpack levels at over 82% of average in February 2019. Unless additional precipitation falls before the growing season, forage vigor will be slightly depressed, and wildlife will not see the same nutritional benefits as last year heading into the calving period.

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 Management 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 Ione 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 2020. A sample of 812 elk was obtained yielding sex and age ratios of 50 bulls:100 cows:25 calves. Sex and age ratios have averaged 43 bulls:100 cows:38 calves over the previous 5 years.

Habitat

The National Weather Service recorded 149% of normal precipitation at the Ely Airport in 2019. Spring 2019 was the wettest recorded in Ely. National Weather Service precipitation data measured at the Ely Airport from June to December 2019 was 49% of normal. Habitat quality improved through the first half of 2019, but progressively deteriorated due to a dry summer and fall. The 2019-2020 winter has been warm and dry, with the National Weather Service recording 57% of normal precipitation between

December 2019 and February 2020. The Ward Mountain SNOTEL site recorded 62% of the long-term average snowpack during the 2019-2020 winter (accessed 5 March 2020, www.nrcs.usda.gov). At the time of this writing, spring conditions have continued to be warm and dry. Habitat conditions will continue to deteriorate in 2020 unless precipitation patterns improve.

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 and the Nevada Department of Wildlife have conducted approximately 30,000 acres of habitat enhancement projects in south Steptoe Valley. Several thousand more acres were treated in Cave and Lake Valley in 2019. Future habitat projects are planned in Steptoe Valley, Jakes Valley, and Cave Valley on the Bureau of Land Management and US Forest Service lands. The Bureau of Land Management's Ely District signed a NEPA document in fall 2018 approving both the construction of new guzzlers and the rebuild of existing guzzlers in this unit group.

Population Status and Trend

In the past, there was a great deal of elk movement between Area 11 and Area 22, but that has decreased over time. Prior to 2019, these 2 herds were modeled as a single population, but due to the change in elk movement and distribution, each herd will now be modeled separately. Bull quotas have been split since 2012. This change should allow the Nevada Department of Wildlife to carry out more specific management actions for each area.

The current population estimate shows a decline relative to last year's estimate due to low calf recruitment.

Unit 231: Wilson Creek Range; Lincoln County

Report by: Cooper Munson

Survey Data

Aerial surveys were conducted during January 2020 and resulted in the classification of 158 elk consisting of 38 bulls, 86 cows, and 34 calves. These totals result in a ratio of 44 bulls:100 cows:39 calves. Twenty-nine percent of the bulls were classified as spikes to 4-points while the other 71% were 5-points or better. Very little snow on the ground during survey efforts made locating groups of elk very difficult 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 (CEMP), this portion of Lincoln County Received approximately 160% of the 10-year average and 102% of the 20-year average annual precipitation during 2019. 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 were high with large herds observed during elk surveys. Following this survey, the Bureau of Land Management conducted a horse gather. In this operation, the Bureau of Land Management was able to remove over 1,700 excess horses from the herd complex within Unit 231. This should allow for habitat and rangelands to recover in the future while reducing impacts to rangelands and limited water resources.

Invasion of pinyon-juniper continues to reduce both quality and quantity of elk habitat facilitated by the suppression of wildfires that would result in transition of dense pinyon-juniper stands to grasses and shrubs. The Bureau of Land Management and the Nevada Department of Wildlife continue to complete major habitat projects that remove pinyon-juniper and re-seeded with native plant seeds. Many of the

areas that have burned in the past few decades are still providing the bulk of the habitat for elk in Hunt Unit 231.

Recent installation and upgrades of water developments, by both the Nevada Department of Wildlife and local sportsmen, are allowing elk to use habitat in an attempt to reduce conflicts with both 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 significantly decreased the past 2 years due to new regulations which have allowed elk to winter without much of the added stress that previously forced elk and other wildlife to retreat to less desirable habitat.

Population Status and Trend

One hundred and forty-four elk were harvested from Unit 231 during the 2019 season composed of 76 cows and 68 bulls. This represents a 30% decrease in harvest from the 2018 season, when 206 elk were harvested and a 20% decrease in harvest from the 2017 hunting season with 178 elk harvested. The number of elk in Unit 231 has decreased due to efforts to maintain the herd at management objective as agreed to in the Lincoln County Elk Management Plan. Elk move freely among Unit 231, Utah, and Management Area 22, each sustaining higher densities and populations of elk. Many of the elk in Unit 231 use private property, predominately on agriculture fields which the Nevada Department of Wildlife addresses through the elk damage or incentive tag program. According to recent radio and satellite telemetry information, many of the elk also spend some amount of time in Utah which may be an indicator for the decreasing population estimates with relatively high harvest. The current population estimate for Unit 231 is about 500 individuals.

Unit 241 – 242: Delamar and Clover Mountains; Lincoln County

Report by: Cooper Munson

Survey Data

Aerial surveys were conducted during February 2020 which resulted in a total of 19 elk observed and classified as 3 bulls, 12 cows, and 4 calves. 3 hours of survey were spent along the state line with Utah and throughout the Clover mountains in an attempt to locate elk in the area. Minimal snow cover and unseasonably warm conditions made it difficult for locating elk. Elk have also been observed in Unit 241 in the Delamar Mountains as well as the South Pahroc mountain range. Camera surveillance on water sources as well as ground surveys also provide elk observation data in this low-density hunt unit.

Habitat

Habitat conditions increased over the last year in much of Management Area 24 due to above average precipitation during the spring season of 2019 enhancing forage growth in much of the elk habitat. Feral horse numbers are high in both Units 241 and 242, where the Appropriate Management Level is zero. The Bureau of Land Management and the 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 in the area appears to be recovering relatively well due to restoration efforts and increased precipitation on a wildfire that burnt summer 2016. Other projects have removed pinyon-juniper from hundreds of acres to increase forage and habitat for wildlife.

Population Status and Trend

A population model has yet to be developed for elk in Management Area 24 due to the volatility of the population and low elk numbers. Elk are often observed moving across the Nevada-Utah border as well as movements observed between Unit 231 and 242. Hunter harvest data indicates that 2 cows and 5 bulls

were harvested in Management Area 24 in 2019. The 2020 survey combined with incidental observations suggest there may be up to 150 elk in Management Area 24. Hunting season structure and timing have been evaluated to provide more opportunity to harvest elk in this low-density area.

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 have occurred the past 2 years due to low elk densities. Trail camera data, along with ancillary sightings, indicate that elk occur in Unit 251 yearlong. To comply with the Central Nevada Elk Plan, an elk hunt was established. The Kawich Range comprises of mainly pinyon-juniper woodlands at the 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. In 2018 and 2019. 1 bull was harvested each year and no cows were harvested; however, there were reports of cows being observed by hunters.

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

Survey Data

In January 2020, an aerial survey conducted over the Spring Mountains yielded a sample of 16 elk. The sample comprised 10 bulls, 5 cows, and 1 calf. The few elk encountered were in and below the sagebrush and pinyon-juniper ecotone in lower Macks Canyon, in the vicinity of Cold Creek and Lovell Canyon. The small survey sample was well below expectation. 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.

Habitat

Severely degraded vegetative conditions on the McFarland Burn were noted in 17 aerial surveys conducted between 2002 and 2020 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 2020, no progress in producing a comprehensive Herd Management Plan has been reported.

In May 2018, in the absence of a comprehensive Herd Management Plan, the 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^2 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 aerial elk survey completed in January 2020 resulted in few detections. Failure to detect elk during the survey is the most likely explanation for the small sample. The population estimate for elk inhabiting the Spring Mountains approximates the estimate reported last year.

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

An aerial survey was conducted in October 2019 and yielded a sample of 265 sheep which were classified as 70 rams, 152 ewes, and 43 lambs.

Habitat

In 2019, a fire ignited on the east side of the Stillwater Mountains near Wood Canyon. This fire consumed a pinyon and juniper woodland habitat type. This 1200-acre area was seeded by the Nevada Department of Wildlife in January 2020 and will provide an important new resource area for the bighorn sheep herd.

Pinyon and juniper encroachment continue to plague the upper elevations of the Stillwater Mountain Range. Prescribed fires or natural occurring fires are needed in most of the northern half of the Stillwater's to allow for new occupation by bighorn sheep.

Below average precipitation was received in fall 2019 and continues into spring 2020.

Feral horses continue to plague the bighorn herd in the Stillwater Range. Feral horse and bighorn competition occur 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 bighorn sheep.

Population Status and Trend

In fall 2019, 51 bighorn sheep were captured from the northern end of the Stillwater Mountains and given to Utah for a reintroduction into the Mineral Mountains. At the same time the southern end of the Stillwater's was experiencing a die-off from Mycoplasma ovipneumoniae. At this time, it is relatively unknown to what effect the die-off had on the population. The timing of the bighorn rut can also lead to a fast progression of the pathogen. The rut occurs in late August continuing into early October for this particular mountain range. The ewe segment of the population is pretty grounded or habituated to particular water sites or canyons. The ram segments can travel large distances during the rut between the ewe subgroups which could possibly spread the disease at a faster rate. It is believed that the disease will eventually inhabit the full extent of the Stillwater Mountain Range as well as the Tobin Range sometime soon if it hasn't happened already. In 2019, a die-off was experienced in the neighboring Clan Alpine Range and it is most plausible that this disease found its way into the Stillwater's in 2019.

Units 045,153: Tobin Range and Fish Creek Mountains; Pershing and Lander Counties
Report by: Kyle Neill

Survey Data

Biologists performed a 1-day aerial survey in Units 045, and 153. No bighorns were observed in Unit 153 during the 45-minute duration. In Unit 045, the 1 hour 18 minute flight produced a total of 138 bighorns that were classified as 34 rams: 100 ewes: 39 lambs. Both ram and lamb ratios are below their respective 5-year averages, but the 2019 lamb ratio is considered above maintenance level.

Population Estimate and Trend

The Unit 045 Tobin Range herd 2020 population estimate is 270 animals. This herd continues to remain stable. Bighorns occupying the Tobin Range 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. Most of the observations are on the east side of the range. Bighorns also utilize Mount Tobin and the area north to the rocky outcroppings at the head of Wood Canyon.

The Unit 153 Fish Creek Mountains herd was established from bighorns that exited Unit 045 from the 2003 and 2008 augmentations. This small population of approximately 20 bighorns is thought to be stagnate; however, recent collar data from Unit 153 indicates that bighorns spend most of the fall and winter months in Unit 183 south of the Home Station Gap Road on the east side of the Augusta Mountains. During the summer months these bighorns prefer Unit 153 Mount Moses area and Jersey Canyon. Future collar data will suggest if this trend continues.

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

Report by: Clint Garrett

Survey Data

An aerial survey was conducted in September 2019. During this survey, 59 desert bighorn sheep were classified with sex and age ratios of 22 rams:100 ewes:38 lambs. There was no survey in 2018, however in 2017 there was a total of 61 desert bighorn sheep observed on survey with sex and age ratios of 27 rams:100 ewes:11 lambs. The previous 5-year average sex and age ratios are 33 rams:100 ewes:20 lambs.

Weather and Habitat

As of March 2020, the valley summary report shows lower elevations for the Ely and Eureka areas have received below-normal precipitation and temperatures are slightly warmer than normal (March 2020, Nevada Water Supply Outlook Report, NRCS). The White River watershed snowpack analysis has dropped from 127% to 59% of median for 2020 and soil moisture dropped from 33% to 26% saturation for the area (March 2020, Nevada Water Supply Outlook Report, NRCS). Although these units experienced above average precipitation last year, current conditions and soil moisture levels in March 2020 were below normal and are trending towards drought like conditions. Unless weather conditions change, grasses and forbs will be less prevalent on the landscape compared to late spring and early summer 2019.

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 of 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 2020 survey shows an increase in lamb survival for both units and suggests some relief from the 2012 M. ovi. event. The population was once estimated at a high of 180 desert bighorn sheep in 2011-2012 and for 2020 the model shows a stable 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

Survey Data

An aerial survey was conducted in September 2019. During this survey, 103 desert bighorn sheep were classified with sex and age ratios of 43 rams:100 ewes:34 lambs. There was no survey in 2018, however in 2017 there was a total of 85 desert bighorn sheep observed on survey with sex and age ratios of 78 rams:100 ewes:58 lambs. The previous 5-year average sex and age ratios are 37 rams:100 ewes:44 lambs. The 2019 survey is the highest survey sample obtained to date.

Weather and Habitat

As of March 2020, the valley summary report shows lower elevations for the Ely and Eureka areas have received below-normal precipitation and temperatures are slightly warmer than normal (March 2020, Nevada Water Supply Outlook Report, NRCS). The White River watershed snowpack analysis has dropped from 127% to 59% of median for 2020 and soil moisture dropped from 33% to 26% saturation for the area (March 2020, Nevada Water Supply Outlook Report, NRCS). Although these units experienced above average precipitation last year, current conditions and soil moisture levels in March 2020 were below normal and are trending towards drought like conditions. As of March 2020, the Western Regional Climate Center's Hiko site, the closest to the southern end of the unit also shows below normal precipitation at the lower elevations. Unless weather conditions change, grasses and forbs will be less prevalent on the landscape compared to late spring and early summer 2019.

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 2020 population estimate is about 130 desert bighorn sheep which is above the previous 5-year average of 110 and is currently the highest recorded population estimate. Currently the model is showing an upward trend for this population.

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

Survey Data

No surveys were conducted in this unit during the reporting period. In 2018 A record survey of 140 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 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 improved from previous years due to above average precipitation events early in 2019. According to Community Environmental Monitoring Program (CEMP) precipitation data, the annual precipitation received in Alamo during 2019 was approximately 153% of the previous 10-year average. Most of the water developments in the North and East Pahranagats were nearly dry during early fall but were still being utilized by sheep throughout most of the year. Multiple water developments were repaired and maintained by the Southern Region water development crew with the assistance of local volunteers. Two water developments are still in need of repair and upgrades.

Population Status, and Trend

This population has shown a steady trend of slow increase for the past few years. The record survey in 2018 is likely due to a small influx of 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 computer-generated population estimate for 2020 is similar to previous estimates of 140 adult sheep. In 2016, 10 sheep were captured and tested for disease, 8 in the Pahranagat range and 2 in the Mount Irish area. Test results showed that there were no infected animals detected at this time. Disease surveillance and monitoring will continue to document the possible spread of pathogens across the western states.

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

Survey Data

The early September 2019 aerial survey for Units 134 and 251 yielded a sample size of 101 sheep classified as 19 rams, 67 ewes, and 15 lambs. In comparison, the 2017 aerial survey yielded a sample size of 68 sheep, which were classified as 22 rams, 36 ewes, and 10 lambs. Areas surveyed include Palisade Mesa, Lunar Cuesta, Little Lunar Cuesta, Black Beauty Mesa, Citadel Mountain, Twin Springs, Echo Reservoir, and Big Fault Mesa.

Habitat

In 2019, central Nevada received 119% of its 30-year average precipitation (CEMP). Spring precipitation resulted in 54% of 2019-2020 total accumulation. A SNOTEL site in central Nevada measured snowpack levels at over 82% in early February 2020. Slightly depressed precipitation accumulations during the winter of 2019-2020 can plausibly provide reduced forage vigor in 2020 compared to 2019.

Population Status and Trend

In 2011 a pneumonia disease event related to the presence of *Mycoplasma ovipneumoniae* 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 was documented from 2014 - 2017, but further monitoring of the herd will be necessary to determine if it indicates the beginning of

a recovery. The 2019 survey data indicated slightly depressed lamb recruitment and clinical signs of bacterial pneumonia was observed by hunters this past fall. As a result of the disease event, the Unit 134 desert bighorn 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 bighorn sheep residing on Fang Ridge and Goblin Knobs; however, sheep densities in these areas are extremely low. The 2019 hunting season was the first year that Area 25 was added to Unit 134 bighorn season and 3 rams were harvested south of Echo reservoir in Area 25.

Unit 161: Toquima Range; Northern Nye County

Report by: Joe Bennett

Survey Data

The early September 2019 aerial survey for Unit 161 yielded a sample size of 464 sheep classified as 115 rams, 258 ewes, and 91 lambs. In comparison, the 2017 aerial survey yielded a sample size of 387 sheep, which were classified as 108 rams, 198 ewes, and 81 lambs. The survey area where sheep are encountered encompasses Mount Jefferson exclusively during this time frame.

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 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. The majority 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* and the presence of pneumonia in several central Nevada desert bighorn populations has raised concerns that Unit 161 desert 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 and collar, and test up to 25 bighorn sheep in the Alta Toquima Wilderness. Data from these collaring efforts showed the herd had been previously exposed to *Mycoplasma ovipneumoniae* (M. ovi.) and that some individuals are still shedding the disease; however, strain type was not identified due to limited DNA present in the samples. Despite the exposure to M. ovi. presence of disease, recent years' aerial survey data indicates good lamb recruitment and an increasing population. Movement data from these collars verify empirical survey and harvest data. These animals spend the summer months almost exclusively on top of Mount Jefferson. During the winter months when weather occurs sheep move throughout the entire Toquima range at lower elevations.

Due to good lamb recruitment and record aerial surveys this population is considered to be increasing.

Units 162 – 163: Monitor and Hot Creek Ranges; Nye County

Report by: Joe Bennett

Survey Data

No fomal surveys were conducted in 2019. The most recent aerial survey in 2018 yeilded a sample size of 173 sheep which were classified as 49 rams, 97 ewes, and 27 lams. 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 163desert 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.

Unit 173: Toiyabe Range; Northern Nye County

Report by: Joe Bennett

Survey Data

An aerial survey was conducted in September 2019. The survey yielded a sample size of 45 sheep which were classified as 9 rams, 26 ewes, and 10 lambs. The 2019 survey covered the Toiyabe range exclusively. Areas surveyed included Peavine Canyon, Seyler Peak, areas adjacent to Toiyabe Dome, and North-South Twin Rivers .In comparison, the 2018 covered the San Antonio Mountains exclusively yielded a sample of 43 sheep which were classified as 15 rams, 18 ewes, and 10 lambs.

Habitat

The largest portions of the Unit 173N desert sheep population occus in and around the Peavine Canyon-Seyler Peak and south Toiyabe Dome areas 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 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 completed the National Environmental Policy Act approval to build a big game water development east of Liberty Spring in May 2020.

Population Status and Trend

The Toiyabe desert sheep population is one of only a few remnant sheep herds that exist in central Nevada. This population was nearly extirpated along with many other sheep herds in the state and had been reduced to an estimated 50 animals by the early 1980s. During 1983 and 1984, 21 desert 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 sheep hunting season, which had been closed since 1969, was reopened.

Although the majority of the Unit 173 desert 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's and San Antonio's have been separated into 2 distinct hunt units. Occasional reports of desert sheep in the Bunker Hill-Big Creek area just south of Highway 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* and the presence of pneumonia in several central Nevada desert bighorn 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 bighorn sheep in the Arc Dome Wilderness and adjacent areas. Data from these collaring efforts identified that *Mycoplasma ovipneumoniae* 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. In spite of the detection of *Mycoplasma ovipneumoniae*, lamb recruitment in this population is good. The Unit 173 desert sheep population is considered to be 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

An aerial composition survey was conducted in October 2019 yielding a sample of 451 individuals. The observed sex and age ratios were 49 rams:100 ewes:40 lambs.

Habitat

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 Navy to allow for hunting activities on the bombing range if these expanded areas are granted. The Nevada Department of Wildlife, various sportsmen's groups, and land managing agencies have spent countless hours and money developing this sheep resource. It is important to try to maintain some level of hunting opportunity into the future.

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 rip-rapped 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 a natural ground water.

In 2017, a fire started on the Bravo-17 bombing range within Unit 181. The fire had 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. If there is a positive side to the fire, it is that the Nevada Department of Wildlife was able to seed about 3,500 acres of critical habitat with both forage and snowstorm kochia. These non-native plants will provide high crude protein to the bighorn herd and can withstand heavy grazing and fire. To date the most successful seedling establishment occurred in the north facing slopes of the pinyon and juniper woodland.

Population Status and Trend

The Unit 181 bighorn sheep herd continues to trend upward. The current population estimate is 650 animals and is an increase of 100 animals 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 Mountain Range. This survey resulted in the classification of 192 sheep, consisting of 62 rams, 124 ewes, and 6 lambs. These numbers provide a ratio of 50 rams:100 ewes:5 lambs.

Habitat

In the last 2 years, the Crown Peak water development as well as the Little Angel water development have been rebuilt. Both units incorporated a self-leveling drinker, a steel collection apron, and 12,000 gallons of storage capabilities.

In summer 2017, 2 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 the Bureau of Land Management. Both fires consumed close to 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. It is believed that these areas will respond quite well to the new burns. These newly created areas will support bighorn sheep into the future.

Bighorn sheep continue to deal with high populations of feral horses located in the Clan Alpine Mountain Range. Feral horse and bighorn competition occur 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 bighorn sheep.

Population Status and Trend

In late October 2018, while conducting a ground census survey, a lack of lambs was observed. After studying individual bighorn groups it became evident that the Clan Alpine herd was going through a disease event which is indicated by a low lamb ratio in the population followed by the clinical signs associated with head shaking, nasal discharge, and deep coughing. In mid-September near the same location, lambs were observed with a normal lamb ratio (> 35). It's safe to say this particular disease event gained momentum between mid-September and late October at the southern end of the Clan Alpine Mountain Range. Biologists watched the fast progression of the pathogen from the south to the north. Observations in the north were made of high lamb to ewe ratios one week. Then subsequent weeks later some coughing was observed in individuals among the larger subgroups (>35 individual's). Once coughing was rampant individuals in the population started to succumb in 2 weeks' time. The bulk of the die-off occurred between October and November 2018. As of this writing the estimated loss is at 33% of the modeled bighorn population.

This year's lamb ratio will not afford any growth. The next few years will dictate if the lamb ratio will recover to allow for a positive growth trend.

Unit 184: Desatoya Range; Churchill and Lander Counties
Report by: Jason Salisbury

Survey Data

In October 2019, a survey yielded a sample of 38 desert bighorn sheep. The observed sex and age ratios were 41 rams: 100 ewes: 32 lambs. Bighorn sheep were encountered in the Eastgate Hills and the Bald Mountain fire scar.

Habitat

Fire is an important tool which allows bighorn sheep new areas to forage and occupy. Over the past 4 years fire has consumed 8,900 acres of mainly pinyon-juniper woodland within Unit 184. This habitat conversion will enable the bighorn 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 bighorn herd. In 2019, 430 horses were removed from the Desatoya Mountains and will help alleviate some competition between native and non-native populations of animals.

Population Status and Trend

The 2019 lamb ratio of 32 should allow for the Unit 184 bighorn population to have a stable growth trend.

Unit 195: Virginia Range; Storey County

Report by: Carl Lackey

Survey Data

An aerial survey was completed in August 2019. The survey yielded a sample of 31 desert bighorn sheep with a ratio of 63 rams:100 ewes:0 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 2019-2020 was below average for precipitation, possibly exacerbating the poor habitat conditions. Sheep inhabit Clark Mountain, the Gooseberry Hills, the Derby Dam Cliffs and the area around the Eagle-Picher Mine.

Population Status and Trend

Fewer lambs were observed on survey in 2018 and no lambs were observed in 2019. A large group of feral dogs was observed chasing and harassing sheep, primarily ewes with attendant lambs, in the area east and south of the Derby Dam. The first report was in March 2019, and there were reportedly 17 dogs of various large breeds in the area. Similar reports have continued through 2019 and into 2020, and in general have encompassed the area south of the Truckee River from Derby Dam to Painted Rock, up to the ridge crest and south into the Eagle-Picher Mine. Dogs have not been reported on Clark Mountain. After doubling in size since the 2011 reintroduction, this population appears to be in decline the last few years. This population is not hunted. The 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

In October 2019, an aerial survey conducted in the Wassuk Range yielded a sample of 35 desert bighorn sheep. The sample yielded a sex and age ratio of 27 rams:100 ewes:32 lambs.

Habitat

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

A new water development was built in 2019 and provides a reliable water source at a higher elevation. The intent of the guzzler is to try and imprint sheep on a water development that might decrease use and vehicle collisions on US Highway 95.

Population Status and Trend

The bighorn spend a lot of time in the town of Walker Lake during the summer months. This increased use has resulted in the death of many bighorn when crossing the highway and are subsequently hit. Bighorn get accustomed to the water and feel safe around the houses in relation to predators. The residents of Walker are doing the bighorn a disservice by providing water for them and encouraging them to stay near the town. The bighorn throughout the summer months will venture away from the town to forage. These foraging forays increase the chances that sheep will cross the highway resulting in more bighorn deaths.

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

Unit 204: East Walker River; Lyon County

Report by: Jason Salisbury

Survey Data

No aerial bighorn sheep surveys were conducted in Unit 204 in 2020.

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 bighorn sheep. A potential project that could benefit bighorn sheep includes removing barbwire or raising the bottom wire of the fence to at least 20". This would allow sheep to cross under it to access the Walker River.

Population Status and Trend

The East Walker River population seems to be doing well considering the small geographic area it occupies. The 2019 population estimate approximates last year's reported estimate.

Unit 205,207: Gabbs Valley Range, Gillis Range, Pilot Mountains; Eastern Mineral County

Report by: Jason Salisbury

Survey Data

In October 2019, an aerial survey yielded a sample of 359 bighorn sheep. The observed sex and age ratios were 71 rams: 100 ewes: 39 lambs. Bighorn sheep were encountered in the Sante Fe mine area, Gillis, Paymaster, and Chukar Ridge.

Habitat

In spring 2017, the Sante Fe water development was rebuilt with a 50' x 90' metal apron and is capable of storing 12,000 gallons of water. This unit receives high use by bighorn sheep and in the past few years has dried up. Lack of sufficient apron size previous to the rebuild may have caused the unit not to perform adequately.

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

Natural water is severely impacted by horses and livestock within Units 205 and 207. Currentlym the Bureau of Land Management, the Nevada Department of Wildlife and the permitee are working together to fix numerous degraded springs in the area. Improving natural water sources is one of the most important things that can be done in any bighorn sheep unit.

Population Status and Trend

The current modeled population estimate for this herd is 627 animals. This estimate is a 14% decrease from what was reported last year. In October 2019, a pneumonia outbreak was detected in Units 207 as well as 205. The full extent of the die-off is relatively unknown and very few animal mortalities have been detected. A thorough helicopter survey in early fall 2020 needs to be conducted to truly understand the magnitude of the disease event. What is interesting is the Mycloplasma Ovipneumoniae strain type obtained and identified is the same as what was found in adjacent Units 181,182,183. The only thing that might be positive about this particular strain type is that it has shown less virulence and should allow for lamb production in the future.

Unit 206, 208: Excelsior Range, Candelaria, Garfield and Miller Mountain; Mineral County

Report by: Jason Salisbury

Survey Data

In October 2019, aerial surveys resulted in the observation of 127 desert bighorn sheep classified as 25 rams, 71 ewes, and 31 lambs. The observed lamb ratio of 35 lambs:100 ewes on survey indicate a stable population trend.

Habitat

Pinyon and juniper encroachment continue to plague the upper elevations of the Stillwater Mountain Range. Prescribed fires or natural occurring fires are needed in most of the northern half of the Excelsior's to allow for new occupation by bighorn sheep.

Future spring protection projects in the Excelsior's will allow for increased wildlife use at springheads while giving adequate distance for feral horse use at a distant water sources.

One of the biggest challenges the Excelsior herd faces is increased expansion of pinyon pine and burro competition. Both limit desert bighorn sheep from occupying habitat that would otherwise be suitable.

Population Status and Trend

The Unit 206, 208 desert sheep population continues to exhibit good production rates in the newly created bighorn herds located primarily in the Garfield Hills and the Candelaria's. The main Excelsior herd still suffers from increased predation from mountain lions. It is believed that the newly created habitats in the Garfield Hills and Candalaria Hills have displaced sheep from the Excelsior Range. Bighorn

sheep will exit tree-covered areas with higher predation rates to newly created habitats with lower predation rates. Future projects addressing predation are needed to allow for a more ecological balance. In order for the Excelsior herd to recover, a long-term plan is needed that allows for transplanting sheep coupled with predator removal.

Unit 211: Silver Peak Range and Volcanic Hills; Esmeralda County

Report by: Joe Bennett

Survey Data

An aerial survey was conducted in early September 2019. The survey yielded a sample size of 315 sheep which were classified as 90 rams, 166 ewes, and 59 lambs. The most recent aerial survey in September 2017 yielded a sample size of 294 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 January 2019 to January 2020, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 119% of the 30-year average. Spring precipitation (March - May) resulted in 54% of 2019's precipitation accumulation and winter precipitation (November - January) resulted in 25% of the 2019-2020 accumulation. Due to drought conditions in 2018, emergency aerial water hauls were conducted. In order to alleviate the need to conduct water hauls the Nevada department of wildlife rebuilt the Robb and Beko Guzzlers in June 2019. Increased storage capacity was added to both units. During fall 2019, the Nevada Department of Wildlife worked in conjunction with private landowners and the mineral ridge mine to enhance tarantula spring. The spring now has a more reliable water storage and collection area.

Population Status and Trend

The Unit 211 desert bighorn herd is one of only a few remnant herds in west-central Nevada. Historically, sheep movement occurred regularly between the Silver Peak Range (Unit 211) and the Monte Cristo Range (Unit 213) and Lone Mountain.

Most of the desert sheep inhabiting Unit 211 are 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 bighorn sheep, was documented in a ram harvested in Unit 211 during the 2013 desert 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 sheep. Results indicate that *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 *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 2014-2019 aerial surveys are encouraging, it is still unclear what impacts the "White Mountain" strain of *M. ovi.* will have on the herd moving forward. Based on the apparent absence of pneumonia-related adult mortality and good lamb

recruitment observed on survey, the Unit 211 desert sheep population is considered to be slightly increasing.

Unit 212: Lone Mountain; Esmeralda County

Report by: Joe Bennett

Survey Data

The early September 2019 aerial survey for Unit 212 yielded 230 sheep classified as 98 rams, 105 ewes, and 27 lambs. In comparison, the 2018 aerial survey yielded a sample size of 254 sheep, which were classified as 94 rams, 127 ewes, and 33 lambs. Survey areas include Lone Mountain and the Weepah Hills.

Population Status and Trend

The Unit 212 desert sheep population is one of only a few remnant central Nevada herds that survived extirpation during the 19th and 20th centuries due to a variety of anthropogenic causes. Once regulations that provided reasonable protections to 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 2 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 50 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 *M. ovi*. in the Unit 212 sheep herd. Additionally, in 2014, as part of a larger disease monitoring effort, several sheep were captured and sampled, and 2 rams were collared to assess movements. Despite the presence of *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-present fall surveys indicate the lamb segment of the herd only experienced one year of high mortality in 2013.

In 2014, a ewe hunt was established in Unit 212 in an effort to help reduce sheep densities on Lone Mountain. In 2018, once population objective was met, 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 Ph.D. research project. Of these 34 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 inferences on the population can be made by estimating the sightability of known or marked animals while on the survey. Initial results from these surveys indicate that this population has been underestimated. Additional mark resight surveys were conducted in 2019, preliminary results indicate a higher detection rate than 2018.

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

No formal surveys were conducted in 2019. In comparison, the most recent aerial survey in September 2018 yielded 379sheep classified as 111 rams, 217 ewes and 51 lambs. Areas surveyed include Shovel Spring Basin, South Gilbert, Trough Spring, Devils Gate, and the hills north of Monte Cristo one guzzler.

Habitat

In 2019, central Nevada received 119% of its 30-year average precipitation (CEMP). Spring precipitation resulted in 54% of 2019-2020 precipitation accumulation. Due to drought conditions in 2018, the Nevada Department of Wildlife had to conduct emergency water hauls to the Monte Cristo number one guzzler. 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 Monte Cristo number 1. This work was completed in July 2019.

Population Status and Trend

The Monte Cristo desert sheep population is one of only a few remnant 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 bighorn 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 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 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 *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 over population objective. Since *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 that is approaching the population objective of 400. An additional year of female harvest at a similar level to 2019 should get the population below objective allowing the department to reduce the harvest level.

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

Survey Data

A brief aerial survey was conducted in the southern portion of Unit 241. The 3-hour survey resulted in the classification of 21 sheep, consisting of 8 rams, 12 ewes, and 1 lamb. No surveys were conducted in Unit 221 or 223 although recent observations have been made as well as images captured of sheep in the area.

Habitat

Habitat conditions throughout this area were reported as excellent during early Spring with 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. 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. A wildfire burned ~3,200 acres in summer 2019 within sheep habitat in the Delamar Mountains, an area that had previously burned in 2007. There is no indication that the new burn will have detrimental effects on sheep in the area. In late 2015 disease sampling efforts resulted in the detection of Mycoplasma Ovipneumoniae 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 sheep was completed in the Delamar and South Pahroc ranges in fall 2011, where a total of 75 sheep were released into these areas. Bighorn released in these areas have been observed to commonly move to adjacent ranges. It appears that some of the 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 hunt units. The computer-generated population estimate for 2020 is suggesting a slight decrease from 200 to 174 adult individuals. The 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 has not yet been determined.

Unit 243: Meadow Valley Mountains; Lincoln County

Report by: Cooper Munson

Survey Data

Aerial surveys were conducted in September 2019 throughout the Meadow Valley Mountains. Sheep appeared to be in healthy condition and utilizing nearly all suitable portions of the hunt unit. A total of 158 sheep were classified as 48 rams, 88 ewes, and 22 lambs. This provides a ratio of 55 rams:100 ewes:25 lambs. This is a record survey for this hunt unit and observations have been increasing since 2015. Most sheep were observed within a close vicinity of water sources within the hunt unit.

Habitat

According to Community Environmental Monitoring Program (CEMP), this area should have received about 130% of the 10-year average annual precipitation during 2019. Early spring produced most of the precipitation while 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 September 2019. 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 in 2017. 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 Range 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. The 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 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 2020 is above the 5-year average at 180 adult individuals. There has been no disease detected in the Meadow Valley sheep herd at this point, although it has been detected in nearby ranges as well as stray domestic sheep near occupied bighorn habitat.

Unit 244: Arrow Canyon Range; Northern Clark County

Report by: Pat Cummings

Survey Data

No aerial survey was conducted over the Arrow Canyon Range and Battleship Hills in 2019. In October 2018, an aerial survey yielded a sample of 123 desert bighorn sheep. The sample was comprised of 44 rams, 59 ewes, and 20 lambs. 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

Precipitation receipts in the first quarter of 2019 were well above average; however, overall environmental conditions throughout 2019 ranged from fair to poor as reflected by low precipitation receipts, drying range conditions and restricted water availability. Moisture producing storms were lacking during the 2019 mid-year monsoon season. As a consequence, forage resources were limited in quantity and quality and bighorn sheep remained near water sources not only during summer months but well into fall 2019. In early 2020, storm systems developed in late February and weekly in March. Recent precipitation receipts have greatly enhanced range conditions and fully recharged most of the 6 water developments in the Arrow Canyon Range and Battleship Hills.

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 and enzyme-linked immunosorbent assay tests confirmed *Mycoplasma ovipneumoniae* infection in the bighorn herd.

Unit 252: Stonewall Mountain; Nye County

Report by: Joe Bennett

Survey Data

No aerial surveys were conducted in Unit 252 in 2019. The most recent aerial survey conducted in September 2018 resulted in 117 sheep classified as 24 rams, 83 ewes, and 10 lambs. Typical areas covered while on survey include Stonewall Mountain, NE Hills, Pack Rat Canyon, Little Grand Canyon and the hills south of Vitavich.

Habitat

To alleviate congestion issues during the hot dry summer months at Vitavich Spring and Stonewall Spring a new big game water development was constructed in April 2019 on the west side of Stonewall Mountain. Due to above average precipitation received during spring 2019 this guzzler was filled within a couple of months of construction. Trail camera data has already documented sheep use on the guzzler.

Population Status and Trend

Before disease prevalence was detected in 2014, lamb recruitment allowed herd density to increase steadily on Stonewall Mountain. In an effort 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 bighorn back into the Virginia Range (Unit 195). Unfortunately, recent *Mycoplasma ovipneumoniae* 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 6 consecutive years (2014-2019). To delineate connectivity, movement, and disease transmission of bighorn sheep populations throughout the NTTR, a satellite collaring and disease surveillance project was initiated in fall 2015 and continues to present. Nineteen sheep in 2015 were collared to help give insight into movements of bighorn sheep populations throughout the NTTR. An additional 6 sheep were captured in November 2016 and 12 sheep in October 2017. Collaring data has shown movements from Stonewall Mountain all throughout the Nevada Testing and Training Range. Coupled with the disease, the Unit 252 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 between Stonewall Mountain and areas further within the NTTR. Currently, the 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

No aerial survey was conducted over Bare Mountain in 2019. In November 2018, an aerial survey yielded a sample of 148 desert bighorn 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 bighorn sheep. The largest recorded sample reflected the gender and age ratios of 58 rams:100 ewes:54 lambs.

Habitat

Bighorn sheep have coped with not only the environmental effects brought about by excess burros but also the aggressive nature and dominance of burros at water sources. The northern half of Bare Mountain lies within the Bullfrog Herd Management 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 Management Area at 58-91.

In May 2019, Bureau of Land Management personnel conducted an aerial burro census within and outside of the Bull Frog Herd Management Area. At the conclusion of the census, 696 burros were recorded. In considering unobserved burros and the recent foaling season (estimated 19% annual growth rate), Bureau of Land Management officials estimated 828 burros were in the greater Beatty area. According to the Bureau of Land Management, the burro population estimate was 909% of the established Appropriate Management Level.

In September 2019, the Bureau of Land Management gathered and removed a total of 690 burros from within and outside the Bullfrog Herd Management Area. Included within the total removed were approximately 250 burros from the immediate area of the Coeur Stirling Mine. According to the Bureau of Land Management, the burro population estimate of 828 that was derived from the recent survey and the post-gather estimate of 138 are preliminary and likely conservative. Official population estimates of pre- and post-gather are pending analyses and reporting by the US Geological Survey.

A year earlier, in July 2018, 404 burros were removed from the Bullfrog Herd Management Area. Burro gather efforts were focused on the US Route 95 corridor, Sterling Mine area, mouth of Fluorspar Canyon and Bullfrog Hills. Clearly, the mid-July 2018 post-gather estimate of 268 burros was substantially below the actual number of burros that remained within and outside the Herd Management Area.

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 was holding 3,300 gallons; however, in the remaining months of 2019, overall dry conditions hastened drawdown rates of the 3 primary water developments. In the fall and winter months of 2019-2020, no water developments were fully recharged. Based on measurements taken during water development inspection and maintenance flights in February 2020, collectively the 3 primary units are recharged to approximately 70% of capacity.

Population Status and Trend

Evidence suggests the bighorn sheep herd was exposed to *Mycoplasma ovipneumoniae* in 2014. Apparent modest population contractions due to reduced lamb survival and recruitment occurred in 2016-2018. More recently in 2019 and 2020, population contractions are greater and marked by negligible lamb survival and recruitment. In the last 5 years, the herd has declined an estimated 44%.

Bighorn sheep movements through the Beatty Wash-west Yucca Mountain area serve to maintain connectivity between bighorn 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, 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

No aerial survey was conducted over the Specter Range in 2019. In November 2018, an aerial desert bighorn sheep survey 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

In the first quarter of 2019, storms produced precipitation in amounts sufficient to partially and fully recharge all 6 water developments. Viewed collectively, water developments were recharged to 78% of storage capacity; however, the remainder of 2019 was dry overall. More recently in February 2020, measurements obtained during water development inspection and maintenance flights revealed the collective store of water among the 6 water developments was 67% of total capacity.

Nevada Department of Wildlife personnel have encountered feral burros or their sign (i.e., scat and prints) in the Specter Range. It is thought these feral burros ventured south over 30 miles from the Bullfrog Herd Management Area. Google imagery portrays burro trails that link the pond at the Coeur Sterling Mine to Cinder Cone Pit along US Route 95 and intermittent trail segments that reach and emanate from Lathrop Wells. Trails may be discerned linking Lathrop Wells and the Striped Hills (western extent of the Specter Range).

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 lent support to a population expansion. The survey sample obtained in 2018 was intermediate in total sheep encountered and encounter rate relative to samples obtained in 2015 and 2017.

The 2019 and 2020 estimates are similar and reflect an increase relative to the estimate reported in 2018. The modeled population increase reflects 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 result of disease. The low lamb representation may signal a resurgent bacterial pneumonia process.

In fall 2015, desert bighorn 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* infection by Polymerase Chain Reaction in ewe and definitive prior exposure in 2 rams by enzyme-linked immunosorbent assay.

In the Specter Range, events beginning as early as fall 2002 indicated the population was suffering from 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

No aerial survey was conducted over the Last Chance Range in 2019. In October 2018, an aerial survey yielded a sample of 82 desert bighorn sheep. The sample reflected sex and age ratios of 49 rams:100 ewes:33 lambs. Bighorn sheep were distributed throughout the northern third of the mountain complex and on the southern prominent ridge immediately north of Pahrump.

Habitat

In February 2020, based on inspections of all 7 water developments in the Last Chance Range, collective water storage was 83% of total capacity. Available water stores inclusive of Point of Rocks Springs will be sufficient to meet bighorn sheep demand throughout upcoming summer and early fall months.

On February 8, 2020, the rebuild of Hanging Basin was completed and entailed the conversion from a float valve-based system to a low profile leveled system. The original 3 2,500-gallon tanks were replaced with 4 2,300-gallon IRM tanks. In March 2019, the aged Hypalon collection surface was replaced with a corrugated steel deck apron.

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 2020 bighorn sheep population estimate approximates the estimate reported last year. Bighorn sheep inhabiting the Last Chance Range are likely coping with respiratory disease. In mid-October 2014, 5 bighorn

sheep were captured in the central portion of the Last Chance Range, sampled, and released. Results from enzyme-linked immunosorbent assay of blood and Polymerase Chain Reaction test of nasal swab samples indicated *Mycoplasma ovipneumoniae* 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 bighorn capture contingent.

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

No aerial survey was conducted over the Spring Mountains and Bird Spring Range in 2019. In mid-October 2018, 11.6 hours of flight time were expended 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. 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 bighorn 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

The Spring Mountains generally receives more precipitation than other areas in Clark County. 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

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 2020 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* infection among 2 desert bighorn sheep by Polymerase Chain Reaction and definitive prior exposure among 6 individuals through enzyme-linked immunosorbent assay.

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 bighorn 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 District 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

No aerial surveys were conducted over the McCullough Range and Highland Range in 2019. In October 2018, aerial desert bighorn sheep surveys were completed over the northern portion of the McCullough Range and the Highland Range. Bighorn sheep were encountered throughout much of the area covered over the McCullough Range. In the Highland Range, 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 the first quarter of 2019, precipitation receipts were well above average. Overall dry conditions, however, prevailed throughout the remaining months in 2019. Based on water development inspections in February 2020, storms in fall and winter 2019-2020 produced adequate precipitation to recharge water developments in the McCullough Range. Collectively, 5 of 6 water developments that were inspected were recharged to 92% of capacity. The Roy water development was not inspected nor were the 2 water developments in the northeast Highland Range. In early spring 2020, annual grasses and forbs are green, lush and abundant.

In spring 2015, 2 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 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 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 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

Bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. The herd 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 confirmed *Mycoplasma ovipneumoniae* in the McCullough-Highland bighorn sheep herd.

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 bighorn sheep habitat in the Hidden Valley area.

Unit 264: Newberry Mountains; Southern Clark County
Report by: Pat Cummings

Survey Data

No aerial survey was conducted over the Newberry Mountains in 2019. 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
1994	3	6	0	9	50:100:0
1996	6	11	4	21	55:100:36
1998	7	13	11	31	54:100:85
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

Bighorn sheep inhabiting the Newberry Mountains are surrounded by nearby bighorn 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 bighorn sheep population. The low lamb representation coupled with low animal encounter rate in the recent aerial survey was consistent with adjacent bighorn herds struggling with *M. ovi*. The Mojave strain of *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 2020 population estimate approximates the estimate reported last year.

Unit 265: South Eldorado Mountains; Southeastern Clark County
Report by: Pat Cummings

Survey Data

In late September 2019, 2 rams, 6 ewes and 2 lambs were observed during a 4.5-hour aerial survey (Table 2). The next aerial desert bighorn sheep survey in the south Eldorado Mountains is scheduled for fall 2021.

Table 2. Bighorn sheep herd composition obtained through aerial surveys in the south Eldorado Mountains.

Year	Rams	Ewes	Lambs	Total	Rams:100 Ewes: Lambs
1992	3	1	0	4	300:100:0
1994	1	5	3	9	20:100:60
1996	19	14	5	38	136:100:36
1998	14	3	1	18	467:100:33
2002	3	2	2	7	150:100:100
2003	2	6	4	12	33:100:67
2010	19	9	1	29	211:100:11
2019	2	6	2	10	33:100:33

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 22 aerial surveys conducted since 1969, the number of rams observed either equaled or well exceeded the number of ewes.

Population Status and Trend

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 strain of *Mycoplasma ovipneumoniae (M. ovi)* was detected in bighorn in the Eldorado Mountains. The Mojave strain of *M. ovi* has been associated with bighorn sheep die-offs marked by not only negligible lamb survival but also substantial adult morbidity and mortality. See the report from Unit 266, Population Status and Trend section for recent details on disease surveillance and detection in the Eldorado Mountains. The 2020 population estimate approximates the estimate reported last year.

Unit 266: North Eldorado Mountains; Southeastern Clark County

Report by: Pat Cummings

Survey Data

In September 2019, a 4.6-hour aerial survey over a portion of the north Eldorado Mountains yielded a sample of 29 desert bighorn sheep. The small sample was comprised of 1 ram, 20 ewes and 8 lambs. An important northern section of bighorn habitat, traditionally included in the survey area, was excluded from the recent survey at the discretion of the pilot. The area is near Hoover Dam and is associated with numerous high-voltage, above-ground power lines. Bighorn sheep were encountered northeast of Boulder City, Gold Strike Canyon, Boy Scout Canyon and Burro Wash. Two bighorn sheep carcasses were noted in Boy Scout Canyon.

Habitat

The 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 Interstate 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 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, 4 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

The latest bighorn sheep captures, and disease surveillance associated with Phase 2 of the Boulder City Bypass were conducted in October 2019. Seven bighorn sheep were captured, processed and released at respective capture sites. Blood and nasal swab samples from the 7 sheep were sent to the Washington Animal Disease Diagnostic Lab. None of the 7 animals tested positive for *Mycoplasma ovipneumoniae* (*M. ovi*) by Polymerase Chain Reaction (PCR). Antibody detection levels by enzyme-linked immunosorbent assay (ELISA) for 4 sheep were consistent with previous exposure with M. ovi.

The PCR detection prevalence of *M. ovi* among bighorn sheep captured in 2017 was 12% and was substantially lower than the 54% detection rate from the 2015 capture contingent; however, 2 adult rams that were *M. ovi* positive by PCR in 2015 were recaptured in 2017 and found to be shedding *M. ovi*. 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. Yet overall, the apparent reduction in prevalence of *M. ovi* by PCR may signal a reduction in infection rates at the population level. The 2020 population estimate approximates the estimate reported last year.

Unit 267: Black Mountains; Eastern Clark County

Report by: Pat Cummings

In early October 2019, a 5.5-hour aerial desert bighorn sheep survey over the Black Mountains yielded a sample of 251. The observed sex and age ratios were 52 rams:100 ewes:21 lambs. During the survey, bighorn sheep were found to be broadly distributed.

Habitat

In the first quarter of 2019, precipitation receipts were well above average. In the ensuing months, increasing ambient temperatures and the lack of an active monsoon season resulted in deteriorated range conditions marked by reduced plant vigor and abundance. More recently, moisture producing storms in February and March 2020 have spurred plant germination and growth. Thus, in early spring 2020, annual grasses and forbs are green, lush and ubiquitous. The National Weather Service, Climate Prediction Center forecast for the second quarter in 2020, does not reflect onset of drought conditions.

Population Status and Trend

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 bighorn sheep inhabiting the Black Mountains and an increase in bighorn sheep in the adjacent Muddy Mountains. The 2020 population estimate for desert bighorn sheep inhabiting the Black Mountains and Muddy Mountains nearly approximates the estimate reported last year.

Unit 268: Muddy Mountains; Clark County
Report by: Pat Cummings

Harvest

The sixth desert bighorn sheep ewe hunt in Unit 268 was held in October 2019. Sixty tags were apportioned to the resident hunt and 7 tags were allotted to the nonresident hunt. Overall, 50 ewes were harvested in 2019. Since the inaugural hunt season in 2014, 186 ewes were harvested.

Survey Data

In early October 2019, 8.0 hours of flight time were expended to conduct an aerial bighorn sheep survey over the Muddy Mountains. The survey was accomplished over 2 days and yielded a sample of 480 bighorn sheep, of which 10 were unclassified. The observed sex and age ratios were 73 rams:100 ewes:50 lambs. Bighorn sheep were broadly distributed throughout the Muddy Mountains.

Habitat

In the first quarter of 2019, precipitation receipts were well above average. Wetter conditions spurred rapid
growth of annual native and invasive forbs and grasses across the landscape. Water developments were fully or near fully recharged prior to the onset of higher temperatures leading into summer 2019. Collectively, the 6 artificial water sources were recharged to 97% in early 2019; however, in the remaining months in 2019, in the absence of an active monsoon season, environmental conditions deteriorated as reflected by drying range conditions and restricted water availability.

In early 2020, storm systems developed late in February and weekly in March. Ample precipitation greatly enhanced range conditions and recharged the 6 water developments in the Muddy Mountains. Similar to last year, collectively, water developments are 97% of capacity going into early summer 2020; 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 at some point in either late July or in the first half of August 2020.

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 the 2019 status report, it was stated that in the absence of an active monsoon season, it was anticipated water developments on Muddy Peak (i.e., Safari and Jerry) and in the central Muddy Mountains (i.e. Five Ram) would be depleted by late July 2019. By late November and through December 2019, there were indications that this scenario had just occurred and then worsened through late summer and into early fall 2019.

In early October 2019, during an aerial bighorn sheep survey, it was noted 5 of 6 water developments were fully depleted. Water was available only at Cliff Site. Later in the month at Cliff Site, water from the 3 easternmost tanks was pumped into the west tank including approximately 900 gallons that were otherwise

inaccessible. As a consequence of the eastern tanks settling to levels slightly below the west tank, roughly 900 gallons of water were too low to crossflow through the system and into the drinker. The water consolidation and recovery effort resulted in placing approximately 2,000 gallons of available water in the west tank. Also, in October 2019, 2,250 gallons of water were pumped to White Basin.

In late November 2019, bighorn sheep hunters and associates began reporting bighorn sheep carcasses in the western portion of the Muddy Mountains. Some reported encountering a single carcass, while others reported more than one. Reports of bighorn carcasses included both sexes of adults, young and lambs. Estimates on when animals died prior to detection varied from several weeks to a few months. Although it is apparent bighorn sheep died of dehydration, it is not apparent how many succumbed.

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. Near the same time, capture activities for the purpose of furnishing 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. 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 bighorn sheep inhabiting the Black Mountains and an increase in sheep occupying the adjacent Muddy Mountains. The 2020 population estimate for 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

No aerial survey was conducted over the River Mountains in 2019. 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 bighorn sheep. The observed sex and age ratios were 38 rams:100 ewes:7 lambs.

Habitat

In the first quarter of 2019, storms produced rainfall amounts sufficient to enhance range conditions; however, environmental conditions deteriorated due to the lack of mid-year monsoon activity. Dry conditions prevailed from June to late November 2019. More recently, early in the second quarter of 2020, range conditions are favorable, as a result of storms in late February and March. The National Weather Service, Climate Prediction Center forecast does not reflect onset of drought conditions for the second quarter in 2020.

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 bighorn sheep hunt in the River Mountains. The bighorn herd has the special distinction of contributing over 800 animals for purposes of in-state reintroductions and augmentations. In addition, 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. ovi* was confirmed. Thus since 2015, 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 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

Bighorn sheep surveys were conducted in the Mormon Mountains in September 2019. Surveys produced a fair sample size of 144 sheep dispersed throughout the range and at all elevations. The 144 sheep were classified as 35 rams, 79 ewes, and 30 lambs providing a ratio of 44 rams:100 ewes:38 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 exceptional during the spring due to above- average precipitation events and receiving 172% of 10-year average resulting in just under 10 inches of annual precipitation according to CEMP. Only 3 of the 5 water developments appeared to be holding reasonable amounts of water as of February 2019. Three of the 5 water developments need upgrades that are slated to be accomplished in the coming years but are still being utilized by wildlife. The Bertha water development was rebuilt in early 2019 by the Nevada Department of Wildlife and volunteers which will now provide a reliable water source in the area. 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 and fair precipitation thus far in 2020.

Population Status, and Trend

The Mormon Mountain bighorn population appears to be stable although a decrease in lambs was observed in years prior. The last 10 years, including the 2020 population estimate, are showing a stable trend at 300 bighorn sheep. No disease has currently been detected in the Mormon Mountain sheep herd at this time.

Unit 272: Virgin Mountains and Gold Butte; Northeastern Clark County
Report by: Pat Cummings

Survey Data

In early October 2019, an aerial desert bighorn sheep survey was conducted over Lime Ridge, Tramp Ridge, Bitter Ridge and the southern portion of the Virgin Mountains. The 4.9-hour survey yielded a sample of 17 rams, 29 ewes and 9 lambs.

Habitat

In 2019, environmental conditions ranged from good to fair. Although precipitation receipts were well above average in the first quarter of 2019, dry conditions prevailed from June through to late November 2019. In contrast, in early spring 2020, annual grasses and forbs are green, lush and abundant. It was noted on a water development maintenance flight conducted in February 2020 that both Virgin #1 and #2 were fully recharged.

Population Status and Trend

The 2020 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 and enzyme-linked immunosorbent assay positive lab results indicated *Mycoplasma ovipneumoniae* is present in the bighorn sheep herd inhabiting the northeast portion of Clark County east of the Virgin River.

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 bighorn sheep habitat in the Gold Buttes consists of ridges interspersed by areas of moderate terrain. 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 bighorn sheep in Iceberg Canyon, Indian Hills and Azure Ridge.

Unit 280: Spotted Range; Northwestern Clark County

Report by: Pat Cummings

Survey Data

No aerial survey was conducted over the Spotted Range in 2019. In September 2018, a 4.5-hour aerial survey yielded a sample of 164 desert bighorn sheep. Two sheep encountered during the survey were not classified. The sample was the largest recorded and was comprised of 47 rams, 90 ewes and 25 lambs (Table 3). Bighorn sheep were well dispersed and encountered throughout much of the survey area. Most bighorn 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

In the first quarter of 2019, storms produced precipitation in amounts sufficient to partially and fully recharge all 6 water developments. Viewed collectively, water developments were recharged to 92% of storage capacity; however, the remainder of 2019 was dry overall.

In early 2020, storm systems developed late in February and weekly in March. The recent precipitation has greatly enhanced range conditions and fully recharged 4 of the 6 water developments in the Spotted Range.

Measurements obtained during an inspection and maintenance flight revealed the collective store of water among the 6 water developments was 90% of total capacity. Spotted #2 and #3 were partially recharged to 60% and 80% of capacities, respectively. Spotted #2 is suspected of either a deteriorated union of the Hypalon apron with the base of the Johnson screen or a leaking tank.

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

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 bighorn sheep given the land withdrawal alternatives identified in the LEIS. Additional bighorn sheep that were captured and sampled (not collared) included 2 ewes, of which 1 was euthanized due to apparent extensive back injury. Subsequent bighorn mortality that was deemed consequential to capture myopathy involved a second ewe. Three additional bighorn mortalities due to apparent predation events involved 2 ewes and 1 young ram.

Laboratory diagnostic test results reflected 1 bighorn sheep was positive for *Mycoplasma ovipneumoniae (M. ovi)* by Polymerase Chain Reaction (PCR) and enzyme-linked immunosorbent assay (ELISA). Two bighorn sheep were positive for *M. ovi* by PCR and negative by ELISA. Eleven bighorn sheep were positive for *M. ovi* by ELISA. Initial genetic analysis portrays similarity in the variant of *M. ovi* detected in the Spotted Range to the *M. ovi* detections corresponding to bighorn sheep captured on the Nevada Test and Training Range in 2017.
The 2020 desert bighorn sheep population estimate approximates the estimate reported last year. The bighorn sheep population inhabiting the Spotted Range was established through releases in 1993 and 1996. The initial release complement was comprised of 2 rams, 13 ewes, and 10 lambs. The 1996 release consisted of 8 rams, 16 ewes, and 1 lamb. The River Mountains bighorn sheep herd served as source for both releases.

Unit 281: Pintwater Range; Northwestern Clark County

Report by: Pat Cummings

Survey Data

No aerial survey was conducted over the Pintwater Range in 2019. In September 2018, a 5.3-hour aerial survey yielded a sample of 101 desert bighorn sheep. The sample included 3 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 bighorn sheep and reflected 58 rams:100 ewes:43 lambs.

Habitat

Wet conditions prevailed in the first quarter of 2019. The majority of water sources in the Pintwater Range were fully to near fully recharge; however, dry conditions developed and were exacerbated by the lack of monsoonal storms. Thus, dry conditions beginning in June intensified through summer months and continued unabated till late November 2019.

More recently, storms in late February and March 2020 have promoted germination and growth of annual native and exotic grasses and forbs. In early spring 2020, annual grasses and forbs are green, lush and ubiquitous. In February 2020, inspections of water developments and spring developments in the Pintwater Range revealed that spring systems overall were functioning properly, with the enduring exception of Sand Spring. Based on findings during the February 2020 inspection flight, water availability on the south end of the Pintwater Range may cease in upcoming summer months. In line with low expectations, Dain Peak was recharged to only 35%. Heavens Well, known to be the critically important water source on the south end of the range, was recharged to 54%. A maintenance problem exists at Heavens Well that is not fully understood and may limit functional storage capacity to 50%. In the next few months, as was the case in 2018, it may be deemed necessary to haul water to Heavens Well.

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 Heavens Well 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 2020 desert bighorn sheep population estimate for the Pintwater Range approximates 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 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 2019, an aerial survey yielded a sample of 57 desert bighorn sheep. The sample was comprised of 14 rams, 28 ewes and 15 lambs. Bighorn sheep were encountered in the general vicinity of the Black Top water development, north of White Sage Gap, near Tommy water development and at Brent's Seep.

Habitat

Substantial storm activity in the first quarter of 2019 promoted growth of native and invasive annual forbs and grasses. Ample precipitation receipts also served to recharge water sources; however, as the year progressed, range conditions worsened, as summer monsoon storms failed to develop. Throughout much of the remainder of the year, dry conditions prevailed from June until late November 2019.

In early 2020, range conditions are improved as result of storm activity that developed in the final 6 weeks of the first quarter. Annual grasses and forbs are green, lush and ubiquitous. The recharge status of the water developments in the Desert Range is less than optimal. On the south end of the range, the often heavily utilized Black Top water development was noted during the February 2020 maintenance flight as recharged to only 17%. On the northeast end of the Desert Range, the Brent's Seep development was decidedly rendered inoperable for several reasons (see 2019 status report details on Brent's Seep).

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.

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 2020 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 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

In September 2019, aerial desert bighorn sheep surveys were conducted over portions of the East Desert Range, Maynard Hills, Enclosure Ridge and northeast, northwest, south, and southwest portions of the Sheep Range. In the course of 13.1 hours of survey, 77 bighorn sheep were encountered. The survey sample was comprised of 24 rams, 42 ewes and 11 lambs. The small survey sample was well below expectation.

Habitat

Environmental conditions in early spring 2020 are favorable. Precipitation receipts were sufficient to promote establishment and growth of native and invasive forbs and grasses across the landscape.

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.

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 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 2020 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 bighorn populations in southern Nevada were exposed to *Mycoplasma ovipneumoniae (M. ovi)* in recent years. Through disease surveillance measures, several strains of *M. ovi* were identified in southern herds. It is possible that 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 September 2019, an 8.7-hour aerial survey over the Las Vegas Range yielded a sample of 148 desert bighorn sheep. The sex and age ratios were 40 rams: 100 ewes:45 lambs. Bighorn sheep were well distributed throughout the range. In comparison to the largest sample recorded 2 years 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

Environmental conditions in 2019 were favorable in the initial months of the year, as precipitation receipts were above normal. Bighorn sheep benefited from excellent range conditions and ample water availability; however, halfway through the second quarter of the year, a dry period began and intensified as the 2019 monsoon season lacked storm development. Overall dry conditions persisted until late November 2019.

More recently in spring 2020, storm activity in late February and March spurred germination and growth of annual native and exotic grasses and forbs. Range conditions in spring 2020 are favorable. Based on findings during the February 2020 water development inspection flight, spring developments are functioning properly, and water developments are fully recharged.

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 Refuge. 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 bighorn sheep habitat.

Population Status and Trend

The fall 2017 aerial 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. The 2020 desert bighorn sheep population estimate reflects a modest expansion relative to the estimate reported last year.

CALIFORNIA BIGHORN SHEEP

Unit 011: Massacre Rim, Coleman Rim; Northern Washoe County

Report by: Chris Hampson

The Nevada Department of Wildlife originally released California bighorn onto the Massacre Rim-Little Sheldon in March 1995. The initial effort to establish sheep on the west side of the Sheldon did not result in a thriving population of California bighorn. After the initial release, the population of bighorn slowly decreased over time. To bolster the sheep numbers in the area, the Nevada Department of Wildlife released 3 different complements of bighorn onto the Massacre Rim between 2012 and 2019. One additional bighorn augmentation also occurred further to the north on the Coleman Rim.

The bighorn population on the Coleman Rim appears to be stable to increasing with an estimate of 100 bighorn that live along the Coleman Rim in both Oregon and Nevada. The Massacre Rim sheep population to the south is stable to decreasing.

Drought conditions that were prevalent between 2007 and 2015 dried up many of the important spring sources on the Massacre Rim. This forced bighorn on the Massacre Rim to move eastward onto the Guano Rim on the Sheldon. Many of the sheep eventually moved back to the Massacre Rim but some are known to have taken up residence on the Sheldon. Mountain lion predation on bighorn has also been a factor in suppressing the small sheep population from reaching sustainable numbers.

The most recent augmentation occurred on January 31, 2019. Nineteen California bighorn were captured from the Double H Mountains in Humboldt County, Nevada and released near Big Point on the Massacre Rim in Hunt Unit 011. A dozen telemetry collars were attached to adult ewes to aid biologists in monitoring the movements and survival of the newly release sheep

Mountain lion control efforts to protect the bighorn sheep populations continues in the northwestern portion of the state; however, the efforts were hampered this past winter due to the mild conditions and lack of snow.

Unit 012: Calico Mountains and High Rock Canyon; Western Humboldt and Washoe Counties

Report by: Chris Hampson

Survey Data

Aerial surveys in 2019 located a total of 131 bighorn within the large hunt unit. In 2018, biologists classified a record 144 bighorn in this unit. The composition ratios from the sample provided a ratio of 44 rams:100 ewes:41 lambs. This compares with the 2018 ratio of 48 rams:100 ewes:34 lambs.

The above-average recruitment observed this year will allow this population of bighorn sheep to experience an upward trend this year. In 2018, the recruitment level was slightly above maintenance levels. In both 2016 and 2017, the population experienced a strong increasing trend with above average lamb recruitment.

Monitoring of the collared bighorn in the southern half of the Calico Mountains continues. Some movements northward into the northern half of the range have occurred but for the most part the bighorn appear to be habituated to those areas from South Donnelly Peak to the southern tip of the Calico Mountains. No foray movements outside of the Calicos has been documented but there is some sheep movement between the Buckhorn Peak-Leadville Canyon areas in Hunt Unit 014 and the Calico Mountains of Unit 012.

Habitat

Winter 2019-2020 started out with a bang and most areas within the northwestern portion of the state were above normal for both precipitation and snowfall as of Jan 1, 2020. The month of February was extremely dry and provided little in the way of moisture. In fact, February 2020 was the driest February on record. Due to the lack of precipitation in January and February 2020, the Snow Water Equivalent average fell to 105% of the long-term average and the Water Year to Date average fell to 82%. The weather forecast for the middle portion of March is for more storm fronts to pass through the region. Hopefully, the storms will provide much needed moisture and increase these precipitation totals.

Several new big game guzzler units have been proposed to be constructed within Hunt Unit 012. Some of these guzzler locations are within designated wilderness areas. The proposed sites are currently going through the Bureau of Land Management clearance process, but it is hoped that one or two of the units will be cleared by the Bureau of Land Management and can be built over the next few years. The units will help to provide bighorn and other wildlife that live in these areas with more reliable water sources and lessen the amount of competition for that water in the dry environment.

Population Status and Trend

The 41 lambs:100 ewes recruitment rate observed this year will allow this bighorn sheep herd to continue on an upward trend. The herd has prospered over the past few years due to improved recruitment brought on by better precipitation receipts received over the past few years.

Quotas for the upcoming 2020 California bighorn hunting season in Unit 012 are expected to be similar to the previous year.

Unit 013: Hays Canyon Range; Washoe County

Report by: Chris Hampson

Survey Data

Ground surveys during summer 2019 located 50 bighorn sheep within Hunt Unit Group 011,013. The 45 lambs:100 ewes ratio indicates good recruitment for the herd that lives in the Hays Canyon Range (Unit 013), Massacre Rim and Coleman Rim (Unit 011) areas of northern Washoe County. Since the ground surveys were conducted during mid-summer 2019, some additional lamb mortality more than likely occurred, so a slightly more conservative lamb ratio was used in the modeling process for this herd.

Habitat

Snow conditions and soil moisture in the northern portions of Washoe County are in better shape than those areas further to the south. A storm front in early January dumped significant snow in Unit 011 and the upper elevations of the Hays Canyon Range in Unit 013. Cedarville, California (immediately west of these mountain ranges) received 6 to 8 inches of snow. The remaining weeks of January and all of February were very dry but the cold nighttime temperatures helped to reduce snowmelt. This has helped to reduce the impacts from the very dry month of February 2020. Hopefully, the late winter and spring months will provide additional moisture and snowfall. Habitat conditions should be about average if more moisture is received during the late winter and early spring.

Population Status and Trend

Recruitment for the Hays Canyon herd continues to be strong and the small population has been stable to slowly increasing over the past few years. Mountain lion control activities continue within the Hays Canyon Range and other areas within Hunt Unit 013 and have helped to reduce lion mortality and pressure on the small bighorn herd. Hunter harvest also helps to maintain lion densities at an acceptable level.

Currently, the number of mature rams (6-years of age and older) within the small herd is too few to allow for a hunting season. Should the herd continue to do well, and the number of mature rams continue to increase within the small sized herd, another hunting season could be proposed in the matter of a few years.

Unit 014: Granite Range; Washoe County

Report by: Chris Hampson

Harvest Results

The quota for the Granite Range in Hunt Unit 014 was reduced from 3 tags to 2 tags this past year. Hunters had reported having a difficult time locating mature rams in this hunt unit. In 2019, hunters once again struggled to find mature rams. One of the two tagholders reported being successful and harvested a 7-year-old ram that scored 145.5 Boone and Crockett inches. The other hunter expended considerable time hunting in the unit but was unable to hunt the last week of the season and did not harvest a ram. The latter portion of the hunting season within this hunt unit generally provides more opportunity for hunters to locate and observe bighorn rams.

Survey Data

Surveys in Hunt Unit 014 located 47 sheep with a composition ratio of 17 rams:100 ewes:40 lambs. The 40 lambs per 100 ewes recruitment level from the 2019 survey is sufficient to allow for herd growth this year. In 2018, surveys provided a sample that had a ratio of 43 rams:100 ewes:79 lambs. The lamb ratio may have been skewed high due to the smaller sample size obtained back in 2018.

Habitat

Habitat conditions are expected to be near average this year due to a much drier winter. The months of January and February were very dry and only one early January storm provided some snow to the mid-to-high elevations of the Granite Range. The month of February was the driest February on record and resulted in a reduced snowpack in areas to the north of Gerlach, Nevada. As of March 1, 2020, the Northern Great Basin sits at 105% of average for Snow Water Equivalent and only 82% of average for Water Year to Date precipitation. Precipitation totals in this portion of Nevada are usually on the drier side and may actually be lower than the above listed averages. More snowfall is needed in March and April to help offset the current dry conditions.

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

In January 2020, the Nevada Department of Wildlife released 22 California bighorn in the Buckhorn Peak area of the Granite Range. The augmentation of bighorn was an effort to bolster this sheep population that has struggled over the past several years. The pregnant ewes from the recent release should also help to bolster the herd even more when those lambs have been birthed in spring 2020.

Lion control was initiated prior to the release in an effort to reduce mountain lion densities in areas surrounding the release site. To date, 3 mountain lions have been removed. As of this writing 3 collared bighorn have also been killed. Two of the lions that were removed were known to be responsible for 2 of the bighorn sheep mortalities.

Bighorn from the recent release have explored the entire Granite Range. Two of the collared bighorn have explored areas well to the south near the southern tip of the range. Two other collared bighorn moved eastward and crossed Leadville Canyon and are now in the Calico Range east of Donnelly Peak

(Unit 012). The majority of the bighorn have more recently moved back to the general area of the release site near Buckhorn Peak.

Hunters who have tags for this hunt unit often report observing many more sheep towards the latter portion of the hunting season. It is believed that rams move into the area near Buckhorn Peak due to the start of rutting behavior. The area also has higher densities of ewes and that helps draw bighorn rams to the area late in the season. Rams may be moving into the Buckhorn Peak area from the east in Hunt Unit 012 or other more remote location within the Granite Range.

The 2020 tag quota for Unit 014 the Granite Range is expected to remain similar to the 2019 season quota of 2 tags.

Units 021, 022: Virginia Mountains; Washoe County

Report by: Chris Hampson

Survey Data

Composition surveys were conducted in August 2019. A total of 53 sheep was classified and resulted in a composition ratio of 63 rams:100 ewes:33 lambs. During the survey most bighorns were located low in elevation, within the burned area, and adjacent to reliable spring sources.

Wildfires over the past few years within the Virginia Mountains have changed the distribution of the sheep in this hunt unit. Reports or observations of bighorn in the southern and western portions of the range have increased in recent years following these large wildfires.

Ram ratios appear to be strong in this small population of bighorn. The 2019 sample collected by biologists provided a good look at the age classes in the population and all age classes of rams were observed to be present; however, the smaller size of the population limits the number of mature rams compared with large sheep populations.

Habitat

The Great Basin Outlook Report shows the Northern Great Basin region to be at around 82% of average for Water Year to Date Precipitation. The Truckee Basin to the south is only 52% of average as of March 1, 2020. The months of January and February 2020 were extremely dry. February set a record for lack of precipitation. Much more snowfall and precipitation will be needed in March and into the spring to offset these drier conditions.

The Long Valley Fire burned nearly 2500 acres within the unit-group in August 2019. The fire started off Highway 395 North south of Doyle California. The fire burned eastward and into Fort Sage Mountain, and the north end of the Virginia Mountains. Occupied bighorn sheep habitat was burned on the north end of the Virginia Mountains near Cottonwood Canyon. The Nevada Department of Wildlife aerially reseeded portions of the burned area with native plant species in fall 2019. Sagebrush and bitterbrush seedling plantings were conducted by both the Bureau of Land Management and the Nevada Department of Wildlife this past winter on the north end of the Virginia Mountains and in the Sand Hills of Unit 021.

Access for all hunters continues to be problematic with the closure of the Cottonwood Canyon Road 2 years ago by a private landowner. Accessing some of the higher density bighorn use areas is for the most part by permission only and or by hiking long distances from adjacent public access roads. Access to the east side of the Virginia Mountains is also closed due to tribal lands.

Population Status and Trend

Recruitment rates for this population of California bighorn have been just average or slightly below average for most years since 2014. This has resulted in a more conservative estimate for this population of California bighorn. The tremendous amount of habitat lost due to summer wildfires over the past several years has also played a major role in the decreasing trend and lower recruitment values for this population.

Sufficient numbers of mature rams are available for harvest and the recommended quotas for this bighorn hunt unit are expected to be similar to the 2019 hunt season.

Unit 031: Double H, Montana and Trout Creek Mountains; Humboldt County

Report by: Ed Partee

Survey Data

Helicopter compositions flights were conducted in Unit 031 in mid-August 2019. The Montana Mountains are still currently void of sheep. Survey flights in this unit were only conducted in the Double H Mountains. Currently, sheep movement back into the Montana Mountains has not be observed. The Double H Mountain animals observed on survey appeared healthy and well distributed throughout the range. During this survey sheep numbers were very comparable to last year's survey. Bighorn sheep continue to expand into unoccupied habitats to the east side of the range. During the 2019 Double H flight, 111 animals were observed with a ratio of 12 rams:100 ewes:51 lambs compared with the 97 animals during the 2018 survey.

Habitat

Despite the lack of winter precipitation when compared to last year, habitat conditions this year remain good mainly due to the abundant amount of moisture received the previous year. February precipitation levels were much below average which has brought season totals to 79% of average. Snowpack amounts at this point are at 91% of average compared to the 141% received in winter 2018-2019. Spring and summer precipitation will be needed to sustain the current habitat conditions. Rehabilitation efforts in this area from past fires have continued with promising results.

Population Status and Trend

The population in the Double H Mountains continues to do well and has not been affected by the disease event that took place 5 years ago in the Montana Mountains. From both ground and aerial observations there appears to be a strong age distribution of rams and the ewe-lamb ratio segment is coming back strong. With the continued growth and good recruitment into this populations, it was again used as source stock in January 2020. Fourteen individuals were removed from the populations as part of an augmentation in the Granite Range in Washoe County. Disease monitoring was conducted in this unit prior to the removal of any sheep. With the good recruitment that took place over this last year, not much of an effect is seen on the population estimate from the 14 animals being removed.

Unit 032: Pine Forest Range and McGee Mountain; Humboldt County

Report by: Ed Partee

Survey Data

In mid-August, the Pine Forest, McGee Mountain, and the Pueblo Mountains were aerial surveyed in Unit 032. Due to the proximity of the Sheldon, those animals surveyed on McGee Mountain were included in the Unit 033 population. All other animals in the survey this year were in the Pine Forest Range. During

this survey period the weather conditions were very hot with calm winds. During this survey 146 sheep were classified, which is up from the 109 classified in 2018. During the 2019 survey, the number of ewes, lambs, and rams are back in line with the 5-year average with a ratio of 63 rams:100 ewes:32 lambs.

Habitat

Habitat conditions were favorable going into winter 2019-2020. With the snowpack only being at 91% of average, forage quality should remain stable heading into the summer months. Higher elevations remain in good condition which should support bighorn sheep throughout the summer. Additional moisture will be needed to sustain these herds throughout the entire year. No additional habitat loss occurred this last year.

Population Status and Trend

With the removal of sheep last year for the augmentation in the Bloody Runs the lamb recruitment has increased slightly. Once again, this year 10 animals were removed from the population for an augmentation in the Granite Range in Washoe County. Disease monitoring was conducted in this unit prior to the removal of any sheep. Between harvest and the removal of sheep for the augmentation there was a very slight dip in the population estimate. Bighorn continue to do well in this unit and continue to disperse throughout this unit. Animals remain healthy in this population and age distribution on rams remains stable with many age classes observed.

Unit 033: Sheldon National Wildlife Refuge: Washoe and Humboldt Counties

Report by: Chris Hampson

Harvest Results

The tag quota for California bighorn hunting on the Sheldon increased 1 tag in 2019 from 2 tags to 3. All 3 hunters reported harvesting rams and the hunters expended an average of 14 days hunting the unit. The 3 hunters expended 10, 14 and 18 days hunting the Sheldon. The hunters who draw a tag for bighorn hunting on the Sheldon typically expend more days in the field when compared to hunters with California bighorn sheep tags in other hunt units in the state. The large size of the hunt unit and the scattered nature of the bighorn on the Sheldon play a major role in the amount of time expended.

Survey Data

California bighorn aerial surveys were completed in August 2019. 66 sheep were classified during the helicopter survey and the sample had a composition ratio of 53 rams:100 ewes:31 lambs. In 2018, 74 sheep were located and had a ratio of 93 rams:100 ewes:42 lambs. In 2017, lamb ratios were measured at 45 lambs:100 ewes.

Surveys located bighorn within the major use areas of Guano Rim, Big Mountain, McGee Mountain, Thousand Creek Gorge area; however, fewer sheep were observed in the Guano Rim area on this year's survey. Hunters who hunted the Guano Rim also reported seeing fewer sheep.

Habitat

An early January storm provided some decent snowfall amounts in many areas of northern Washoe and western Humboldt Counties. Cold nighttime temperatures have helped to reduce snowmelt despite the very dry months of January and February 2020. As of March 1, 2020, the Great Basin Outlook Report shows the Northern Great Basin to be around 82% of average for Water Year to Date Precipitation. Snow total averages are a bit higher and are sitting at 105% of average for Snow Water Equivalent. Winter 2018-2019 was a more productive winter and these categories were measured at 145% and 110% last year at this same time.

Habitat condition have been fair to good due to recent wet winters that have helped increase flows at springs. Forage conditions this coming summer will depend upon the amount of moisture received over the next few months and how long the snowpack or soil moisture can last into the spring and early summer.

Pinyon-juniper control work continues on the Sheldon with much of the work being conducted on the western edge of the refuge. There are also plans to include more tree removal work within rugged bighorn sheep habitat.

Population Status and Trend

In 2018, in cooperation with the USFWS, 12 bighorn sheep were collared on the Sheldon to learn more about movements and to determine the amount of connectivity between sub-herds on the Sheldon. In 2019, 5 additional collars were attached to bighorn on the east side of the Sheldon between Idaho Canyon on the southeastern corner of the Sheldon and the Big Mountain area further to the north. One of the 5 telemetry collars was also attached to a ram living in the area of Virgin Creek.

The Sheldon herd is expected to experience a stable trend this year. The previous 2 years were strong recruitment years and allowed the Sheldon bighorn population to experience an increasing trend. The quota for California bighorn hunting on the Sheldon increased by one tag in 2019. Quota recommendations for the 2020 season are expected to be similar to last year.

Unit 034: Black Rock Range; Humboldt County

Report by: Ed Partee

Survey Data

Surveys in this unit took place in August, 2019. During this survey a total of 91 sheep were. This survey yielded a ratio of 43 rams:100 ewes:64 lambs. The ram ratio has increased from the previous year while the lamb ratio has remained the same. The lamb ratio has been relatively constant for the last 10 years with no major changes. This year's lamb ratio has probably been the highest during that time frame. With the increase in lamb ratio, an upward trend may be seen if these ratios continue. Ram age structure remains well distributed throughout this population.

Habitat

With the excellent habitat conditions experienced over the last couple of years has been seen to reflect positively on this herd. This winter's precipitation was much less than last year; however, the herd should still be in relatively good condition going into this year. There has been a great response in the habitat and forage quality over the last couple of years from all the added moisture. As of March 1, 2020, precipitation was 79% of average. Spring and summer precipitation will be needed to sustain these conditions. With better than average conditions, these herds should have good recruitment and body conditions.

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

With the higher lamb ratios in this population over the last 10 years, this population has increased over the course of the last 8 years. Production and weather have been favorable for this population to expand. Once again, this year the population estimate for this herd is showing another increase. Late 2019 this

herd was sampled for health status for an augmentation that was supposed to take place in early 2020. Due to weather conditions, this population was not used during that time frame. Future captures may take place due to the increasing trend of this population. Ram age class continues to remain stable which should allow for opportunity for future harvest.

Unit 035: Jackson Mountains; Humboldt County

Report by: Ed Partee

Survey Data

Surveys in this unit took place in mid-August 2019 with clear and hot conditions. During this survey 162 sheep were surveyed which was a record survey for this unit. With the augmentation that took place in the Bloody Run Range in early 2019, this portion of the survey had good recruitment from those ewes released. For the entire unit lamb ratios continue to be high with a ratio at 70 lambs:100 ewes. Ram ratios continue to be solid at 45 rams:100ewes.

Habitat

Much of the habitat conditions in this unit are like those throughout Humboldt County. This unit experiences 2 different conditions with the 2 sheep herds that occupy the 2 mountain ranges in this unit. The difference in these 2 areas is the number of feral horse use. Both the Bloody Runs and the Jackson Mountains had a decent snowpack with it being at 91% of normal on March 1, 2020. Unfortunately, the Jackson Mountains has an abundant number of feral horses that impact the habitat conditions. Water sources in some areas are overutilized resulting in competition between species. With less moisture received, some of these areas will suffer from the overutilization. Spring and summer moisture will be needed to sustain these areas. With the good habitat conditions that have been experienced in the Bloody Runs, the sheep that were released have responded well this first year with good recruitment into the population

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 the restricted access points and hunters who apply for this area need to understand these restrictions.

Population Status and Trend

This population continues to show promising growth over the last 10 years. Multiple releases have taken place within this unit which has included both the Jackson Mountains and now the Bloody Runs. The Bloody Runs at this point still lack a mature ram segment which may take a few more years. With the good lamb recruitment that was seen during survey, this population will continue to grow. There should be ample opportunity for harvest this year within the Jackson Mountains. There is continued movement within the Jackson Range allowing this herd to expand into unoccupied areas. With the expansion that has taken place, the Bureau of Land Management and the Nevada Department of Wildlife conducted a collaring project in January 2020 for the purpose of monitoring separation of the wild sheep with a domestic trailing route that is located on east side of the Jackson Mountains.

The population estimate for this unit has once again increased for 2020.

Unit 041: Sahwave Mountains; Pershing County
Report by: Kyle Neill

Survey Data

A 1-day ground survey occurred in the Sahwave Mountains in early September. A total of 31 bighorns were observed that provided ratios of 83 rams: 100 ewes: 75 lambs. The 5-year average lamb ratio is 54.

Population Estimate and Trend

This California bighorn herd remains at an estimated 50 animals. Population growth trend remains unchanged, despite high observed lamb ratios over the past 5 years. Recent increases in predation from mountain lions has contributed to this static growth trend. It is thought that high numbers of burros and feral horses around the Sahwave Mountains has provided a consistent prey base for mountain lions. The Nevada Department of Wildlife has continued to work with Wildlife Services to preform periodic predator removal when mortality events are observed. Additionally, this pioneering herd is always at risk from disease due to its proximity in a domestic sheep allotment. In February 2020, a domestic sheep was lethally removed from 5 California bighorn rams. Fortunately, test results showed all negative for M. ovipneumoniae. In July 2016, 2 domestic sheep were lethally removed from Bob's Spring area in the Sahwave Mountains. The Nevada Department of Wildlife is planning on working with domestic sheep permittees in Unit 041 to hopefully establish alternative trailing routes to reduce future domestic sheep contact in the Sahwave Mountains.

Unit 051: Santa Rosa Range; Humboldt County
Report by: Ed Partee

Survey Data

Surveys were conducted over a 2-day period this year in mid-August 2019. During this survey a total of 118 animals were classified with a ratio of 17 rams:100 ewes:28 lambs. Both the low lamb and ram ratios observed on this flight are within the average that has been seen in this herd in the last 5 years. There remain a few animals marked within the 4 sub-herds of this population that are continually being monitored despite the field research ending for this population.

Habitat

As of March 1, 2020, snowpack was 91% of normal with the precipitation at 79% of normal. The Santa Rosa's tend to hold good snow conditions in most years. The upper elevations remained good throughout the year with plenty of free water and forage available. Over the course of the last few years the US Forest Service has worked on removing feral horses from the north end of the range. This area saw heavy trespass use from horses so this should benefit all wildlife species in that area. This area should remain in good condition throughout this year with a little added spring and summer moisture. With less competition from feral horses there may be better lamb recruitment in coming years.

Population Status and Trend

The 2020 modeled population estimate for this unit is slightly lower once again this year and can be attributed to the low lamb recruitment into this population of the last 5 years. Unit 051 continues to struggle from disease issues. Ram ratios were down on survey with only 14 individuals found. Eight-Mile Canyon was lower than normal this year since a horse gather took place the day prior to our survey. The Forest Service had been working for the previous 2 weeks attempting to remove horses. This should have a big impact on the available forage in the future. Follow-up treatments may take place to remove any horses that were missed. Once again there was poor lamb recruitment into this population. This unit will continue to struggle in this arena for some time in the future.

Continued monitoring efforts are taking place in this unit and currently there are 13 bighorn sheep marked to follow movements and monitor lamb recruitment. This population has dropped slightly every year over the last 5 years. Despite the drops there will still be an opportunity for harvest in the upcoming season.

Unit 066: Snowstorm Mountains; Western Elko County

Report by: Matthew Jeffress

Survey Data

As of spring 2020, 24 ewes, 12 lambs and about 12 rams occupy the Snowstorms. 2019 lamb recruitment was the highest since the 2011 die-off. A combination of marked animals well distributed across all 3 sub-herds, summer ground surveys and 2 bighorn collaring and sampling events during winter 2019-2020 has resulted in a reliable estimate of the current population.

Habitat

Range conditions remain suitable for bighorn sheep across much of the Snowstorms.

Last winter the Bureau of Land Management and the Nevada Department of Wildlife continued to seed significant portions of land along the South Fork Little Humboldt River affected by the historic 2018 Martin fire. Areas seeded had been treated with pre-emergent herbicides to control winter annuals following the burn. This winter those areas were seeded with wheatgrass, immigrant forage kochia, snowstorm forage kochia and sagebrush. The areas seeded provide valuable year-round habitat for a sub-herd of California bighorn ewes residing along the lower reaches of the South Fork Little Humboldt River. Field observations last year indicated high use of these seedings by bighorn sheep. Three small fires on the southwest side of the range consumed about 1,700 acres in 2019. All 3 fires were either treated with pre-emergent herbicide to control winter annuals or seeded with desirable forage, including forage kochia, by the Nevada Department of Wildlife.

Mineral exploration continues across much of the western portion of the Snowstorms.

Population Status and Trend

Spring and summer lamb surveys conducted on the Snowstorms last year indicated the removal of super-shedder ewes (*M. ovi* positive ewes) has improved lamb recruitment for a third year in a row. As of early 2020, there are 12 lambs and 24 ewes in 3 sub-herds on the Snowstorms. Five of the 24 ewes are yearling ewes that did not have lambs in 2019. The 12 lambs and 19 adult ewes represent a lamb to adult ewe ratio of 63:100; the highest since the 2011 die-off. While the increased lamb ratio is favorable, additional collaring and sampling of adult ewes and rams last winter indicates the original strain of *Mycoplasma ovipneumoniae (M. ovi.)* is still being circulated in 2 of the 3 sub-herds of ewes. Rams also tested positive for *M. ovi* during the last sampling effort. The significance of these findings is unknown, but lamb recruitment values are promising. Additional sampling will occur next winter to document additional *M. ovi* positive animals and to identify chronic shedders.

Unit 068: Sheep Creek; Northern Lander and Eureka Counties

Report by: Sarah Hale

Hunt Results

All 8 of the 2019 California ram tag holders in the Sheep Creeks were successful in harvesting a ram. The average age of harvested rams was 7.3, and the average unofficial score was 155 7/8. Average age of

harvested rams was similar to 2018 (7), but average unofficial score increased from that of 2018 (152). One ewe tag was issued and successfully filled in 2019.

Survey Data

The most recent aerial California bighorn sheep composition survey in Unit 068 took place on August 8, 2019. During that survey, a total of 109 California bighorn sheep were classified as 31 rams, 47 ewes, and 31 lambs. The observed lamb ratio of 66 lambs:100 ewes is above average and is an increase from the observed 2018 lamb ratio (50 lambs:100 ewes).

Habitat

2019 was an above average year for precipitation, which resulted in abundant forage and water in the Sheep Creek Range. Body condition of all rams harvested from Unit 068 was reported as very-good or excellent during hunter check-ins.

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 rebuilding could occur. By fall 2017 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. Most recently, in January 2020, 22 sheep were removed from the population and translocated to the Pyramid lake Paiute Reservation. As the Sheep Creek herd has grown, California bighorn sheep have shown an increased propensity to wander, drifting north towards a domestic sheep trailing route and another California bighorn sheep herd that continues to test positive for *Mycoplasma ovipneumoniae*. Maintaining this herd at current levels is important to reduce the risk associated with these movements. Additionally, the area this herd inhabits serves as crucial winter range for hundreds of deer, and provides important seasonal habitat for antelope, elk, and livestock, so maintaining the sheep herd at or below its current level will ensure that conditions remain favorable for the various species that share the range.

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 was closed in this unit from 2015 to 2018. There was one ram tag offered for the 2019 hunting season. The hunter was unsuccessful.

Survey Data

In November 2019, 20 Rock Mountain bighorn were classified as 7 rams, 9 ewes, and 4 lambs. This was a ground survey and likely did not include a comprehensive sample of the rams.

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.

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 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. An additional 5 bighorn (4 ewes and 1 ram) were collared in January 2020, bringing the total number of collared sheep to 10 bighorn. The batteries on the collars deployed in 2017 will likely expire during summer 2020. Three male lions have been removed since the initiation of the project. One collared ewe appeared to have died from mountain lion predation in October 2016. No predator related deaths have been documented since 2016.

Although lamb recruitment has increased in the last few years, there is still a concern that this herd may have an active shedder of M. ovi, keeping the herd chronically infected. This year, in an effort to better monitor herd performance, increased sampling may occur at which time the removal of any potential chronic shedders will be evaluated.

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

Harvest Results

One Nevada resident tag was offered in this unit for the 2019 season. The hunter was successful in harvesting a 10-year-old ram. One tag will be offered to a Utah resident for the 2020 hunting season.

Survey Data

No aerial surveys were conducted in this unit this year. Survey data was gathered using camera traps at the Pilot water development, the Leppy Hills water development, Leppy Pass, and Jenkins Canyon.

Thirty-eight bighorn were classified as 8 rams, 24 ewes, and 6 lambs. This is the highest number of lambs observed since the disease event in 2010.

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 of Rocky Mountain bighorn sheep coming 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 an estimated 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 objective 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 a young ram, but both failed, so little information was obtained from that animal. Rocky Mountain Bighorn sheep tested during the collaring operation were all positive for 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

Winter 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 2020, an aerial survey classified 24 sheep consisting of 6 rams (≤5 years of age), 12 ewes, and 6 lambs.

Weather and Habitat

Winter 2019-2020 was slightly below average with April 1, 2020 local water basin reports showing 88-97% of average snowpack present. The mild winter conditions experienced allowed for an abundance of high elevation winter use. Collared sheep transitioned back and forth from the winter range on the north end of the unit to the blown off ridges on the main spine of the East Humboldts multiple times over the winter. 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 in 2009-2010 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 3 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 harmful pathogens. This project is designed to work in tandem with the continued sampling and collaring effort of the Unit 101 mountain goats. To date, 7 of the collars are still on live ewes and fully functioning.

Unit 102: Ruby Mountains; Elko County

Report by: Scott Roberts

Tag Quotas and Harvest Results

Winter 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 2020, 29 Rocky Mountain bighorn sheep were classified yielding age and sex ratios of 57 rams:100 ewes:50 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. Initially the fire negatively impacted a high percentage of the historic winter range for this herd. In February 2019, the 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. Initial observations indicate the seeding project was successful in the establishment of a suite of desirable plant species. Winter observations have not shown a significant change in sheep use, with most sightings being within or adjacent to the burned area.

Population Status and Trend

Prior to winter 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 (>50 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.

In January 2020, 5 collars were deployed on 2 rams and 3 ewes that winter in Lamoille Canyon, unfortunately 1 of the ewe collars is inoperable. The intent of the collaring effort is to document sheep use as this herd continues to grow and begins recolonizing large portions of their historical range. Small sheep groups have been documented moving both north and south from the core area associated with Lamoille Canyon.

Unit 114: North Snake Range – Mount Moriah; Eastern White Pine County

Report by: Kody Menghini

Hunt Results

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 2020 and resulted in the classification of 17 bighorn sheep. The observed sex and age ratios were 30 rams:100 ewes:40 lambs.

Weather and Habitat

The National Weather Service recorded 149% of normal precipitation at the Ely Airport for the 2019 calendar-year. Spring 2019 was the wettest recorded in Ely. National Weather Service precipitation datd measured at the Ely Airport from June to December 2019 was 49% of normal. Habitat quality improved through the first half of 2019, but progressively deteriorated due to a dry summer and fall. Winter 2019-2020 was warm and dry. National Weather Service precipitation data for winter measured at the Ely Airport was 57% of normal. At the time of this report, spring weather has continued to be warm and dry. Habitat conditions will continue to deteriorate in 2020 unless precipitation patterns improve.

Dense stands of 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 tree cover. 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

This population is stable with a current estimate of 90 Rocky Mountain bighorn sheep.

Unit 115: South Snake Range – Mount Wheeler: Eastern White Pine County

Report by: Kody Menghini

Hunt Results

This hunt continues to be physically and mentally demanding. Access to the area is challenging depending on snow conditions. The mountains are steep with little road access and higher elevations are closed to hunting in Great Basin National Park. Sheep density is low, and rams are difficult to locate due to extensive tree cover. A December 20 through February 20, 2020 season was established to allow tag holders to pursue rams outside of Great Basin National Park when the rams descend from higher elevations in late winter.

Survey Data

Aerial herd composition surveys were conducted in February 2020. During the survey, biologists classified 9 bighorn sheep with sex and age ratios of 300 rams:100 ewes:50 lambs.

Weather and Habitat

The National Weather Service recorded 149% of normal precipitation at the Ely Airport for the 2019 calendar-year. Spring 2019 was the wettest recorded in Ely. National Weather Service precipitation data measured at the Ely Airport from June to December 2019 was 49% of normal. Habitat quality improved through the first half of 2019, but progressively deteriorated due to a dry summer and fall. Winter 2019-2020 was warm and dry. National Weather Service precipitation data for winter measured at the Ely Airport was 57% of normal. At the time of this report, spring weather has continued to be warm and dry. Habitat conditions will continue to deteriorate in 2020 unless precipitation patterns improve.

Continued long-term habitat limitations exist in this unit because dense stands of 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

Great Basin National Park and the Nevada Department of Wildlife have coordinated bighorn collaring efforts for several years. During October and November 2019, a total of 4 bighorn were collared in this unit. Two ewes and 2 rams were collared to better understand bighorn movements, seasonal ranges, and to monitor potential interactions with domestic sheep. One ewe collar currently is not functioning, and 1 collared ram was harvested. There are currently 2 functional collars in the unit. This Rocky Mountain bighorn sheep population is stable 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 2019 season, of which 2 were unsuccessful. Of the 6 mountain goats harvested 1 (17%) was a nanny. The average age of all harvested mountain goats was 7.2 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 101-102 in January 2020. Biologists classified 28 mountain goats in Unit 101 resulting in an observed ratio of 8 kids:100 adults. The northern 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 104 mountain goats in Unit 102 resulting in an observed ratio of 20 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. Unit 103 was not surveyed this year due to poor weather and high winds.

Weather and Habitat

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 2019, the 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. The seeding was successful in much of the burn and will continue to progress towards a desirable state for the mountain goats associated with Lamoille Canyon.

Population Status and Trend

Following 2 years of strong recruitment, the Unit 101 kid ratio is back to a low and troublesome level. More years of elevated recruitment are needed to curtail the long-term population contraction and to maintain the minimal tag quota for Unit 101. The continued shrinking of the survey sample size in Unit 101 is alarming. To document the pathogen profile of individual mountain goats and potentially remove those individuals that are chronic shedders harmful pathogens, a collaring and 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 1 of the collars being deployed.

In January 2020 the effort to deploy the remaining collars was resumed. The collaring was hampered by multiple storms and high winds but concluded with 7 mountain goats being sampled with 6 of them being fitted with collars. The disease samples were processed, yielding promising results in that none of the individuals sampled appeared to be chronically shedding the previously identified pathogens. This collaring effort is expected to be continued in winter 2020-2021. 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 2019 is 1,689 bears (Table 1). All bears are marked with permanently identifying individual ear tags, tattoos, or PIT tags prior to release. To date the Nevada Department of Wildlife has permanently marked and released 596 individual bears.

Table 1: Bears handled in the Western Region, 2010–2019.

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Bears handled	78	78	83	97	143	122	71	89	120	75
Cumulative total[a] (since 1997)	814	892	975	1071	1214	1336	1407	1494	1614	1689

[a] *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 2019 season was open from September 15 to December 1 (78 days). The harvest limit established by the Commission has remained at 20 bears each year. Harvest limits have been apportioned to subsets of open units, and female harvest limits have been added. In 2017, the Commission increased the number of tags to resident and non-resident hunters to 45 and 5, respectively. Resident, nonresident and bonus point-only 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	2019
Applications	1,113	1,719	1,972	2,090	2,293	2,457	2,546	2,828	3,109
Bonus Point Only	129	568	708	939	1,182	1,387	1,592	2,301	2,537
Total Applications	1,242	2,287	2,680	3,029	3,475	3,844	4,138	5,129	5,646

The Nevada Department of Wildlife's Black Bear Management Plan specifies harvest data will be analyzed both annually and by the most recent 3 years. Several harvest criteria indicators are used to infer harvest pressure, with 3 of these indicators having more emphasis on triggering possible changes in season structure. These are percent females in the harvest, and mean ages of both sex cohorts (Table 3). Additionally, the Nevada Department of Wildlife uses mark-recapture analyses to determine population size and trend, 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-in the hide and skull of harvested bears with a Department representative. The overall harvest of 17 bears in 2019 represents less than 3% of the total estimated population. The hunter success rate was 33% in 2019, which is above the long-term average of 30%. Of the 126 successful hunters to date; 90% saved the meat for consumption, 23% 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 167 occasions.

Fifty-two percent (65 of 126) of the bears killed during the 9 years of the hunt have been harvested in Unit 291. In 2017, open units were classified into 3-unit groups with the goal of distributing harvest. Each

unit group has a separate female harvest and total harvest limit. Unit groups are: 192, 194, 196 and 195; 201, 202, 204 and 206; and 291 with 203. 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 (Unit s 201, 202, 204, and 206) and 29 (Units 291 and 203) were set at 6 total and 2 females and 8 total and 3 females, respectively. Considering the current population estimates, these are very conservative harvest limits. The season structure, individual unit group harvest limits, and instructions to hunters at the indoctrination courses seems to have reduced female harvest the last 3 years (Table 3) and distributed overall harvest throughout the open units.

Table 3: Hunter harvest data 2013-2019.

Data from all successful hunters	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Last 3 years**	**3 yr Harvest criteria indicator**	**All Years 2011-2019**
Male bears killed	10	12	8	5	9	11	14	34		88
Female bears killed	4	6	6	6	4	3	3	10		38
% females in harvest	*29%*	*33%*	*43%*	*55%*	*31%*	*21%*	*18%*	***23%***	***Light harvest***	***30%***
Mean age males (years)	*4.7*	*6.3*	*6.8*	*9.4*	*3.9*	*5.9*	*8.6*	***6.5***	***Light harvest***	***6.4***
Mean age females (years)	5.8	9.3	4.8	7.0	6.3	4.0	4.7	**5.1**	***Stable Harvest***	**6.3**
Mean age all (years)	5.0	7.9	5.9	8.1	5.8	6.1	7.9	6.2		6.3
Male:female ratio	2.5	2.0	1.3	0.8	2.3	3.7	4.7	1.9		2.3
Hunter success rate	31%	40%	31%	24%	26%	28%	33%	26%		30%
Average days hunted	8.4	5.1	6.7	8.8	5.2	8.8	5.4	7.6		7.1
Average days scouted	4.0	2.9	2.5	4.3	7.5	4.6	4.9	5.5		4.4
Hunt Method:										
Dogs	8	13	9	8	9	11	12	32		89
Other	6	5	5	3	4	3	5	12		37

Status

The modeled statewide population estimate is 600-700 black bears ≥ 18 months of age (age at independence). The most recent MARK analysis completed by the University of Nevada, Reno concluded that the bear population within the study area (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. 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.

APPENDIX

Harvest, Survey, and Population Tables

APPENDIX – TABLE OF CONTENTS

Harvest, Survey, and Population Tables

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Antelope Horns Longer Than Ears	Antelope	ALW	011	Aug 22 - Sep 07	462	70	63	42	15%	98%	68%		21%	3.1	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	012 - 014	Aug 22 - Sep 07	1,177	150	142	95	13%	98%	68%		22%	3.3	4.7
Res Antelope Horns Longer Than Ears	Antelope	ALW	015	Aug 22 - Sep 07	526	75	72	50	14%	100%	69%		28%	3.1	5.0
Res Antelope Horns Longer Than Ears	Antelope	ALW	021 - 022	Aug 22 - Sep 07	1,606	45	40	35	3%	100%	88%		46%	3.1	6.9
Res Antelope Horns Longer Than Ears	Antelope	ALW	031	Aug 22 - Sep 07	534	130	118	54	24%	97%	47%		20%	3.6	5.0
Res Antelope Horns Longer Than Ears	Antelope	ALW	032, 034	Aug 22 - Sep 07	364	85	79	37	23%	99%	47%		14%	3.0	4.0
Res Antelope Horns Longer Than Ears	Antelope	ALW	033	Aug 22 - Aug 28	413	35	30	19	8%	97%	66%		32%	3.3	4.6
Res Antelope Horns Longer Than Ears	Antelope	ALW	033	Aug 29 - Sep 07	159	35	32	24	22%	100%	75%		38%	3.5	5.0
Res Antelope Horns Longer Than Ears	Antelope	ALW	035	Aug 22 - Sep 07	210	35	34	23	17%	97%	70%		22%	2.4	3.6
Res Antelope Horns Longer Than Ears	Antelope	ALW	041 - 042	Aug 22 - Aug 28	996	70	66	48	7%	98%	74%		29%	2.6	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	041 - 042	Aug 29 - Sep 07	324	70	66	47	22%	98%	72%		36%	2.6	4.6
Res Antelope Horns Longer Than Ears	Antelope	ALW	043 - 046	Aug 22 - Sep 07	355	70	67	56	20%	100%	84%		18%	3.0	5.6
Res Antelope Horns Longer Than Ears	Antelope	ALW	051	Aug 22 - Sep 07	337	35	34	23	10%	100%	68%		35%	3.1	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	061 - 062, 064, 071, 073	Aug 22 - Sep 07	1,152	140	133	99	12%	97%	77%		24%	2.7	4.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	065, 142, 144	Aug 22 - Sep 07	532	75	74	54	14%	97%	75%		25%	2.9	5.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	066	Aug 22 - Sep 07	138	35	33	24	25%	97%	75%		33%	4.0	5.3
Res Antelope Horns Longer Than Ears	Antelope	ALW	067 - 068	Aug 22 - Sep 07	600	120	114	89	20%	96%	81%		31%	3.2	5.0
Res Antelope Horns Longer Than Ears	Antelope	ALW	072, 074 - 075	Aug 22 - Sep 07	471	65	63	45	14%	100%	71%		27%	2.4	3.5
Res Antelope Horns Longer Than Ears	Antelope	ALW	076 - 077, 079, 081, 091	Aug 22 - Sep 07	715	50	44	34	7%	98%	79%		68%	2.9	4.9
Res Antelope Horns Longer Than Ears	Antelope	ALW	078, 105 - 107, 121	Aug 22 - Sep 07	528	100	98	78	19%	98%	81%		22%	2.9	3.9
Res Antelope Horns Longer Than Ears	Antelope	ALW	101 - 104, 108 - 109, 144	Aug 22 - Sep 07	478	90	86	70	19%	98%	83%		33%	2.5	3.8
Res Antelope Horns Longer Than Ears	Antelope	ALW	111 - 114	Aug 22 - Sep 07	1,051	120	117	67	11%	98%	58%		16%	3.3	4.6
Res Antelope Horns Longer Than Ears	Antelope	ALW	115, 231, 242	Aug 22 - Sep 07	419	40	36	31	10%	97%	89%		32%	2.9	4.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	131, 145, 163 - 164	Aug 22 - Sep 07	496	80	75	56	16%	97%	77%		27%	2.9	4.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	132 - 134, 245	Aug 22 - Sep 07	543	45	43	38	8%	100%	88%		21%	1.9	3.0
Res Antelope Horns Longer Than Ears	Antelope	ALW	141, 143, 151 - 156	Aug 22 - Sep 07	1,117	250	242	173	22%	99%	72%		29%	2.7	3.9
Res Antelope Horns Longer Than Ears	Antelope	ALW	161 - 162	Aug 22 - Sep 07	360	45	44	35	13%	95%	83%		40%	2.7	4.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	171 - 173	Aug 22 - Sep 07	201	30	30	29	15%	100%	97%		31%	2.1	3.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	181 - 184	Aug 22 - Sep 07	504	55	54	47	11%	100%	87%		34%	1.8	3.1
Res Antelope Horns Longer Than Ears	Antelope	ALW	202, 204	Oct 15 - Oct 30	132	7	6	5	5%	100%	83%		40%	2.8	4.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	203, 291	Aug 22 - Sep 07	75	8	8	6	11%	100%	75%		17%	3.9	5.0
Res Antelope Horns Longer Than Ears	Antelope	ALW	205 - 208	Aug 22 - Sep 07	139	25	25	22	18%	92%	96%		23%	1.8	3.8
Res Antelope Horns Longer Than Ears	Antelope	ALW	211 - 213	Aug 22 - Sep 07	35	8	8	6	23%	100%	75%		17%	2.4	5.7
Res Antelope Horns Longer Than Ears	Antelope	ALW	221 - 223, 241	Aug 22 - Sep 07	473	40	40	26	8%	98%	67%		15%	2.2	3.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	251	Aug 22 - Sep 07	427	25	22	20	6%	100%	91%		35%	2.3	4.5
Res Antelope Horns Longer Than Ears	Antelope	AR	011	Aug 01 - Aug 21	63	15	10	3	24%	100%	30%		33%	6.3	8.3
Res Antelope Horns Longer Than Ears	Antelope	AR	012 - 014	Aug 01 - Aug 21	112	25	18	3	22%	94%	18%		0%	5.5	7.1
Res Antelope Horns Longer Than Ears	Antelope	AR	015	Aug 01 - Aug 21	64	20	16	2	31%	100%	13%		0%	6.7	12.3
Res Antelope Horns Longer Than Ears	Antelope	AR	021 - 022	Aug 01 - Aug 21	148	3	2	2	2%	100%	100%		50%	8.5	20.0
Res Antelope Horns Longer Than Ears	Antelope	AR	031	Aug 01 - Aug 21	41	10	8	2	24%	100%	25%		50%	5.3	7.6

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Antelope Horns Longer Than Ears	Antelope	AR	032, 034	Aug 01 - Aug 21	55	25	14	2	45%	93%	15%		0%	4.6	7.6
Res Antelope Horns Longer Than Ears	Antelope	AR	033	Aug 01 - Aug 21	39	7	4	1	18%	100%	25%		100%	4.0	6.7
Res Antelope Horns Longer Than Ears	Antelope	AR	035	Aug 01 - Aug 21	25	5	4	1	20%	75%	33%		100%	5.0	6.0
Res Antelope Horns Longer Than Ears	Antelope	AR	041 - 042	Aug 01 - Aug 21	113	15	11	4	13%	82%	44%		0%	2.3	5.1
Res Antelope Horns Longer Than Ears	Antelope	AR	043 - 046	Aug 01 - Aug 21	40	20	12	1	50%	92%	9%		0%	4.9	5.8
Res Antelope Horns Longer Than Ears	Antelope	AR	051	Aug 01 - Aug 21	49	15	11	1	31%	91%	10%		0%	3.0	4.8
Res Antelope Horns Longer Than Ears	Antelope	AR	061 - 062, 064, 071, 073	Aug 01 - Aug 21	126	40	32	4	32%	97%	13%		25%	5.9	8.8
Res Antelope Horns Longer Than Ears	Antelope	AR	065, 142, 144	Aug 01 - Aug 21	45	15	12	4	33%	100%	33%		25%	5.2	7.9
Res Antelope Horns Longer Than Ears	Antelope	AR	066	Aug 01 - Aug 21	19	10	8	1	53%	100%	13%		0%	7.0	9.0
Res Antelope Horns Longer Than Ears	Antelope	AR	067 - 068	Aug 01 - Aug 21	62	35	26	4	56%	92%	17%		25%	5.5	7.2
Res Antelope Horns Longer Than Ears	Antelope	AR	072, 074 - 075	Aug 01 - Aug 21	63	25	21	2	40%	86%	11%		50%	4.9	7.2
Res Antelope Horns Longer Than Ears	Antelope	AR	076 - 077, 079, 081, 091	Aug 01 - Aug 21	69	25	21	6	36%	100%	29%		0%	5.5	7.8
Res Antelope Horns Longer Than Ears	Antelope	AR	078, 105 - 107, 121	Aug 01 - Aug 21	35	7	6	0	20%	100%	0%			2.5	3.5
Res Antelope Horns Longer Than Ears	Antelope	AR	101 - 104, 108 - 109, 144	Aug 01 - Aug 21	64	15	12	4	23%	100%	33%		50%	6.3	10.8
Res Antelope Horns Longer Than Ears	Antelope	AR	111 - 114	Aug 01 - Aug 21	84	15	13	2	18%	100%	15%		50%	5.3	7.2
Res Antelope Horns Longer Than Ears	Antelope	AR	115, 231, 242	Aug 01 - Aug 14	58	10	10	8	17%	90%	89%		25%	4.2	6.7
Res Antelope Horns Longer Than Ears	Antelope	AR	131, 145, 163 - 164	Aug 01 - Aug 14	37	10	8	0	27%	100%	0%			4.3	7.2
Res Antelope Horns Longer Than Ears	Antelope	AR	132 - 134, 245	Aug 01 - Aug 14	46	5	4	2	11%	100%	50%		50%	2.0	2.5
Res Antelope Horns Longer Than Ears	Antelope	AR	141, 143, 151 - 156	Aug 01 - Aug 21	104	60	48	8	58%	96%	17%		25%	4.2	6.1
Res Antelope Horns Longer Than Ears	Antelope	AR	161 - 162	Aug 01 - Aug 21	23	4	3	0	17%	100%	0%			4.0	6.0
Res Antelope Horns Longer Than Ears	Antelope	AR	171 - 173	Aug 01 - Aug 21	26	7	5	2	27%	100%	40%		100%	2.4	6.0
Res Antelope Horns Longer Than Ears	Antelope	AR	181 - 184	Aug 01 - Aug 21	57	15	10	3	26%	90%	33%		0%	7.0	9.3
Res Antelope Horns Longer Than Ears	Antelope	AR	203, 291	Aug 01 - Aug 21	10	2	2	1	20%	100%	50%		0%	3.0	4.5
Res Antelope Horns Longer Than Ears	Antelope	AR	205 - 208	Aug 01 - Aug 21	20	10	10	5	50%	100%	50%		20%	3.7	5.4
Res Antelope Horns Longer Than Ears	Antelope	AR	211 - 213	Aug 01 - Aug 21	2	1	1	0	50%	100%	0%			2.0	2.0
Res Antelope Horns Longer Than Ears	Antelope	AR	221 - 223, 241	Aug 01 - Aug 14	46	8	5	2	17%	100%	40%		0%	4.3	5.0
Res Antelope Horns Longer Than Ears	Antelope	AR	251	Aug 01 - Aug 21	40	2	0		5%						
Res Antelope Horns Longer Than Ears	Antelope	M	011	Sep 25 - Oct 04	12	2	2	1	17%	100%	50%		0%	3.5	3.5
Res Antelope Horns Longer Than Ears	Antelope	M	012 - 014	Sep 25 - Oct 04	20	8	7	1	40%	100%	14%		0%	3.7	3.7
Res Antelope Horns Longer Than Ears	Antelope	M	015	Sep 25 - Oct 04	21	15	14	3	71%	86%	25%		67%	4.4	5.3
Res Antelope Horns Longer Than Ears	Antelope	M	021 - 022	Sep 25 - Oct 04	30	4	4	1	13%	100%	25%		0%	5.0	8.0
Res Antelope Horns Longer Than Ears	Antelope	M	033	Sep 25 - Oct 04	14	5	4	1	36%	100%	25%		0%	4.0	5.3
Res Antelope Horns Longer Than Ears	Antelope	M	065, 142, 144	Sep 25 - Oct 04	24	7	7	5	29%	100%	71%		40%	3.5	5.8
Res Antelope Horns Longer Than Ears	Antelope	M	078, 105 - 107, 121	Sep 25 - Oct 04	14	10	8	6	71%	100%	75%		17%	3.1	5.1
Res Antelope Horns Longer Than Ears	Antelope	M	101 - 104, 108 - 109, 144	Sep 25 - Oct 04	5	2	2		40%	100%	0%				
Res Antelope Horns Longer Than Ears	Antelope	M	111 - 114	Sep 25 - Oct 04	25	10	10	2	40%	100%	20%		0%	3.2	4.4
Res Antelope Horns Longer Than Ears	Antelope	M	115, 231, 242	Aug 15 - Aug 21	9	3	3	1	33%	100%	33%		0%	1.0	2.5
Res Antelope Horns Longer Than Ears	Antelope	M	131, 145, 163 - 164	Aug 15 - Aug 21	8	2	2	0	25%	100%	0%			5.0	5.0
Res Antelope Horns Longer Than Ears	Antelope	M	132 - 134, 245	Aug 15 - Aug 21	9	1	1		11%	100%	0%				
Res Antelope Horns Longer Than Ears	Antelope	M	221 - 223, 241	Aug 15 - Aug 21	10	5	5	1	50%	80%	25%		0%	2.5	3.5

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Antelope Horns Shorter Than Ears	Antelope	ALW	031	Sep 08 - Sep 24	387	65	64	36	17%	97%	58%			2.7	3.3
Res Antelope Horns Shorter Than Ears	Antelope	ALW	032, 034	Sep 08 - Sep 24	166	25	25	7	15%	100%	28%			2.9	3.8
Res Antelope Horns Shorter Than Ears	Antelope	ALW	035	Sep 08 - Sep 24	121	10	10	6	8%	100%	60%			3.2	5.0
Res Antelope Horns Shorter Than Ears	Antelope	ALW	041 - 042	Sep 08 - Sep 24	817	40	40	29	5%	100%	73%			2.1	3.0
Res Antelope Horns Shorter Than Ears	Antelope	ALW	061 - 062, 064, 071, 073	Sep 08 - Sep 24	819	170	169	100	21%	97%	61%			2.9	3.8
Res Antelope Horns Shorter Than Ears	Antelope	ALW	065, 142, 144	Sep 08 - Sep 24	188	45	44	39	24%	100%	89%			2.0	2.8
Res Antelope Horns Shorter Than Ears	Antelope	ALW	066	Sep 08 - Sep 24	60	15	15	9	25%	100%	60%			2.1	2.9
Res Antelope Horns Shorter Than Ears	Antelope	ALW	067 - 068	Sep 08 - Sep 24	374	130	130	84	35%	99%	65%			2.8	3.6
Res Antelope Horns Shorter Than Ears	Antelope	ALW	072, 074 - 075	Sep 08 - Sep 24	165	40	41	22	24%	95%	56%			2.3	2.8
Res Antelope Horns Shorter Than Ears	Antelope	ALW	076 - 077, 079, 081, 091	Sep 08 - Sep 24	108	15	15	11	14%	100%	73%			1.7	2.1
Res Antelope Horns Shorter Than Ears	Antelope	ALW	078, 105 - 107, 121	Sep 08 - Sep 24	233	65	65	47	28%	98%	73%			2.3	3.4
Res Antelope Horns Shorter Than Ears	Antelope	ALW	101 - 104, 108 - 109, 144	Sep 08 - Sep 24	179	40	39	25	22%	97%	66%			2.4	3.7
Res Antelope Horns Shorter Than Ears	Antelope	ALW	111 - 114	Sep 08 - Sep 24	477	60	60	45	13%	100%	75%			2.4	3.0
Res Antelope Horns Shorter Than Ears	Antelope	ALW	114 - 115 (Baker Ranch)	Sep 10 - Sep 16	35	10	10	8	29%	100%	80%			1.1	1.9
Res Antelope Horns Shorter Than Ears	Antelope	ALW	131, 145	Sep 08 - Sep 24	181	35	35	24	19%	94%	73%			2.0	2.9
Res Antelope Horns Shorter Than Ears	Antelope	ALW	141, 143, 152, 154 - 155	Sep 08 - Sep 24	689	290	286	187	42%	97%	67%			2.4	3.2
Res Antelope Horns Shorter Than Ears	Antelope	ALW	151, 153, 156	Sep 08 - Sep 24	460	240	239	169	52%	99%	71%			2.2	2.8
Res Antelope Horns Shorter Than Ears	Antelope	ALW	181 - 184	Sep 08 - Sep 24	310	25	25	23	8%	100%	92%			1.2	1.7
Res Landowner Damage Compensation Antelope	Antelope	SWR	022	See CR 19-05			1	1		100%	100%		0%	2.0	7.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	031	See CR 19-05			1	0		100%	0%			4.0	4.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	032	See CR 19-05			1	1		100%	100%		0%	2.0	2.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	034	See CR 19-05			1	0		100%	0%			5.0	8.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	035	See CR 19-05			3	3		100%	100%		0%	1.0	2.7
Res Landowner Damage Compensation Antelope	Antelope	SWR	041	See CR 19-05			1	1		100%	100%		100%	2.0	2.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	044	See CR 19-05			2	2		100%	100%		0%	3.5	4.5
Res Landowner Damage Compensation Antelope	Antelope	SWR	065	See CR 19-05			1	1		100%	100%		0%	1.0	1.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	068	See CR 19-05			3	3		100%	100%		33%	2.0	3.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	075	See CR 19-05			2	1		100%	50%		0%	2.5	4.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	081	See CR 19-05			1	1		100%	100%		0%	1.0	2.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	115	See CR 19-05			1	1		100%	100%		100%	1.0	5.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	141	See CR 19-05			1			100%	0%				
Res Landowner Damage Compensation Antelope	Antelope	SWR	144	See CR 19-05			5	5		100%	100%		40%	2.4	3.4
Res Landowner Damage Compensation Antelope	Antelope	SWR	152	See CR 19-05			1	1		100%	100%		100%	2.0	2.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	156	See CR 19-05			5	5		100%	100%		20%	1.6	2.6
Res Landowner Damage Compensation Antelope	Antelope	SWR	172	See CR 19-05			2	1		50%	100%		0%	2.0	2.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	172, 184	See CR 19-05			2	2		100%	100%		100%	2.0	3.5
Res Landowner Damage Compensation Antelope	Antelope	SWR	183	See CR 19-05			1	1		100%	100%		0%	1.0	1.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	221	See CR 19-05			1	1		100%	100%		0%	5.0	10.0
Res Landowner Damage Compensation Antelope	Antelope	SWR	251	See CR 19-05			6	6		100%	100%		83%	2.5	3.2
Res PIW Antelope Horns Longer Than Ears	Antelope	SWR	Any Open Unit	Aug 01 - Oct 30	2,057	5	5	4	0.2%	100%	80%		100%	4.8	9.4

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Silver State Pronghorn Antelope	Antelope	ALW	Any Open Unit	Aug 01 - Dec 31	4,272	1	1	1	0.02%	100%	100%		0%	1.0	2.0
Res Wildlife Heritage Antelope	Antelope	ALW	Any Open Unit	Aug 01 - Dec 31			2	1		100%	50%		100%	15.0	20.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	011	Aug 22 - Sep 07	402	7	7	3	2%	100%	43%		67%	2.8	4.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	012 - 014	Aug 22 - Sep 07	411	15	12	7	4%	92%	64%		43%	3.7	4.1
NR Antelope Horns Longer Than Ears	Antelope	ALW	015	Aug 22 - Sep 07	249	8	8	6	3%	100%	75%		50%	3.1	4.7
NR Antelope Horns Longer Than Ears	Antelope	ALW	021 - 022	Aug 22 - Sep 07	534	5	3	1	1%	67%	50%		100%	3.0	6.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	031	Aug 22 - Sep 07	188	15	15	7	8%	100%	47%		29%	3.2	4.2
NR Antelope Horns Longer Than Ears	Antelope	ALW	032, 034	Aug 22 - Sep 07	138	10	10	4	7%	90%	44%		0%	4.2	6.3
NR Antelope Horns Longer Than Ears	Antelope	ALW	033	Aug 22 - Aug 28	612	4	4	3	1%	100%	75%		33%	5.0	8.3
NR Antelope Horns Longer Than Ears	Antelope	ALW	033	Aug 29 - Sep 07	145	4	3	2	3%	100%	67%		50%	3.7	8.3
NR Antelope Horns Longer Than Ears	Antelope	ALW	035	Aug 22 - Sep 07	55	4	4	4	7%	100%	100%		25%	1.0	2.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	041 - 042	Aug 22 - Aug 28	203	8	8	6	4%	100%	75%		33%	3.0	4.3
NR Antelope Horns Longer Than Ears	Antelope	ALW	041 - 042	Aug 29 - Sep 07	61	8	7	6	13%	100%	86%		33%	3.3	4.4
NR Antelope Horns Longer Than Ears	Antelope	ALW	043 - 046	Aug 22 - Sep 07	40	7	6	6	18%	100%	100%		33%	2.0	2.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	051	Aug 22 - Sep 07	78	4	4	3	5%	100%	75%		0%	2.5	5.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	061 - 062, 064, 071, 073	Aug 22 - Sep 07	285	15	13	12	5%	100%	92%		42%	3.3	4.7
NR Antelope Horns Longer Than Ears	Antelope	ALW	065, 142, 144	Aug 22 - Sep 07	72	10	9	7	14%	100%	78%		29%	3.1	4.1
NR Antelope Horns Longer Than Ears	Antelope	ALW	066	Aug 22 - Sep 07	45	4	4	2	9%	100%	50%		50%	3.0	3.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	067 - 068	Aug 22 - Sep 07	141	15	13	7	11%	92%	58%		57%	2.8	3.4
NR Antelope Horns Longer Than Ears	Antelope	ALW	072, 074 - 075	Aug 22 - Sep 07	161	7	7	5	4%	100%	71%		0%	2.8	3.7
NR Antelope Horns Longer Than Ears	Antelope	ALW	076 - 077, 079, 081, 091	Aug 22 - Sep 07	1,266	6	6	4	0.5%	100%	67%		50%	3.5	6.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	078, 105 - 107, 121	Aug 22 - Sep 07	85	10	9	9	12%	100%	100%		22%	3.0	4.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	101 - 104, 108 - 109, 144	Aug 22 - Sep 07	101	10	10	10	10%	100%	100%		40%	1.9	2.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	111 - 114	Aug 22 - Sep 07	174	15	15	13	9%	93%	93%		46%	2.4	3.6
NR Antelope Horns Longer Than Ears	Antelope	ALW	115, 231, 242	Aug 22 - Sep 07	93	4	4	3	4%	100%	75%		33%	1.8	3.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	131, 145, 163 - 164	Aug 22 - Sep 07	96	10	9	8	10%	100%	89%		38%	2.2	2.7
NR Antelope Horns Longer Than Ears	Antelope	ALW	132 - 134, 245	Aug 22 - Sep 07	91	5	5	4	5%	100%	80%		50%	2.0	3.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	141, 143, 151 - 156	Aug 22 - Sep 07	254	25	24	22	10%	100%	92%		14%	2.3	3.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	161 - 162	Aug 22 - Sep 07	90	5	5	5	6%	100%	100%		40%	1.2	1.8
NR Antelope Horns Longer Than Ears	Antelope	ALW	171 - 173	Aug 22 - Sep 07	44	3	3	3	7%	100%	100%		33%	3.0	4.3
NR Antelope Horns Longer Than Ears	Antelope	ALW	181 - 184	Aug 22 - Sep 07	80	6	6	6	8%	100%	100%		67%	2.5	4.3
NR Antelope Horns Longer Than Ears	Antelope	ALW	202, 204	Oct 15 - Oct 30	29	1	1	0	3%	100%	0%			8.0	9.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	205 - 208	Aug 22 - Sep 07	45	3	2	2	7%	100%	100%		0%	2.5	5.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	221 - 223, 241	Aug 22 - Sep 07	65	4	4	4	6%	100%	100%		0%	3.8	4.8
NR Antelope Horns Longer Than Ears	Antelope	ALW	251	Aug 22 - Sep 07	188	3	3	3	2%	100%	100%		67%	1.3	3.3
NR Antelope Horns Longer Than Ears	Antelope	AR	011	Aug 01 - Aug 21	24	2	1	1	8%	100%	100%		0%	3.0	3.0
NR Antelope Horns Longer Than Ears	Antelope	AR	012 - 014	Aug 01 - Aug 21	27	3	2	1	11%	100%	50%		0%	3.5	3.5
NR Antelope Horns Longer Than Ears	Antelope	AR	015	Aug 01 - Aug 21	19	2	1	0	11%	100%	0%			4.0	4.0
NR Antelope Horns Longer Than Ears	Antelope	AR	021 - 022	Aug 01 - Aug 21	35	1	0		3%						
NR Antelope Horns Longer Than Ears	Antelope	AR	031	Aug 01 - Aug 21	8	1	1	0	13%	100%	0%			5.0	5.0

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Antelope Horns Longer Than Ears	Antelope	AR	032, 034	Aug 01 - Aug 21	14	2	2	0	14%	100%	0%			5.0	7.5
NR Antelope Horns Longer Than Ears	Antelope	AR	033	Aug 01 - Aug 21	64	1	1	1	2%	100%	100%		0%	9.0	9.0
NR Antelope Horns Longer Than Ears	Antelope	AR	035	Aug 01 - Aug 21	5	1	1	1	20%	100%	100%		0%	5.0	12.0
NR Antelope Horns Longer Than Ears	Antelope	AR	041 - 042	Aug 01 - Aug 21	20	1	1	0	5%	100%	0%			9.0	13.0
NR Antelope Horns Longer Than Ears	Antelope	AR	043 - 046	Aug 01 - Aug 21	3	2	2	0	67%	100%	0%			3.5	5.5
NR Antelope Horns Longer Than Ears	Antelope	AR	051	Aug 01 - Aug 21	4	1	0		25%						
NR Antelope Horns Longer Than Ears	Antelope	AR	061 - 062, 064, 071, 073	Aug 01 - Aug 21	10	4	3	1	40%	100%	33%		0%	5.0	6.0
NR Antelope Horns Longer Than Ears	Antelope	AR	065, 142, 144	Aug 01 - Aug 21	13	2	1		15%	100%	0%				
NR Antelope Horns Longer Than Ears	Antelope	AR	067 - 068	Aug 01 - Aug 21	8	4	3	2	50%	100%	67%		50%	2.0	2.5
NR Antelope Horns Longer Than Ears	Antelope	AR	072, 074 - 075	Aug 01 - Aug 21	15	3	3	0	20%	100%	0%			7.5	9.5
NR Antelope Horns Longer Than Ears	Antelope	AR	078, 105 - 107, 121	Aug 01 - Aug 21	6	1	1	0	17%	100%	0%			8.0	12.0
NR Antelope Horns Longer Than Ears	Antelope	AR	101 - 104, 108 - 109, 144	Aug 01 - Aug 21	3	1	1	1	33%	100%	100%		0%	2.0	2.0
NR Antelope Horns Longer Than Ears	Antelope	AR	111 - 114	Aug 01 - Aug 21	17	2	2	0	12%	50%	0%			5.0	8.0
NR Antelope Horns Longer Than Ears	Antelope	AR	115, 231, 242	Aug 01 - Aug 14	15	1	1	1	7%	100%	100%		0%	1.0	6.0
NR Antelope Horns Longer Than Ears	Antelope	AR	131, 145, 163 - 164	Aug 01 - Aug 14	5	1	1	0	20%	100%	0%			6.0	6.0
NR Antelope Horns Longer Than Ears	Antelope	AR	132 - 134, 245	Aug 01 - Aug 14	14	1	1	1	7%	100%	100%		0%	6.0	9.0
NR Antelope Horns Longer Than Ears	Antelope	AR	141, 143, 151 - 156	Aug 01 - Aug 21	18	6	6	2	33%	100%	33%		0%	4.6	5.8
NR Antelope Horns Longer Than Ears	Antelope	AR	161 - 162	Aug 01 - Aug 21	3	1	1		33%	100%	0%				
NR Antelope Horns Longer Than Ears	Antelope	AR	171 - 173	Aug 01 - Aug 21	4	1	1		25%	100%	0%				2.0
NR Antelope Horns Longer Than Ears	Antelope	AR	181 - 184	Aug 01 - Aug 21	4	2	2	2	50%	100%	100%		0%	4.5	7.0
NR Antelope Horns Longer Than Ears	Antelope	AR	205 - 208	Aug 01 - Aug 21	4	1	1	0	25%	100%	0%			3.0	5.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	012	See CR 19-05			1	1		100%	100%		0%	4.0	4.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	015	See CR 19-05			1	1		100%	100%		0%	3.0	3.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	031	See CR 19-05			4	4		100%	100%		0%	2.0	2.5
NR Landowner Damage Compensation Antelope	Antelope	SWR	032	See CR 19-05			3	3		100%	100%		0%	2.0	2.7
NR Landowner Damage Compensation Antelope	Antelope	SWR	034	See CR 19-05			1	1		100%	100%		0%	3.0	3.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	035	See CR 19-05			2	2		100%	100%		100%	1.5	3.5
NR Landowner Damage Compensation Antelope	Antelope	SWR	044	See CR 19-05			1	0		100%	0%			3.0	4.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	046	See CR 19-05			1	1		100%	100%		0%	1.0	3.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	051	See CR 19-05			4	4		100%	100%		50%	1.3	3.3
NR Landowner Damage Compensation Antelope	Antelope	SWR	062	See CR 19-05			3	3		100%	100%		100%	2.7	3.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	068	See CR 19-05			5	4		100%	80%		75%	2.8	3.6
NR Landowner Damage Compensation Antelope	Antelope	SWR	073	See CR 19-05			2	2		100%	100%		0%	2.0	2.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	105	See CR 19-05			1	1		100%	100%		100%	5.0	8.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	105, 121	See CR 19-05			2	1		100%	50%		100%	5.0	6.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	114 - 115	See CR 19-05			1	0		100%	0%			4.0	4.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	115	See CR 19-05			1	1		100%	100%		0%	2.0	2.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	121	See CR 19-05			3	2		100%	67%		50%	1.7	10.3
NR Landowner Damage Compensation Antelope	Antelope	SWR	134	See CR 19-05			1	1		100%	100%		100%	3.0	4.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	141	See CR 19-05			1	1		100%	100%		0%	1.0	2.0

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Landowner Damage Compensation Antelope	Antelope	SWR	144	See CR 19-05			5	5		100%	100%		60%	2.2	3.4
NR Landowner Damage Compensation Antelope	Antelope	SWR	155	See CR 19-05			1	1		100%	100%		0%	2.0	3.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	156	See CR 19-05			2	1		100%	50%		0%	3.5	3.5
NR Landowner Damage Compensation Antelope	Antelope	SWR	161, 173	See CR 19-05			2	2		100%	100%		0%	1.5	2.5
NR Landowner Damage Compensation Antelope	Antelope	SWR	172	See CR 19-05			3	3		100%	100%		100%	3.7	3.7
NR Landowner Damage Compensation Antelope	Antelope	SWR	172, 184	See CR 19-05			9	9		100%	100%		56%	2.2	3.3
NR Landowner Damage Compensation Antelope	Antelope	SWR	183	See CR 19-05			1	1		100%	100%		0%	1.0	2.0
NR Landowner Damage Compensation Antelope	Antelope	SWR	184	See CR 19-05			4	4		100%	100%		75%	3.0	3.3
NR Landowner Damage Compensation Antelope	Antelope	SWR	245	See CR 19-05			1			0%					
NR Landowner Damage Compensation Antelope	Antelope	SWR	251	See CR 19-05			4	4		100%	100%		75%	3.0	7.0
Dream Antelope	Antelope	SWR	Any Open Unit	Aug 01 - Oct 30			1	1		100%	100%		100%	17.0	17.0
Res Black Bear Either Sex	Black Bear	ALW	192, 194 - 196, 201 - 204, 206, 291	Sep 15 - Dec 01	2,859	45	42	16	2%	98%	39%			6.2	8.5
NR Black Bear Either Sex	Black Bear	ALW	192, 194 - 196, 201 - 204, 206, 291	Sep 15 - Dec 01	237	5	3	0	2%	100%	0%			6.0	6.0
Dream Black Bear	Black Bear	SWR	Any Open Unit	Sep 15 - Dec 01			1	1		100%	100%			1.0	18.0
Res California Bighorn Sheep Any Ewe	Cali Bighorn	ALW	068	Nov 06 - Nov 30	408	1	1	1	0.2%	100%	100%			2.0	3.0
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	012	Sep 01 - Oct 31	350	3	3	3	1%	100%	100%			8.7	19.3
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	014	Sep 01 - Oct 31	172	2	2	1	1%	100%	50%			12.5	15.5
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	021 - 022	Sep 01 - Oct 31	514	2	2	2	0.4%	100%	100%			4.5	6.0
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	031	Sep 01 - Oct 31	1,821	6	6	5	0.3%	100%	83%			6.2	10.8
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	032	Sep 01 - Oct 31	1,798	10	10	10	1%	100%	100%			7.3	10.4
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	033	Sep 01 - Oct 31	164	3	3	3	2%	100%	100%			14.0	14.3
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	034	Sep 01 - Oct 31	538	7	7	6	1%	100%	86%			6.1	12.3
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	035	Sep 01 - Oct 31	330	6	6	4	2%	100%	67%			7.5	12.0
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	041	Sep 01 - Oct 31	487	1	1	1	0.2%	100%	100%			13.0	23.0
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	051	Sep 01 - Oct 31	754	2	2	1	0.3%	100%	50%			8.5	17.5
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	066	Sep 01 - Oct 31	113	1	1	0	1%	100%	0%			4.0	4.0
Res California Bighorn Sheep Any Ram	Cali Bighorn	ALW	068	Sep 01 - Oct 31	685	7	7	7	1%	100%	100%			8.9	11.6
Res PIW California Bighorn Sheep Any Ram	Cali Bighorn	SWR	Any Open Unit	Sep 01 - Oct 31	2,363	1	1	1	0.04%	100%	100%			1.0	6.0
Res Wildlife Heritage California Bighorn Sheep	Cali Bighorn	ALW	Any Open Unit	Aug 01 - Dec 31			1	1		100%	100%			24.0	45.0
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	012	Sep 01 - Oct 31	981	1	1	1	0.1%	100%	100%			1.0	3.0
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	032	Sep 01 - Oct 31	3,036	1	1	1	0.03%	100%	100%			6.0	6.0
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	034	Sep 01 - Oct 31	571	1	1	1	0.2%	100%	100%			5.0	5.0
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	035	Sep 01 - Oct 31	1,020	1	1	1	0.1%	100%	100%			8.0	13.0
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	051	Sep 01 - Oct 31	2,979	1	1	1	0.03%	100%	100%			8.0	14.0
NR California Bighorn Sheep Any Ram	Cali Bighorn	ALW	068	Sep 01 - Oct 31	997	1	1	1	0.1%	100%	100%			12.0	18.0
Dream California Bighorn Sheep	Cali Bighorn	SWR	Any Open Unit	Sep 01 - Oct 31			1	1		100%	100%			5.0	5.0
Res Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	213	Oct 05 - Oct 25	362	50	46	32	14%	98%	71%			2.5	3.5
Res Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	268	Oct 05 - Oct 25	400	60	58	43	15%	100%	74%			2.6	3.7
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	044, 182	Nov 20 - Jan 01	610	17	17	17	3%	100%	100%			4.3	10.6
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	045, 153	Nov 20 - Jan 01	59	3	3	3	5%	100%	100%			3.0	15.3

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	045, 153	Sep 15 - Oct 15	141	5	5	5	4%	100%	100%			2.6	7.6
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	131, 164	Nov 20 - Jan 01	85	3	3	2	4%	100%	67%			12.7	15.7
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	132	Nov 20 - Jan 01	42	4	2	2	10%	100%	100%			11.5	16.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	133, 245	Nov 20 - Jan 01	54	4	4	4	7%	100%	100%			4.3	6.8
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	134, 251	Nov 20 - Jan 01	57	5	5	4	9%	100%	80%			6.6	10.4
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	161	Nov 20 - Jan 01	66	7	7	6	11%	100%	86%			3.4	5.1
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	161	Sep 15 - Oct 15	113	6	6	6	5%	100%	100%			2.7	7.8
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	162 - 163	Nov 20 - Jan 01	232	8	8	8	3%	100%	100%			5.3	11.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	173N	Sep 15 - Oct 20	33	4	4	2	12%	100%	50%			9.8	10.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	173S	Nov 20 - Jan 01	40	1	1	1	3%	100%	100%			1.0	22.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	181	Nov 20 - Jan 01	780	18	18	18	2%	100%	100%			5.8	12.2
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	183	Nov 20 - Jan 01	309	4	4	4	1%	100%	100%			2.3	11.8
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	184	Sep 15 - Oct 15	119	4	4	4	3%	100%	100%			3.0	11.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	202	Nov 20 - Jan 01	208	6	5	5	3%	100%	100%			2.0	5.8
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	204	Oct 15 - Nov 15	49	2	2	2	4%	100%	100%			2.0	16.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	205	Nov 20 - Jan 01	392	13	12	10	3%	100%	83%			5.2	12.3
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	206, 208	Nov 20 - Jan 01	36	4	3	1	11%	100%	33%			8.3	13.3
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	207	Oct 15 - Nov 15	73	5	4	4	7%	100%	100%			1.8	7.3
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	211	Nov 20 - Jan 01	153	12	12	11	8%	100%	92%			5.3	8.5
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	212	Dec 09 - Jan 01	54	6	5	5	11%	100%	100%			2.2	3.8
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	212	Nov 15 - Dec 08	112	6	6	6	5%	100%	100%			1.2	3.7
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	213	Dec 09 - Jan 01	49	6	6	6	12%	100%	100%			3.0	6.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	213	Nov 15 - Dec 08	91	7	7	5	8%	100%	71%			4.0	7.5
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	221, 223, 241	Nov 20 - Jan 01	93	4	4	3	4%	100%	75%			2.3	6.3
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	241	Nov 20 - Jan 01	22	3	2	2	14%	100%	100%			10.5	28.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	243	Nov 20 - Jan 01	53	5	5	2	9%	100%	40%			6.3	10.2
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	244	Nov 20 - Jan 01	175	6	5	5	3%	100%	100%			10.3	14.8
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	252	Nov 21 - Dec 13	128	4	4	3	3%	100%	75%			8.5	10.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	253	Nov 20 - Jan 01	995	7	7	7	1%	100%	100%			2.6	5.3
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	254	Nov 20 - Jan 01	41	3	3	2	7%	100%	67%			11.3	17.3
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	261	Nov 20 - Jan 01	73	5	4	3	7%	100%	75%			5.0	7.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	262	Nov 20 - Jan 01	257	4	4	3	2%	100%	75%			7.0	11.8
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	263	Nov 20 - Jan 01	540	7	7	7	1%	100%	100%			3.0	7.3
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	264 - 265	Nov 20 - Jan 01	80	1	1	1	1%	100%	100%				3.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	266	Nov 20 - Jan 01	67	1	1	1	1%	100%	100%			9.0	15.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	267	Nov 20 - Jan 01	308	8	8	8	3%	100%	100%			5.0	6.9
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	268	Nov 20 - Jan 01	2,382	24	24	23	1%	100%	96%			5.1	7.9
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	271, 242	Nov 20 - Jan 01	256	9	9	7	4%	100%	78%			10.2	17.7
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	272	Nov 20 - Jan 01	51	1	1		2%	100%	0%				
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	280	Dec 19 - Jan 03	42	5	5	3	12%	100%	60%			5.6	5.6

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	281	Dec 19 - Jan 03	61	6	6	3	10%	100%	50%			7.7	7.7
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	282	Dec 19 - Jan 03	286	4	4	3	1%	100%	75%			12.5	13.3
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	283 - 284	Nov 20 - Jan 01	76	4	4	4	5%	100%	100%			6.8	9.0
Res Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	286	Nov 20 - Jan 01	107	5	5	5	5%	100%	100%			5.5	11.0
Res PIW Desert Bighorn Sheep Any Ram	Desert Bighorn	SWR	Any Open Unit	Sep 15 - Jan 01	2,353	1	1	1	0.04%	100%	100%			4.0	4.0
NR Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	213	Oct 05 - Oct 25	124	5	6	4	4%	100%	67%			2.6	3.2
NR Desert Bighorn Sheep Any Ewe	Desert Bighorn	ALW	268	Oct 05 - Oct 25	86	7	7	7	8%	100%	100%			1.3	1.9
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	044, 182	Nov 20 - Jan 01	670	3	3	3	0.4%	100%	100%			5.0	7.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	045, 153	Nov 20 - Jan 01	112	1	1	0	1%	100%	0%			6.0	8.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	161	Nov 20 - Jan 01	218	1	1	1	0.5%	100%	100%			18.0	23.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	161	Sep 15 - Oct 15	73	1	1	1	1%	100%	100%			1.0	2.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	162 - 163	Nov 20 - Jan 01	187	1	1	1	1%	100%	100%			1.0	10.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	173N	Sep 15 - Oct 20	94	1	1	1	1%	100%	100%			4.0	11.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	181	Nov 20 - Jan 01	475	2	2	2	0.4%	100%	100%			3.5	7.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	183	Nov 20 - Jan 01	197	1	1	1	1%	100%	100%			7.0	12.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	184	Sep 15 - Oct 15	93	1	1	1	1%	100%	100%			2.0	6.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	205	Nov 20 - Jan 01	236	1	1	0	0.4%	100%	0%			8.0	8.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	207	Oct 15 - Nov 15	62	1	1	1	2%	100%	100%			1.0	9.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	211	Nov 20 - Jan 01	200	1	1	1	1%	100%	100%			2.0	3.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	212	Dec 09 - Jan 01	115	1	1	1	1%	100%	100%			10.0	10.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	212	Nov 15 - Dec 08	98	1	1	1	1%	100%	100%			1.0	4.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	213	Dec 09 - Jan 01	75	1	1	1	1%	100%	100%			4.0	9.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	213	Nov 15 - Dec 08	179	2	2	2	1%	100%	100%			1.0	7.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	261	Nov 20 - Jan 01	65	1	1	0	2%	100%	0%			16.0	21.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	262	Nov 20 - Jan 01	882	1	1	1	0.1%	100%	100%			3.0	3.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	263	Nov 20 - Jan 01	1,263	1	1	1	0.1%	100%	100%			1.0	6.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	267	Nov 20 - Jan 01	462	1	1	1	0.2%	100%	100%			2.0	7.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	268	Nov 20 - Jan 01	4,454	4	4	4	0.1%	100%	100%			3.0	6.8
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	271, 242	Nov 20 - Jan 01	676	1	1	1	0.1%	100%	100%			3.0	4.0
NR Desert Bighorn Sheep Any Ram	Desert Bighorn	ALW	283 - 284	Nov 20 - Jan 01	95	1	1	1	1%	100%	100%			5.0	5.0
NR Silver State Desert Bighorn Sheep	Desert Bighorn	ALW	Any Open Unit	Sep 21 - Jan 31	6,719	1	1	1	0.01%	100%	100%			9.0	19.0
NR Wildlife Heritage Desert BHS #1	Desert Bighorn	ALW	Any Open Unit	Aug 01 - Dec 31			1	1		100%	100%			3.0	6.0
NR Wildlife Heritage Desert BHS #2	Desert Bighorn	ALW	Any Open Unit	Aug 01 - Dec 31			1	1		100%	100%			5.0	26.0
Dream Desert Bighorn Sheep	Desert Bighorn	SWR	Any Open Unit	Sep 15 - Jan 05			1	1		100%	100%			4.0	11.0
Res Elk Antlered	Elk	ALW	051	Nov 06 - Nov 28	125	7	6	0	6%	100%	0%			8.7	10.2
Res Elk Antlered	Elk	ALW	051	Sep 17 - Sep 30	303	10	9	2	3%	100%	22%	100%	50%	7.1	15.0
Res Elk Antlered	Elk	ALW	061, 071	Oct 05 - Oct 21	480	30	28	14	6%	100%	50%	79%	21%	5.8	8.3
Res Elk Antlered	Elk	ALW	061, 071	Oct 22 - Nov 05	186	40	39	18	22%	95%	49%	33%	11%	4.9	7.1
Res Elk Antlered	Elk	ALW	062, 064, 066 - 068	Nov 06 - Nov 20	182	30	29	11	16%	97%	39%	73%	18%	5.5	8.4
Res Elk Antlered	Elk	ALW	062, 064, 066 - 068	Oct 22 - Nov 05	468	35	34	11	7%	97%	33%	82%	18%	5.7	8.7

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Elk Antlered	Elk	ALW	065	Sep 17 - Sep 30	73	4	3	0	5%	100%	0%			6.0	6.0
Res Elk Antlered	Elk	ALW	072 - 074	Nov 06 - Nov 20	459	190	178	37	41%	97%	21%	57%	16%	6.3	8.4
Res Elk Antlered	Elk	ALW	072 - 074	Oct 22 - Nov 05	855	190	176	55	22%	98%	32%	60%	13%	5.7	7.5
Res Elk Antlered	Elk	ALW	075	Nov 06 - Nov 20	41	15	15	7	37%	93%	50%	43%	0%	5.5	7.4
Res Elk Antlered	Elk	ALW	075	Oct 22 - Nov 05	101	15	14	4	15%	100%	29%	50%	33%	5.2	7.9
Res Elk Antlered	Elk	ALW	076 - 077, 079, 081	Nov 06 - Nov 20	1,007	60	57	37	6%	98%	66%	75%	31%	5.9	8.2
Res Elk Antlered	Elk	ALW	076 - 077, 079, 081	Nov 21 - Dec 04	324	60	58	33	19%	98%	58%	85%	18%	6.4	8.4
Res Elk Antlered	Elk	ALW	078, 105 - 107, 109	Nov 06 - Nov 28	73	11	10	8	15%	100%	80%	75%	38%	4.3	8.1
Res Elk Antlered	Elk	ALW	078, 105 - 107, 109	Oct 22 - Nov 05	195	12	11	7	6%	100%	64%	100%	43%	5.0	7.5
Res Elk Antlered	Elk	ALW	091	Sep 12 - Oct 02	516	9	9	8	2%	100%	89%	100%	63%	4.8	9.6
Res Elk Antlered	Elk	ALW	104, 108, 121	Nov 06 - Nov 20	464	50	46	26	11%	100%	57%	62%	50%	5.6	8.4
Res Elk Antlered	Elk	ALW	108, 131 - 132	Nov 06 - Nov 20	336	55	49	15	16%	98%	31%	53%	27%	6.2	8.1
Res Elk Antlered	Elk	ALW	111 - 115	Nov 06 - Nov 20	2,077	100	92	58	5%	96%	66%	79%	40%	5.7	8.5
Res Elk Antlered	Elk	ALW	111 - 115	Nov 21 - Dec 04	523	90	88	54	17%	97%	64%	72%	33%	6.2	9.2
Res Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Nov 06 - Nov 20	318	40	40	13	13%	98%	33%	54%	25%	5.8	8.8
Res Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Nov 21 - Dec 04	173	40	40	4	23%	98%	10%	50%	25%	6.8	9.1
Res Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Sep 17 - Sep 30	973	8	7	7	1%	100%	100%	100%	71%	3.0	6.4
Res Elk Antlered	Elk	ALW	221 - 223	Nov 06 - Nov 20	1,527	60	57	34	4%	95%	63%	76%	32%	4.8	7.5
Res Elk Antlered	Elk	ALW	221 - 223	Nov 21 - Dec 04	327	60	58	23	18%	98%	40%	74%	30%	5.4	8.0
Res Elk Antlered	Elk	ALW	231	Nov 06 - Nov 20	1,174	40	40	29	3%	98%	74%	55%	28%	4.7	7.3
Res Elk Antlered	Elk	ALW	231	Nov 21 - Dec 04	288	45	39	14	16%	97%	37%	50%	29%	6.4	8.6
Res Elk Antlered	Elk	ALW	241 - 242	Sep 17 - Sep 24	124	3	2	2	2%	100%	100%	100%	0%	3.0	6.5
Res Elk Antlered	Elk	ALW	262	Sep 17 - Sep 30	411	3	3	2	1%	100%	67%	100%	50%	3.3	11.3
Res Elk Antlered	Elk	AR	061, 071	Aug 16 - Aug 31	57	25	21	2	44%	90%	11%	50%	0%	7.4	13.1
Res Elk Antlered	Elk	AR	062, 064, 066 - 068	Aug 16 - Aug 31	32	15	12	3	47%	100%	25%	100%	0%	8.8	13.5
Res Elk Antlered	Elk	AR	072 - 074	Aug 16 - Aug 31	102	75	67	6	74%	96%	9%	67%	17%	7.6	11.2
Res Elk Antlered	Elk	AR	075	Aug 16 - Aug 31	12	3	3	0	25%	100%	0%			10.0	14.3
Res Elk Antlered	Elk	AR	076 - 077, 079, 081	Aug 25 - Sep 16	97	30	28	12	31%	93%	46%	92%	17%	9.9	14.0
Res Elk Antlered	Elk	AR	078, 105 - 107, 109	Sep 01 - Sep 20	43	10	9	4	23%	89%	50%	100%	100%	6.3	12.4
Res Elk Antlered	Elk	AR	104, 108, 121	Aug 25 - Sep 16	56	10	10	5	18%	100%	50%	100%	50%	10.4	13.7
Res Elk Antlered	Elk	AR	108, 131 - 132	Aug 25 - Sep 16	66	10	9	7	15%	89%	88%	100%	71%	9.4	14.0
Res Elk Antlered	Elk	AR	111 - 115	Aug 25 - Sep 16	329	35	33	20	11%	100%	61%	95%	84%	8.4	13.4
Res Elk Antlered	Elk	AR	161 - 164, 171 - 173	Aug 25 - Sep 16	93	20	17	6	22%	100%	35%	50%	33%	7.2	10.4
Res Elk Antlered	Elk	AR	221 - 223	Aug 25 - Sep 16	262	20	18	7	8%	94%	41%	86%	43%	10.1	15.4
Res Elk Antlered	Elk	AR	231	Aug 25 - Sep 16	154	20	20	5	13%	100%	25%	80%	40%	8.7	11.3
Res Elk Antlered	Elk	AR	241 - 242	Aug 25 - Sep 16	5	2	2	1	40%	50%	100%	0%	100%	13.0	33.0
Res Elk Antlered	Elk	AR	262	Aug 25 - Sep 16	34	1	1	1	3%	100%	100%	100%	0%	6.0	11.0
Res Elk Antlered	Elk	M	061, 071	Sep 01 - Sep 16	147	20	18	7	14%	94%	41%	71%	0%	7.3	12.7
Res Elk Antlered	Elk	M	062, 064, 066 - 068	Sep 01 - Sep 16	105	10	9	2	10%	100%	22%	100%	0%	7.3	10.9
Res Elk Antlered	Elk	M	072 - 074	Sep 01 - Sep 16	221	70	64	25	32%	98%	40%	76%	36%	7.6	9.9

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Elk Antlered	Elk	M	075	Sep 01 - Sep 16	30	4	4	4	13%	100%	100%	75%	50%	3.5	5.3
Res Elk Antlered	Elk	M	076 - 077, 079, 081	Oct 22 - Nov 05	68	8	8	3	12%	100%	38%	100%	33%	10.1	14.0
Res Elk Antlered	Elk	M	078, 105 - 107, 109	Oct 05 - Oct 21	54	6	6	3	11%	100%	50%	100%	33%	5.5	10.0
Res Elk Antlered	Elk	M	104, 108, 121	Oct 22 - Nov 05	42	7	7	4	17%	100%	57%	50%	25%	6.3	12.3
Res Elk Antlered	Elk	M	108, 131 - 132	Oct 22 - Nov 05	21	6	5	1	29%	100%	20%	0%	0%	6.0	9.4
Res Elk Antlered	Elk	M	111 - 115	Oct 22 - Nov 05	127	35	31	18	28%	100%	58%	78%	39%	5.8	9.3
Res Elk Antlered	Elk	M	161 - 164, 171 - 173	Oct 22 - Nov 05	63	30	27	10	48%	100%	37%	60%	30%	6.1	8.6
Res Elk Antlered	Elk	M	221 - 223	Oct 22 - Nov 05	71	8	6	3	11%	100%	50%	33%	33%	8.3	13.8
Res Elk Antlered	Elk	M	231	Oct 22 - Nov 05	70	10	9	3	14%	100%	33%	67%	0%	7.4	9.0
Res Elk Antlered	Elk	M	241 - 242	Oct 22 - Nov 05	2	2	2	1	100%	100%	50%	0%	0%	7.5	10.5
Res Elk Antlered	Elk	M	262	Oct 22 - Nov 05	10	1	1	1	10%	100%	100%	100%	0%	12.0	31.0
Res Elk Antlerless	Elk	ALW	051	Dec 05 - Jan 31	90	15	13	0	17%	85%	0%			6.3	8.5
Res Elk Antlerless	Elk	ALW	051	Oct 01 - Oct 20	189	10	10	1	5%	100%	10%			5.2	8.7
Res Elk Antlerless	Elk	ALW	061, 071	Nov 06 - Jan 05	395	170	170	43	43%	97%	26%			4.4	5.5
Res Elk Antlerless	Elk	ALW	061, 071	Sep 17 - Oct 04	1,217	275	262	76	23%	97%	30%			4.8	5.9
Res Elk Antlerless	Elk	ALW	062, 064, 066 - 068	Nov 21 - Jan 05	225	35	35	3	16%	100%	9%			5.2	7.3
Res Elk Antlerless	Elk	ALW	062, 064, 066 - 068	Sep 17 - Oct 04	788	150	149	30	19%	99%	20%			4.7	5.9
Res Elk Antlerless	Elk	ALW	065	Oct 01 - Oct 20	52	10	10	2	19%	100%	20%			7.8	9.9
Res Elk Antlerless	Elk	ALW	072 - 074	Sep 17 - Oct 04	528	140	136	24	27%	100%	18%			5.4	6.8
Res Elk Antlerless	Elk	ALW	072 - 075	Nov 21 - Jan 05	927	130	130	22	14%	98%	17%			6.0	7.5
Res Elk Antlerless	Elk	ALW	072 Wilderness	Sep 17 - Oct 04	222	55	50	20	25%	100%	40%			3.4	4.7
Res Elk Antlerless	Elk	ALW	075	Sep 17 - Oct 04	81	10	10	7	12%	90%	78%			2.0	3.1
Res Elk Antlerless	Elk	ALW	076 - 077, 079, 081	Dec 05 - Jan 05	480	20	20	13	4%	100%	65%			6.3	7.8
Res Elk Antlerless	Elk	ALW	076 - 077, 079, 081	Oct 01 - Oct 20	1,207	40	37	15	3%	100%	41%			4.9	5.5
Res Elk Antlerless	Elk	ALW	078, 105 - 107, 109	Sep 21 - Oct 04	236	80	79	40	34%	100%	51%			4.3	5.7
Res Elk Antlerless	Elk	ALW	091	Aug 01 - Aug 31	83	5	5	4	6%	100%	80%			2.6	3.0
Res Elk Antlerless	Elk	ALW	091	Oct 03 - Nov 01	50	5	4	4	10%	100%	100%			1.3	1.8
Res Elk Antlerless	Elk	ALW	104, 108, 121	Nov 21 - Jan 05	148	15	15	7	10%	100%	47%			2.7	3.8
Res Elk Antlerless	Elk	ALW	104, 108, 121	Sep 25 - Oct 04	637	40	39	24	6%	95%	65%			2.8	4.7
Res Elk Antlerless	Elk	ALW	108, 131 - 132	Sep 25 - Oct 04	286	50	48	11	17%	100%	23%			4.4	5.6
Res Elk Antlerless	Elk	ALW	111 - 112	Dec 05 - Jan 05	513	70	68	34	14%	99%	51%			3.6	4.8
Res Elk Antlerless	Elk	ALW	111 - 112	Sep 25 - Oct 04	1,377	75	69	35	5%	96%	53%			3.8	5.1
Res Elk Antlerless	Elk	ALW	113	Dec 05 - Jan 05	87	30	30	15	34%	97%	52%			3.6	4.1
Res Elk Antlerless	Elk	ALW	113	Sep 25 - Oct 04	111	25	22	7	23%	100%	32%			4.7	6.7
Res Elk Antlerless	Elk	ALW	113N	Jan 06 - Jan 31	32	25	21	9	78%	67%	64%			2.9	4.2
Res Elk Antlerless	Elk	ALW	114 - 115	Dec 05 - Jan 05	147	45	44	20	31%	100%	45%			4.2	5.0
Res Elk Antlerless	Elk	ALW	114 - 115	Sep 25 - Oct 04	252	30	27	9	12%	100%	33%			4.0	4.9
Res Elk Antlerless	Elk	ALW	161 - 164	Dec 05 - Jan 05	463	80	77	8	17%	96%	11%			6.0	7.0
Res Elk Antlerless	Elk	ALW	161 - 164	Oct 01 - Oct 20	509	65	62	3	13%	98%	5%			5.2	6.9
Res Elk Antlerless	Elk	ALW	162 Wilderness	Oct 01 - Oct 20	151	40	35	17	26%	100%	49%			3.2	3.9

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Elk Antlerless	Elk	ALW	221	Dec 05 - Jan 05	71	35	30	6	49%	97%	21%			3.6	4.1
Res Elk Antlerless	Elk	ALW	221	Sep 25 - Oct 04	271	40	38	13	15%	95%	36%			2.8	3.5
Res Elk Antlerless	Elk	ALW	222 - 223	Dec 05 - Jan 05	360	50	47	18	14%	100%	38%			4.6	5.6
Res Elk Antlerless	Elk	ALW	222 - 223	Sep 25 - Oct 04	971	55	54	30	6%	98%	57%			4.0	5.0
Res Elk Antlerless	Elk	ALW	222 Wilderness	Dec 05 - Jan 05	45	15	14	6	33%	93%	46%			3.9	4.8
Res Elk Antlerless	Elk	ALW	222 Wilderness	Sep 25 - Oct 04	70	15	13	8	21%	77%	80%			3.5	4.6
Res Elk Antlerless	Elk	ALW	231	Dec 05 - Jan 05	468	80	79	16	17%	97%	21%			5.4	7.0
Res Elk Antlerless	Elk	ALW	231	Sep 25 - Oct 04	857	55	54	19	6%	100%	35%			4.2	6.1
Res Elk Antlerless	Elk	ALW	231 Wilderness	Sep 25 - Oct 04	46	25	23	5	54%	91%	24%			4.4	6.6
Res Elk Antlerless	Elk	ALW	241 - 242	Sep 25 - Oct 04	95	6	6	2	6%	100%	33%			4.7	6.5
Res Elk Antlerless	Elk	AR	061, 071	Aug 01 - Aug 15	102	65	61	2	64%	100%	3%			6.1	7.6
Res Elk Antlerless	Elk	AR	062, 064, 066 - 068	Aug 01 - Aug 15	60	40	38	1	67%	92%	3%			5.5	7.0
Res Elk Antlerless	Elk	AR	072 - 074	Aug 01 - Aug 15	73	40	35	0	55%	94%	0%			6.8	7.4
Res Elk Antlerless	Elk	AR	075	Aug 01 - Aug 15	5	5	5	0	100%	100%	0%			6.5	10.0
Res Elk Antlerless	Elk	AR	076 - 077, 079, 081	Aug 01 - Aug 24	71	15	14	4	21%	93%	31%			5.7	8.2
Res Elk Antlerless	Elk	AR	078, 105 - 107, 109	Aug 01 - Aug 15	30	15	15	4	50%	93%	29%			5.5	8.8
Res Elk Antlerless	Elk	AR	104, 108, 121	Aug 01 - Aug 24	45	10	10	4	22%	100%	40%			3.4	6.1
Res Elk Antlerless	Elk	AR	108, 131 - 132	Aug 01 - Aug 24	46	8	5	2	17%	100%	40%			3.4	5.6
Res Elk Antlerless	Elk	AR	111 - 112	Aug 01 - Aug 24	180	25	23	8	14%	100%	35%			5.7	8.2
Res Elk Antlerless	Elk	AR	113	Aug 01 - Aug 24	27	20	18	1	74%	100%	6%			5.2	7.6
Res Elk Antlerless	Elk	AR	114 - 115	Aug 01 - Aug 24	66	25	23	7	38%	100%	30%			5.5	9.4
Res Elk Antlerless	Elk	AR	161 - 164	Aug 01 - Aug 15	80	30	29	5	38%	90%	19%			5.0	6.6
Res Elk Antlerless	Elk	AR	221 - 223	Aug 01 - Aug 24	183	45	44	7	25%	98%	16%			5.4	7.7
Res Elk Antlerless	Elk	AR	231	Aug 01 - Aug 24	133	35	33	7	26%	97%	22%			5.2	6.2
Res Elk Antlerless	Elk	AR	241 - 242	Aug 01 - Aug 24	8	5	5	0	63%	80%	0%			4.5	5.0
Res Elk Antlerless	Elk	M	072 - 074	Sep 01 - Sep 16	127	50	48	9	39%	98%	19%			5.8	6.8
Res Elk Antlerless	Elk	M	075	Sep 01 - Sep 16	16	5	5	1	31%	100%	20%			5.5	7.8
Res Elk Antlerless	Elk	M	076 - 077, 079, 081	Sep 17 - Sep 30	126	10	10	2	8%	90%	22%			5.0	5.8
Res Elk Antlerless	Elk	M	078, 105 - 107, 109	Aug 16 - Aug 31	22	10	9	0	45%	100%	0%			4.0	5.6
Res Elk Antlerless	Elk	M	104, 108, 121	Sep 17 - Sep 24	37	10	10	3	27%	90%	33%			4.4	6.4
Res Elk Antlerless	Elk	M	108, 131 - 132	Sep 17 - Sep 24	44	20	20	4	45%	100%	20%			4.8	6.1
Res Elk Antlerless	Elk	M	111 - 112	Sep 17 - Sep 24	129	15	15	5	12%	93%	36%			4.3	4.8
Res Elk Antlerless	Elk	M	113	Sep 17 - Sep 24	26	10	10	7	38%	90%	78%			3.7	5.2
Res Elk Antlerless	Elk	M	114 - 115	Sep 17 - Sep 24	36	15	13	4	42%	100%	31%			3.0	4.4
Res Elk Antlerless	Elk	M	161 - 164	Sep 01 - Sep 16	71	20	19	0	28%	100%	0%			4.6	5.3
Res Elk Antlerless	Elk	M	221 - 223	Sep 17 - Sep 24	148	25	21	6	17%	90%	32%			4.8	6.1
Res Elk Antlerless	Elk	M	231	Sep 17 - Sep 24	151	25	21	11	17%	100%	52%			3.9	5.7
Res Elk Depredation Antlered	Elk	ALW	101 - 103	Aug 01 - Sep 30	820	50	50	22	6%	100%	44%	45%	14%	6.3	9.0
Res Elk Depredation Antlered	Elk	ALW	101 - 103	Oct 01 - Jan 05	376	50	50	19	13%	98%	39%	37%	5%	5.1	6.7
Res Elk Depredation Antlered	Elk	ALW	144 - 145	Nov 01 - Jan 05	75	5	5	0	7%	100%	0%			5.4	7.0

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Elk Depredation Antlered	Elk	ALW	144 - 145	Oct 01 - Oct 31	40	5	5	1	13%	100%	20%	100%	0%	6.4	7.0
Res Elk Depredation Antlered	Elk	ALW	144 - 145	Sep 01 - Sep 30	241	5	5	1	2%	100%	20%	0%	0%	5.5	7.5
Res Elk Depredation Antlered	Elk	ALW	251	Aug 01 - Jan 05	238	5	5	1	2%	100%	20%	100%	100%	7.8	9.5
Res Elk Depredation Antlerless	Elk	ALW	081 1st	Aug 01 - Aug 24	84	10	10	2	12%	100%	20%			2.8	3.0
Res Elk Depredation Antlerless	Elk	ALW	081 2nd	Sep 17 - Sep 30	165	15	15	6	9%	93%	43%			4.0	4.4
Res Elk Depredation Antlerless	Elk	ALW	081 3rd	Oct 01 - Oct 20	118	15	15	6	13%	100%	40%			7.0	8.1
Res Elk Depredation Antlerless	Elk	ALW	081 4th	Dec 05 - Jan 05	67	15	15	5	22%	100%	33%			3.9	4.8
Res Elk Depredation Antlerless	Elk	ALW	101 - 103	Aug 01 - Jan 05	363	150	150	15	41%	100%	10%			6.0	7.5
Res Elk Depredation Antlerless	Elk	ALW	121 1st	Aug 01 - Aug 31	107	25	25	7	23%	96%	29%			4.5	5.9
Res Elk Depredation Antlerless	Elk	ALW	121 2nd	Sep 01 - Sep 30	34	10	10	1	29%	100%	10%			4.9	8.0
Res Elk Depredation Antlerless	Elk	ALW	121 3rd	Oct 01 - Jan 05	51	10	10	2	20%	100%	20%			3.3	5.0
Res Elk Depredation Antlerless	Elk	ALW	144 - 145	Aug 01 - Aug 31	50	5	5	1	10%	100%	20%			5.4	7.8
Res Elk Depredation Antlerless	Elk	ALW	144 - 145	Oct 01 - Jan 05	44	5	5	0	11%	100%	0%			4.3	5.4
Res Elk Depredation Antlerless	Elk	ALW	144 - 145	Sep 01 - Sep 30	22	5	5	1	23%	100%	20%			4.8	6.2
Res Elk Depredation Antlerless	Elk	ALW	251	Aug 01 - Jan 05	107	10	10	0	9%	90%	0%			3.7	5.4
Res Elk Incentive	Elk	ALW	061, 071	Oct 05 - Nov 05			3	3		100%	100%	100%	33%	6.7	8.3
Res Elk Incentive	Elk	ALW	072 - 074	Oct 22 - Nov 20			2	0		100%	0%			3.0	3.0
Res Elk Incentive	Elk	ALW	075	Oct 22 - Nov 20			2	1		100%	50%	100%	0%	3.0	3.5
Res Elk Incentive	Elk	ALW	076 - 077, 079, 081	Nov 06 - Dec 04			5	5		100%	100%	80%	40%	6.6	8.4
Res Elk Incentive	Elk	ALW	111 - 115	Nov 06 - Dec 04			2	1		100%	50%	100%	100%	4.5	4.5
Res Elk Incentive	Elk	ALW	221 - 223	Nov 06 - Dec 04			4	0		100%	0%			7.7	16.0
Res Elk Incentive	Elk	ALW	231	Nov 06 - Dec 04			2	1		100%	50%	100%	100%	8.0	9.5
Res Elk Incentive	Elk	ALW	231, 221 - 223	Nov 06 - Dec 04			1	1		100%	100%	100%	0%	4.0	7.0
Res Elk Incentive	Elk	AR	076 - 077, 079, 081	Aug 25 - Sep 16			1	1		100%	100%	100%	0%	18.0	26.0
Res Elk Incentive	Elk	AR	111 - 115	Aug 25 - Sep 16			3	1		100%	33%	100%	100%	13.0	14.7
Res Elk Incentive	Elk	AR	221 - 223	Aug 25 - Sep 16			3	0		100%	0%			9.0	13.0
Res Elk Incentive	Elk	M	061, 071	Sep 01 - Sep 16			1	0		100%	0%			12.0	12.0
Res Elk Incentive	Elk	M	072 - 074	Sep 01 - Sep 16			1	1		100%	100%	100%	100%	1.0	1.0
Res Elk Incentive	Elk	M	076 - 077, 079, 081	Oct 22 - Nov 05			1	0		100%	0%			5.0	5.0
Res Elk Incentive	Elk	M	111 - 115	Oct 22 - Nov 05			1	0		100%	0%			13.0	13.0
Res Elk Junior Management Antlerless	Elk	SWR	072 - 077, 079	Aug 10 - Nov 02		150	112	26		99%	23%			5.2	7.1
Res Elk Management Antlerless	Elk	ALW	062, 064, 066 - 068	Oct 05 - Oct 20		250	249	11		96%	5%			6.5	8.1
Res Elk Management Antlerless	Elk	ALW	072 - 077, 079	Oct 05 - Oct 20		55	53	10		98%	19%			5.1	6.7
Res Elk Management Antlerless	Elk	ALW	072 - 077, 079	Oct 21 - Nov 05		15	15	7		87%	54%			6.7	8.2
Res Elk Management Antlerless	Elk	ALW	101 - 103	Oct 01 - Oct 16		70	67	0		94%	0%			6.0	8.3
Res Elk Management Antlerless	Elk	ALW	101 - 103	Oct 17 - Oct 30		65	63	3		95%	5%			5.5	6.9
Res Elk Management Antlerless	Elk	ALW	101 - 103	Oct 31 - Nov 08		15	15	1		100%	7%			4.0	6.1
Res Elk Management Antlerless	Elk	ALW	131 - 132	Oct 05 - Oct 20		25	27	6		93%	24%			5.7	7.3
Res Elk Management Antlerless	Elk	ALW	161 - 164	Oct 05 - Oct 20		60	56	3		96%	6%			5.6	7.8
Res Elk Management Antlerless	Elk	ALW	161 - 164	Oct 21 - Nov 05		15	13	3		100%	23%			5.5	7.5

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Elk Management Antlerless	Elk	ALW	231	Oct 05 - Oct 31		30	30	8		90%	30%			10.0	13.0
Res Elk Management Antlerless	Elk	AR	062, 064, 066 - 068	Aug 10 - Sep 09		55	53	0		98%	0%			5.8	7.1
Res Elk Management Antlerless	Elk	AR	072 - 077, 079	Aug 10 - Sep 09		20	20	1		95%	5%			7.9	12.9
Res Elk Management Antlerless	Elk	AR	072 - 077, 079	Nov 10 - Nov 20		2	2	0		100%	0%			5.0	5.0
Res Elk Management Antlerless	Elk	AR	101 - 103	Aug 10 - Sep 09		50	48	1		96%	2%			6.4	9.2
Res Elk Management Antlerless	Elk	AR	131 - 132	Aug 10 - Sep 09		10	10	2		100%	20%			5.0	7.3
Res Elk Management Antlerless	Elk	AR	161 - 164	Aug 10 - Sep 09		15	15	0		93%	0%			5.4	7.8
Res Elk Management Antlerless	Elk	AR	231	Aug 10 - Sep 09		10	9	1		89%	13%			6.3	8.0
Res Elk Management Antlerless	Elk	M	062, 064, 066 - 068	Sep 10 - Oct 04		15	15	0		87%	0%			5.8	8.0
Res Elk Management Antlerless	Elk	M	072 - 077, 079	Sep 10 - Oct 04		6	6	3		100%	50%			4.7	5.3
Res Elk Management Antlerless	Elk	M	101 - 103	Sep 10 - Sep 30		9	9	0		78%	0%			4.8	6.8
Res Elk Management Antlerless	Elk	M	131 - 132	Sep 10 - Oct 04		10	9	2		89%	25%			4.6	5.6
Res Elk Management Antlerless	Elk	M	161 - 164	Sep 10 - Oct 04		20	11	0		100%	0%			6.3	7.4
Res Elk Management Antlerless	Elk	M	231	Sep 10 - Oct 04		10	7	4		100%	57%			5.6	7.3
Res Elk Spike	Elk	ALW	061, 071	Nov 06 - Jan 05	163	50	50	12	31%	100%	24%			4.1	5.2
Res Elk Spike	Elk	ALW	061, 071	Sep 17 - Oct 04	293	40	35	12	14%	100%	34%			4.9	6.5
Res Elk Spike	Elk	ALW	062, 064, 066 - 068	Nov 21 - Jan 05	79	25	25	3	32%	96%	13%			5.2	6.4
Res Elk Spike	Elk	ALW	062, 064, 066 - 068	Oct 05 - Oct 20	48	25	22	2	52%	100%	9%			6.6	9.1
Res Elk Spike	Elk	ALW	062, 064, 066 - 068	Sep 17 - Oct 04	152	25	22	5	16%	100%	23%			6.1	7.6
Res Elk Spike	Elk	ALW	072 - 074	Nov 21 - Jan 05	124	40	40	7	32%	100%	18%			5.4	6.5
Res Elk Spike	Elk	ALW	072 - 074	Sep 17 - Oct 04	221	40	36	6	18%	100%	17%			4.5	6.0
Res Elk Spike	Elk	ALW	076 - 077, 079, 081	Dec 05 - Jan 05	163	10	10	5	6%	100%	50%			3.1	3.1
Res Elk Spike	Elk	ALW	076 - 077, 079, 081	Oct 01 - Oct 20	233	15	14	5	6%	100%	36%			4.0	5.8
Res Elk Spike	Elk	ALW	078, 105 - 107, 109	Sep 21 - Oct 04	107	10	10	2	9%	100%	20%			2.7	3.7
Res PIW Elk Antlered	Elk	SWR	Any Open Unit Except Unit 091	Aug 16 - Dec 04	2,351	3	3	2	0.1%	67%	100%	100%	100%	16.0	21.0
Res Private Lands Antlerless Elk	Elk	ALW	062	Aug 24 - Sep 06			5	3		100%	60%			3.8	6.4
Res Private Lands Antlerless Elk	Elk	ALW	077, 081	Aug 01 - Nov 30			8	5		88%	71%			2.0	9.9
Res Private Lands Antlerless Elk	Elk	ALW	109, 121	Nov 06 - Nov 13			2	2		100%	100%			3.0	3.0
Res Private Lands Antlerless Elk	Elk	ALW	109, 121	Nov 16 - Nov 24			4	1		100%	25%			4.8	5.3
Res Private Lands Antlerless Elk	Elk	ALW	109, 121	Nov 30 - Dec 08			3	0		100%	0%			2.0	3.0
Res Private Lands Antlerless Elk	Elk	ALW	111	Aug 01 - Aug 10			4	4		100%	100%			1.0	1.3
Res Private Lands Antlerless Elk	Elk	ALW	111	Aug 11 - Aug 20			1	1		100%	100%			1.0	1.0
Res Private Lands Antlerless Elk	Elk	ALW	111	Sep 25 - Oct 09			12	11		100%	92%			1.2	1.3
Res Private Lands Antlerless Elk	Elk	ALW	231	Aug 01 - Dec 31			4	1		100%	25%			2.7	3.3
Res Private Lands Antlerless Elk	Elk	ALW	231	Oct 05 - Jan 05			5	4		100%	80%			4.0	11.0
Res Wildlife Heritage Elk	Elk	ALW	Any Open Unit Except Unit 091	Aug 01 - Dec 31			1	1		100%	100%	100%	100%		16.0
NR Elk Antlered	Elk	ALW	061, 071	Oct 05 - Oct 21	182	4	4	2	2%	75%	67%	50%	0%	4.7	4.7
NR Elk Antlered	Elk	ALW	061, 071	Oct 22 - Nov 05	47	5	5	2	11%	100%	40%	100%	0%	3.5	4.8
NR Elk Antlered	Elk	ALW	062, 064, 066 - 068	Nov 06 - Nov 20	83	3	3	1	4%	67%	50%	100%	0%	4.0	4.0
NR Elk Antlered	Elk	ALW	062, 064, 066 - 068	Oct 22 - Nov 05	193	4	4	3	2%	100%	75%	100%	33%	6.3	10.0

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Elk Antlered	Elk	ALW	072 - 074	Nov 06 - Nov 20	191	20	19	11	10%	84%	69%	91%	40%	5.0	6.3
NR Elk Antlered	Elk	ALW	072 - 074	Oct 22 - Nov 05	307	20	18	14	7%	89%	88%	79%	29%	3.4	5.0
NR Elk Antlered	Elk	ALW	075	Nov 06 - Nov 20	41	1	1	1	2%	100%	100%	0%	0%	4.0	4.0
NR Elk Antlered	Elk	ALW	075	Oct 22 - Nov 05	55	2	1	0	4%	100%	0%			5.0	8.0
NR Elk Antlered	Elk	ALW	076 - 077, 079, 081	Nov 06 - Nov 20	328	8	7	4	2%	86%	67%	75%	25%	4.2	6.2
NR Elk Antlered	Elk	ALW	076 - 077, 079, 081	Nov 21 - Dec 04	136	8	8	5	6%	100%	63%	75%	0%	5.4	6.1
NR Elk Antlered	Elk	ALW	078, 105 - 107, 109	Nov 06 - Nov 28	56	1	1	1	2%	100%	100%	100%	0%	13.0	17.0
NR Elk Antlered	Elk	ALW	078, 105 - 107, 109	Oct 22 - Nov 05	65	1	1	1	2%	100%	100%	100%	0%	2.0	4.0
NR Elk Antlered	Elk	ALW	104, 108, 121	Nov 06 - Nov 20	115	7	7	5	6%	86%	83%	40%	40%	7.8	11.5
NR Elk Antlered	Elk	ALW	108, 131 - 132	Nov 06 - Nov 20	54	6	6	2	11%	100%	33%	100%	50%	8.5	12.0
NR Elk Antlered	Elk	ALW	111 - 115	Nov 06 - Nov 20	1,961	10	10	8	1%	90%	89%	88%	75%	5.6	8.1
NR Elk Antlered	Elk	ALW	111 - 115	Nov 21 - Dec 04	397	9	9	5	2%	100%	56%	80%	60%	6.2	7.9
NR Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Nov 06 - Nov 20	69	5	4	3	7%	100%	75%	67%	67%	6.5	8.3
NR Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Nov 21 - Dec 04	58	5	5	4	9%	100%	80%	25%	25%	4.8	10.0
NR Elk Antlered	Elk	ALW	161 - 164, 171 - 173	Sep 17 - Sep 30	1,200	1	1	1	0.1%	100%	100%	100%	100%	5.0	8.0
NR Elk Antlered	Elk	ALW	221 - 223	Nov 06 - Nov 20	872	7	7	7	1%	100%	100%	100%	71%	3.6	5.3
NR Elk Antlered	Elk	ALW	221 - 223	Nov 21 - Dec 04	181	6	6	4	3%	83%	80%	75%	0%	4.4	5.8
NR Elk Antlered	Elk	ALW	231	Nov 06 - Nov 20	330	4	4	4	1%	100%	100%	75%	50%	4.3	6.0
NR Elk Antlered	Elk	ALW	231	Nov 21 - Dec 04	147	5	5	2	3%	100%	40%	100%	50%	6.2	8.8
NR Elk Antlered	Elk	AR	061, 071	Aug 16 - Aug 31	57	3	3	1	5%	100%	33%	100%	100%	11.3	17.3
NR Elk Antlered	Elk	AR	062, 064, 066 - 068	Aug 16 - Aug 31	54	2	1	0	4%	100%	0%			5.0	6.0
NR Elk Antlered	Elk	AR	072 - 074	Aug 16 - Aug 31	123	10	10	3	8%	100%	30%	67%	0%	8.0	10.3
NR Elk Antlered	Elk	AR	076 - 077, 079, 081	Aug 25 - Sep 16	112	3	3	1	3%	100%	33%	100%	100%	8.0	8.3
NR Elk Antlered	Elk	AR	078, 105 - 107, 109	Sep 01 - Sep 20	53	1	1		2%	0%					
NR Elk Antlered	Elk	AR	104, 108, 121	Aug 25 - Sep 16	62	1	1	1	2%	100%	100%	100%	100%	2.0	2.0
NR Elk Antlered	Elk	AR	108, 131 - 132	Aug 25 - Sep 16	72	1	1	1	1%	100%	100%	100%	100%	6.0	6.0
NR Elk Antlered	Elk	AR	111 - 115	Aug 25 - Sep 16	1,321	4	4	2	0.3%	75%	67%	100%	100%	6.0	6.0
NR Elk Antlered	Elk	AR	161 - 164, 171 - 173	Aug 25 - Sep 16	103	2	1	0	2%	100%	0%			4.0	4.0
NR Elk Antlered	Elk	AR	221 - 223	Aug 25 - Sep 16	526	2	2	2	0.4%	100%	100%	100%	50%	4.5	5.5
NR Elk Antlered	Elk	AR	231	Aug 25 - Sep 16	148	2	2	1	1%	100%	50%	100%	100%	8.0	9.0
NR Elk Antlered	Elk	M	061, 071	Sep 01 - Sep 16	88	3	3	2	3%	100%	67%	100%	50%	7.7	7.7
NR Elk Antlered	Elk	M	062, 064, 066 - 068	Sep 01 - Sep 16	260	1	1	1	0.4%	100%	100%	100%	0%	3.0	3.0
NR Elk Antlered	Elk	M	072 - 074	Sep 01 - Sep 16	199	10	10	9	5%	100%	90%	56%	22%	5.6	7.5
NR Elk Antlered	Elk	M	076 - 077, 079, 081	Oct 22 - Nov 05	28	1	1	1	4%	100%	100%	0%	0%	2.0	2.0
NR Elk Antlered	Elk	M	078, 105 - 107, 109	Oct 05 - Oct 21	131	1	1		1%	100%	0%				
NR Elk Antlered	Elk	M	104, 108, 121	Oct 22 - Nov 05	15	1	1	1	7%	100%	100%	0%	0%	3.0	4.0
NR Elk Antlered	Elk	M	111 - 115	Oct 22 - Nov 05	167	4	3	3	2%	100%	100%	100%	67%	2.0	8.3
NR Elk Antlered	Elk	M	161 - 164, 171 - 173	Oct 22 - Nov 05	21	3	2	1	14%	100%	50%	100%	100%	7.0	10.5
NR Elk Antlered	Elk	M	221 - 223	Oct 22 - Nov 05	54	2	2	2	4%	100%	100%	50%	100%	3.0	3.0
NR Elk Antlered	Elk	M	231	Oct 22 - Nov 05	33	1	1	1	3%	100%	100%	100%	100%	2.0	7.0

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Elk Antlerless	Elk	ALW	061, 071	Nov 06 - Jan 05	76	15	15	2	20%	93%	14%			3.8	4.1
NR Elk Antlerless	Elk	ALW	061, 071	Sep 17 - Oct 04	125	30	29	14	24%	97%	50%			4.2	5.2
NR Elk Antlerless	Elk	ALW	062, 064, 066 - 068	Nov 21 - Jan 05	63	6	6	0	10%	100%	0%			5.7	5.3
NR Elk Antlerless	Elk	ALW	062, 064, 066 - 068	Sep 17 - Oct 04	101	25	25	5	25%	100%	20%			5.2	6.1
NR Elk Antlerless	Elk	ALW	072 - 074	Sep 17 - Oct 04	78	15	13	3	19%	100%	23%			4.7	6.0
NR Elk Antlerless	Elk	ALW	072 - 075	Nov 21 - Jan 05	178	15	14	1	8%	100%	7%			3.7	3.8
NR Elk Antlerless	Elk	ALW	104, 108, 121	Nov 21 - Jan 05	37	2	2	2	5%	100%	100%			1.0	1.0
NR Elk Antlerless	Elk	ALW	104, 108, 121	Sep 25 - Oct 04	34	4	4	3	12%	100%	75%			1.8	3.3
NR Elk Antlerless	Elk	ALW	108, 131 - 132	Sep 25 - Oct 04	24	5	5	1	21%	80%	25%			4.0	4.5
NR Elk Antlerless	Elk	ALW	111 - 112	Dec 05 - Jan 05	93	8	7	5	9%	100%	71%			2.8	3.0
NR Elk Antlerless	Elk	ALW	111 - 112	Sep 25 - Oct 04	98	8	7	4	8%	86%	67%			5.8	8.5
NR Elk Antlerless	Elk	ALW	161 - 164	Dec 05 - Jan 05	63	10	8	0	16%	88%	0%			4.4	9.4
NR Elk Antlerless	Elk	ALW	161 - 164	Oct 01 - Oct 20	53	7	7	3	13%	100%	43%			4.3	6.3
NR Elk Antlerless	Elk	ALW	231	Dec 05 - Jan 05	76	8	8	3	11%	100%	38%			5.0	5.9
NR Elk Antlerless	Elk	ALW	231	Sep 25 - Oct 04	44	5	5	2	11%	100%	40%			5.0	6.4
NR Elk Antlerless	Elk	AR	072 - 074	Aug 01 - Aug 15	13	5	5	1	38%	100%	20%			7.5	8.0
NR Elk Antlerless	Elk	AR	076 - 077, 079, 081	Aug 01 - Aug 24	8	2	1		25%	100%	0%				
NR Elk Antlerless	Elk	AR	108, 131 - 132	Aug 01 - Aug 24	8	2	2	0	25%	100%	0%			3.0	3.0
NR Elk Antlerless	Elk	M	072 - 074	Sep 01 - Sep 16	12	6	6	1	50%	100%	17%			6.4	9.8
NR Elk Antlerless	Elk	M	076 - 077, 079, 081	Sep 17 - Sep 30	17	2	2	0	12%	50%	0%			5.0	5.0
NR Elk Antlerless	Elk	M	108, 131 - 132	Sep 17 - Sep 24	4	2	2		50%	50%	0%				
NR Elk Incentive	Elk	ALW	072 - 074	Oct 22 - Nov 20			8	6		100%	75%	83%	50%	3.0	3.5
NR Elk Incentive	Elk	ALW	075	Oct 22 - Nov 20			5	4		80%	100%	0%	0%	4.8	6.3
NR Elk Incentive	Elk	ALW	076 - 077, 079, 081	Nov 06 - Dec 04			29	24		100%	83%	88%	25%	5.3	5.8
NR Elk Incentive	Elk	ALW	111 - 115	Nov 06 - Dec 04			3	3		100%	100%	100%	100%	8.0	10.0
NR Elk Incentive	Elk	ALW	221 - 223	Nov 06 - Dec 04			2	1		50%	100%	100%	0%	5.0	5.0
NR Elk Incentive	Elk	ALW	231	Nov 06 - Dec 04			7	3		100%	43%	33%	67%	9.4	19.3
NR Elk Incentive	Elk	ALW	231, 221 - 223	Nov 06 - Dec 04			4	4		100%	100%	25%	25%	1.8	1.8
NR Elk Incentive	Elk	ALW	241 - 242	Sep 17 - Sep 24			1	1		100%		0%	0%		
NR Elk Incentive	Elk	AR	061, 071	Aug 16 - Aug 31			1	0		100%	0%			10.0	10.0
NR Elk Incentive	Elk	AR	072 - 074	Aug 16 - Aug 31			1	0		100%	0%			5.0	7.0
NR Elk Incentive	Elk	AR	076 - 077, 079, 081	Aug 25 - Sep 16			6	3		67%	75%	100%	33%	7.3	9.3
NR Elk Incentive	Elk	AR	111 - 115	Aug 25 - Sep 16			7	6		100%	86%	100%	83%	7.1	8.3
NR Elk Incentive	Elk	AR	221 - 223	Aug 25 - Sep 16			4	3		75%	100%	100%	67%	7.0	10.7
NR Elk Incentive	Elk	AR	231	Aug 25 - Sep 16			2	2		100%	100%	100%	50%	6.0	8.5
NR Elk Incentive	Elk	AR	231, 221 - 223	Aug 25 - Sep 16			1	1		100%	100%	100%	0%	2.0	2.0
NR Elk Incentive	Elk	M	061, 071	Sep 01 - Sep 16			5	2		100%	40%	100%	100%	7.6	9.0
NR Elk Incentive	Elk	M	072 - 074	Sep 01 - Sep 16			3	1		100%	33%	100%	0%	4.0	4.0
NR Elk Incentive	Elk	M	075	Sep 01 - Sep 16			5	3		80%	75%	67%	33%	3.8	4.3
NR Elk Incentive	Elk	M	076 - 077, 079, 081	Oct 22 - Nov 05			7	0		86%	0%			5.0	5.0

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Elk Incentive	Elk	M	231	Oct 22 - Nov 05			1	0		100%	0%			5.0	5.0
NR Elk Incentive	Elk	M	231, 221 - 223	Oct 22 - Nov 05			1	0		100%	0%			12.0	17.0
NR Elk Management Antlerless	Elk	ALW	072 - 077, 079	Oct 05 - Oct 20		5	4	1		100%	25%			3.8	4.0
NR Elk Management Antlerless	Elk	ALW	072 - 077, 079	Oct 21 - Nov 05		2	2	0		100%	0%			8.5	8.5
NR Private Lands Antlerless Elk	Elk	ALW	231	Aug 01 - Dec 31			9	3		100%	33%			3.3	3.8
NR Silver State Elk	Elk	ALW	Any Open Unit Except Unit 091	Aug 01 - Dec 31	7,946	1	1	1	0.01%	100%	100%	100%	100%		4.0
NR Wildlife Heritage Elk	Elk	ALW	Any Open Unit Except Unit 091	Aug 01 - Dec 31			1	1		100%	100%	100%	100%	15.0	36.0
Dream Elk	Elk	SWR	Any Open Unit Except Unit 091	Aug 16 - Dec 04			1	0		100%	0%				0.0
Res Mountain Goat Either Sex	Mountain Goat	ALW	101	Sep 01 - Oct 31	1,516	1	1	1	0.1%	100%	100%			10.0	10.0
Res Mountain Goat Either Sex	Mountain Goat	ALW	102	Sep 01 - Oct 31	3,212	6	6	4	0.2%	100%	67%			7.2	9.5
Res Mountain Goat Either Sex	Mountain Goat	ALW	103	Sep 01 - Oct 31	528	1	1	1	0.2%	100%	100%			10.0	10.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	013	See CR 19-05			2	0		100%	0%			7.0	12.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	015	See CR 19-05			1	1		100%	100%	0%		1.0	2.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	031	See CR 19-05			1	1		100%	100%	100%		8.0	8.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	031 - 032	See CR 19-05			1	1		100%	100%	0%		6.0	6.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	034	See CR 19-05			1	0		100%	0%			5.0	8.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	051	See CR 19-05			2	2		100%	100%	100%		5.0	7.5
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	062	See CR 19-05			1	1		100%	100%	0%		7.0	10.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	101	See CR 19-05			1	1		100%	100%	100%		4.0	4.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	103	See CR 19-05			2	1		100%	50%	100%		3.5	3.5
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	121	See CR 19-05			2	2		100%	100%	100%		10.0	12.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	131	See CR 19-05			1	1		100%	100%	100%		4.0	4.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	132	See CR 19-05			5	2		100%	40%	100%		6.0	10.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	132, 221	See CR 19-05			1	0		100%	0%			13.0	13.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	144	See CR 19-05			2	2		100%	100%	100%		5.0	6.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	152	See CR 19-05			3	1		100%	33%	0%		4.0	5.5
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	164	See CR 19-05			1	0		100%	0%			10.0	13.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	173	See CR 19-05			2	2		100%	100%	0%		4.0	4.0
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	231	See CR 19-05			3	1		100%	33%	100%		14.3	17.7
Res Landowner Damage Compensation Mule Deer	Mule Deer	SWR	245	See CR 19-05			1	0		100%	0%			5.0	7.0
Res Mule Deer Antlered	Mule Deer	ALW	011 - 013	Oct 05 - Nov 05	722	50	50	30	7%	94%	64%	40%		4.9	7.1
Res Mule Deer Antlered	Mule Deer	ALW	014	Oct 05 - Nov 05	303	20	19	7	7%	100%	37%	14%		3.8	5.6
Res Mule Deer Antlered	Mule Deer	ALW	015	Dec 11 - Jan 01	157	35	30	7	22%	87%	27%	14%		4.9	7.8
Res Mule Deer Antlered	Mule Deer	ALW	021	Dec 21 - Jan 01	893	40	38	27	4%	97%	73%	59%		3.7	6.1
Res Mule Deer Antlered	Mule Deer	ALW	022	Oct 05 - Nov 05	395	35	32	15	9%	94%	50%	53%		7.5	10.8
Res Mule Deer Antlered	Mule Deer	ALW	031	Oct 05 - Nov 05	630	180	170	93	29%	97%	56%	30%		5.4	6.8
Res Mule Deer Antlered	Mule Deer	ALW	032	Oct 05 - Nov 05	222	130	118	24	59%	97%	21%	25%		4.6	6.5
Res Mule Deer Antlered	Mule Deer	ALW	033	Oct 05 - Nov 05	145	20	19	9	14%	100%	47%	33%		5.1	6.9
Res Mule Deer Antlered	Mule Deer	ALW	034	Oct 05 - Nov 05	114	30	29	8	26%	100%	28%	50%		4.8	5.8
Res Mule Deer Antlered	Mule Deer	ALW	035	Oct 05 - Nov 05	199	100	92	34	50%	99%	37%	35%		6.1	7.9

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Mule Deer Antlered	Mule Deer	ALW	041 - 042	Oct 05 - Nov 05	230	30	29	10	13%	100%	34%	20%		6.5	7.7
Res Mule Deer Antlered	Mule Deer	ALW	043 - 046	Oct 05 - Nov 05	196	40	40	16	20%	95%	42%	56%		4.3	5.9
Res Mule Deer Antlered	Mule Deer	ALW	043 - 046	Oct 05 - Oct 20	459	100	98	30	22%	98%	31%	30%		5.5	8.1
Res Mule Deer Antlered	Mule Deer	ALW	051	Oct 05 - Nov 05	757	180	175	79	24%	99%	46%	42%		5.0	7.0
Res Mule Deer Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 05 - Oct 20	2,095	775	757	256	37%	96%	35%	34%		5.3	6.8
Res Mule Deer Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 21 - Nov 05	888	95	95	48	11%	98%	52%	60%		5.1	6.4
Res Mule Deer Antlered	Mule Deer	ALW	065	Oct 05 - Nov 02	587	60	58	36	10%	97%	64%	47%		6.4	8.8
Res Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	Oct 05 - Oct 20	2,034	550	536	277	27%	98%	53%	53%		4.5	6.1
Res Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	Oct 21 - Nov 05	1,697	140	132	100	8%	97%	78%	71%		5.2	6.5
Res Mule Deer Antlered	Mule Deer	ALW	081	Dec 11 - Jan 01	809	55	50	30	7%	98%	61%	77%		6.0	8.3
Res Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 01 - Oct 16	1,213	700	687	142	58%	97%	21%	24%		4.5	6.0
Res Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 17 - Oct 30	883	650	636	127	74%	95%	21%	24%		4.9	6.1
Res Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 31 - Nov 08	673	150	143	73	22%	97%	53%	55%		4.3	5.5
Res Mule Deer Antlered	Mule Deer	ALW	111 - 113	Oct 05 - Oct 20	1,350	275	270	115	20%	96%	44%	28%		4.2	5.6
Res Mule Deer Antlered	Mule Deer	ALW	111 - 113	Oct 21 - Nov 05	411	30	28	15	7%	96%	56%	27%		5.1	7.8
Res Mule Deer Antlered	Mule Deer	ALW	114 - 115	Oct 05 - Oct 20	170	45	45	14	26%	100%	31%	21%		4.5	6.7
Res Mule Deer Antlered	Mule Deer	ALW	114 - 115	Oct 21 - Nov 05	60	4	4	1	7%	100%	25%	0%		3.0	4.3
Res Mule Deer Antlered	Mule Deer	ALW	115	Dec 01 - Dec 15	154	5	4	2	3%	100%	50%	100%		4.5	5.5
Res Mule Deer Antlered	Mule Deer	ALW	121	Oct 05 - Oct 20	477	120	118	72	25%	97%	63%	14%		4.4	6.0
Res Mule Deer Antlered	Mule Deer	ALW	121	Oct 21 - Nov 05	229	15	15	11	7%	93%	79%	45%		5.4	7.3
Res Mule Deer Antlered	Mule Deer	ALW	131 - 134	Oct 05 - Oct 20	1,090	300	292	133	28%	97%	47%	37%		4.6	6.3
Res Mule Deer Antlered	Mule Deer	ALW	131 - 134	Oct 21 - Nov 05	439	35	32	18	8%	94%	60%	72%		5.3	7.5
Res Mule Deer Antlered	Mule Deer	ALW	141 - 145	Oct 05 - Oct 20	662	300	288	135	45%	98%	48%	25%		4.1	5.4
Res Mule Deer Antlered	Mule Deer	ALW	141 - 145	Oct 21 - Nov 05	205	35	33	18	17%	97%	56%	28%		4.8	6.1
Res Mule Deer Antlered	Mule Deer	ALW	151 - 156	Oct 05 - Oct 20	418	160	159	68	38%	95%	45%	28%		4.2	6.5
Res Mule Deer Antlered	Mule Deer	ALW	151 - 156	Oct 21 - Nov 05	165	15	15	13	9%	100%	87%	46%		5.5	8.0
Res Mule Deer Antlered	Mule Deer	ALW	161 - 164	Oct 05 - Oct 20	933	350	339	107	38%	97%	32%	28%		5.1	6.5
Res Mule Deer Antlered	Mule Deer	ALW	161 - 164	Oct 21 - Nov 05	479	50	48	23	10%	100%	48%	43%		5.7	7.1
Res Mule Deer Antlered	Mule Deer	ALW	171 - 173	Oct 05 - Oct 20	684	375	356	73	55%	97%	21%	32%		4.6	6.1
Res Mule Deer Antlered	Mule Deer	ALW	171 - 173	Oct 21 - Nov 05	280	130	127	41	46%	96%	34%	44%		4.5	5.6
Res Mule Deer Antlered	Mule Deer	ALW	181 - 184	Oct 05 - Nov 05	519	140	136	54	27%	96%	42%	44%		4.8	6.7
Res Mule Deer Antlered	Mule Deer	ALW	192	Nov 05 - Nov 30	287	35	35	15	12%	94%	45%	27%		5.8	8.5
Res Mule Deer Antlered	Mule Deer	ALW	194, 196	Nov 05 - Nov 30	2,875	70	69	54	2%	96%	82%	59%		5.5	9.8
Res Mule Deer Antlered	Mule Deer	ALW	195	Oct 05 - Nov 02	321	20	19	10	6%	100%	53%	20%		5.9	9.5
Res Mule Deer Antlered	Mule Deer	ALW	201, 204	Nov 05 - Nov 30	342	20	19	11	6%	100%	58%	18%		3.1	5.2
Res Mule Deer Antlered	Mule Deer	ALW	202, 205 - 208	Nov 05 - Nov 30	274	55	55	31	20%	96%	58%	29%		5.2	7.4
Res Mule Deer Antlered	Mule Deer	ALW	203	Nov 05 - Nov 30	183	55	54	21	30%	93%	42%	33%		5.6	9.8
Res Mule Deer Antlered	Mule Deer	ALW	211 - 213	Nov 05 - Nov 30	162	50	46	19	31%	100%	41%	37%		4.6	5.9
Res Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 05 - Oct 16	1,015	250	243	71	25%	94%	31%	44%		4.5	6.2
Res Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 17 - Oct 30	480	150	141	52	31%	95%	39%	52%		5.7	7.7

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 31 - Nov 08	944	25	25	19	3%	100%	76%	79%		4.7	7.3
Res Mule Deer Antlered	Mule Deer	ALW	231	Oct 05 - Oct 31	1,976	150	146	75	8%	96%	54%	54%		6.6	8.9
Res Mule Deer Antlered	Mule Deer	ALW	241 - 245	Oct 05 - Oct 31	1,238	95	88	62	8%	97%	73%	84%		7.4	10.0
Res Mule Deer Antlered	Mule Deer	ALW	251 - 254	Oct 05 - Nov 02	77	40	38	5	52%	95%	14%	20%		6.0	7.9
Res Mule Deer Antlered	Mule Deer	ALW	261 - 268	Nov 05 - Nov 30	949	70	68	45	7%	100%	66%	53%		4.6	9.3
Res Mule Deer Antlered	Mule Deer	ALW	271 - 272	Nov 05 - Nov 30	185	30	29	6	16%	93%	22%	83%		5.9	8.5
Res Mule Deer Antlered	Mule Deer	ALW	291	Nov 05 - Nov 30	529	50	49	34	9%	96%	72%	29%		4.4	7.5
Res Mule Deer Antlered	Mule Deer	AR	011 - 013	Aug 10 - Sep 09	73	15	14	1	21%	100%	7%	0%		4.9	7.0
Res Mule Deer Antlered	Mule Deer	AR	014	Aug 10 - Sep 09	22	10	9	0	45%	78%	0%			5.3	6.7
Res Mule Deer Antlered	Mule Deer	AR	015	Aug 10 - Sep 09	19	10	8	1	53%	100%	13%	0%		8.5	11.7
Res Mule Deer Antlered	Mule Deer	AR	021	Dec 01 - Dec 10	90	25	23	2	28%	91%	10%	100%		5.0	9.3
Res Mule Deer Antlered	Mule Deer	AR	022	Aug 10 - Sep 09	45	10	10	2	22%	100%	20%	0%		7.2	13.1
Res Mule Deer Antlered	Mule Deer	AR	031	Aug 10 - Sep 09	27	25	23	6	93%	100%	26%	83%		5.8	7.2
Res Mule Deer Antlered	Mule Deer	AR	032	Aug 10 - Sep 09	173	130	125	3	75%	98%	2%	0%		5.4	7.0
Res Mule Deer Antlered	Mule Deer	AR	033	Aug 10 - Sep 09	11	10	8	1	91%	100%	13%	100%		7.8	12.0
Res Mule Deer Antlered	Mule Deer	AR	034	Aug 10 - Sep 09	13	10	9	1	77%	100%	11%	100%		8.0	12.2
Res Mule Deer Antlered	Mule Deer	AR	035	Aug 10 - Sep 09	96	40	38	5	42%	97%	14%	20%		5.2	7.3
Res Mule Deer Antlered	Mule Deer	AR	041 - 042	Aug 10 - Sep 09	26	15	13	1	58%	92%	8%	0%		5.5	9.0
Res Mule Deer Antlered	Mule Deer	AR	043 - 046	Aug 10 - Sep 09	84	70	69	4	83%	100%	6%	0%		6.2	8.9
Res Mule Deer Antlered	Mule Deer	AR	051	Aug 10 - Sep 09	112	70	69	13	63%	99%	19%	62%		6.0	8.8
Res Mule Deer Antlered	Mule Deer	AR	061 - 062, 064, 066 - 068	Aug 10 - Sep 09	317	275	262	40	87%	98%	16%	43%		7.1	10.0
Res Mule Deer Antlered	Mule Deer	AR	065	Aug 10 - Sep 09	63	25	23	7	40%	100%	30%	71%		8.7	12.2
Res Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	Aug 10 - Sep 09	314	200	190	38	64%	98%	20%	68%		7.1	10.4
Res Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	Nov 10 - Nov 20	158	20	20	9	13%	100%	45%	44%		5.9	8.5
Res Mule Deer Antlered	Mule Deer	AR	081	Nov 10 - Nov 20	72	10	9	6	14%	100%	67%	83%		7.1	9.1
Res Mule Deer Antlered	Mule Deer	AR	101 - 109	Aug 10 - Sep 09	730	500	484	52	68%	96%	11%	38%		6.5	8.9
Res Mule Deer Antlered	Mule Deer	AR	101 - 109	Nov 10 - Nov 20	76	20	19	2	26%	95%	11%	50%		5.4	7.3
Res Mule Deer Antlered	Mule Deer	AR	111 - 113	Aug 10 - Sep 09	127	30	30	9	24%	90%	33%	22%		6.8	9.1
Res Mule Deer Antlered	Mule Deer	AR	114 - 115	Aug 10 - Sep 09	91	60	60	6	66%	98%	10%	67%		6.7	9.0
Res Mule Deer Antlered	Mule Deer	AR	121	Aug 10 - Sep 09	64	45	41	16	70%	98%	40%	25%		5.3	7.7
Res Mule Deer Antlered	Mule Deer	AR	121	Nov 10 - Nov 20	45	10	10	3	22%	100%	30%	100%		5.8	6.9
Res Mule Deer Antlered	Mule Deer	AR	131 - 134	Aug 10 - Sep 09	305	60	54	18	20%	98%	34%	50%		7.5	12.9
Res Mule Deer Antlered	Mule Deer	AR	141 - 145	Aug 10 - Sep 09	315	225	221	31	71%	97%	14%	29%		6.4	8.7
Res Mule Deer Antlered	Mule Deer	AR	151 - 156	Aug 10 - Sep 09	89	80	79	12	90%	100%	15%	33%		5.2	7.6
Res Mule Deer Antlered	Mule Deer	AR	161 - 164	Aug 10 - Sep 09	254	160	154	21	63%	99%	14%	43%		6.7	8.8
Res Mule Deer Antlered	Mule Deer	AR	171 - 173	Aug 10 - Sep 09	335	200	190	15	60%	99%	8%	0%		6.2	7.7
Res Mule Deer Antlered	Mule Deer	AR	181 - 184	Aug 10 - Sep 09	71	55	53	2	77%	94%	4%	0%		6.1	9.6
Res Mule Deer Antlered	Mule Deer	AR	192	Aug 10 - Sep 09	51	25	25	6	49%	92%	26%	0%		7.4	10.4
Res Mule Deer Antlered	Mule Deer	AR	192	Dec 01 - Jan 01	46	20	19	6	43%	100%	32%	33%		6.9	10.3
Res Mule Deer Antlered	Mule Deer	AR	194, 196	Aug 10 - Sep 09	186	15	13	4	8%	100%	31%	50%		8.0	10.7

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Mule Deer Antlered	Mule Deer	AR	194, 196	Dec 01 - Jan 01	152	15	15	10	10%	93%	71%	50%		5.5	10.7
Res Mule Deer Antlered	Mule Deer	AR	195	Aug 10 - Sep 09	54	10	10	3	19%	100%	30%	33%		8.4	14.3
Res Mule Deer Antlered	Mule Deer	AR	201 - 202, 204 - 208	Aug 10 - Sep 09	17	10	9	1	59%	89%	13%	0%		8.6	12.8
Res Mule Deer Antlered	Mule Deer	AR	201, 204	Dec 16 - Jan 01	23	10	9	1	43%	100%	11%	0%		7.9	9.8
Res Mule Deer Antlered	Mule Deer	AR	202, 205 - 208	Dec 16 - Jan 01	15	10	10	1	67%	90%	11%	0%		4.7	6.4
Res Mule Deer Antlered	Mule Deer	AR	203	Aug 10 - Sep 09	46	25	25	2	54%	96%	8%	0%		7.1	11.3
Res Mule Deer Antlered	Mule Deer	AR	203	Dec 16 - Jan 01	30	25	25	1	83%	100%	4%	100%		6.7	10.4
Res Mule Deer Antlered	Mule Deer	AR	211 - 213	Aug 10 - Sep 09	17	15	13	0	88%	77%	0%			7.8	11.0
Res Mule Deer Antlered	Mule Deer	AR	221 - 223	Aug 10 - Sep 09	196	65	60	9	33%	98%	15%	67%		7.0	10.4
Res Mule Deer Antlered	Mule Deer	AR	231	Aug 10 - Sep 09	189	45	42	13	24%	98%	32%	54%		7.4	10.8
Res Mule Deer Antlered	Mule Deer	AR	241 - 245	Aug 10 - Sep 09	62	15	12	6	24%	92%	55%	100%		7.2	14.3
Res Mule Deer Antlered	Mule Deer	AR	251 - 254	Aug 10 - Sep 09	14	10	10	1	71%	100%	10%	100%		4.3	8.5
Res Mule Deer Antlered	Mule Deer	AR	261 - 268	Aug 10 - Sep 09	86	15	14	7	17%	100%	50%	86%		7.0	13.4
Res Mule Deer Antlered	Mule Deer	AR	271 - 272	Aug 10 - Sep 09	13	10	10	1	77%	90%	11%	100%		6.0	9.7
Res Mule Deer Antlered	Mule Deer	AR	291	Aug 10 - Sep 09	27	10	9	2	37%	100%	22%	0%		5.3	8.8
Res Mule Deer Antlered	Mule Deer	M	011 - 013	Sep 10 - Oct 04	35	5	4	2	14%	100%	50%	50%		5.5	9.0
Res Mule Deer Antlered	Mule Deer	M	014	Sep 10 - Oct 04	17	5	5	1	29%	100%	20%	0%		4.2	5.4
Res Mule Deer Antlered	Mule Deer	M	015	Sep 10 - Oct 04	13	5	5	1	38%	80%	25%	100%		4.0	4.5
Res Mule Deer Antlered	Mule Deer	M	021	Dec 11 - Dec 20	29	5	5	1	17%	100%	20%	100%		4.8	9.8
Res Mule Deer Antlered	Mule Deer	M	022	Sep 10 - Oct 04	15	5	5	2	33%	100%	40%	50%		4.2	6.0
Res Mule Deer Antlered	Mule Deer	M	031	Sep 10 - Oct 04	32	15	14	6	47%	100%	43%	67%		3.9	5.3
Res Mule Deer Antlered	Mule Deer	M	032	Sep 10 - Oct 04	10	8	8	1	80%	100%	13%	100%		4.2	6.0
Res Mule Deer Antlered	Mule Deer	M	033	Sep 10 - Oct 04	13	5	5	0	38%	100%	0%			6.8	9.5
Res Mule Deer Antlered	Mule Deer	M	034	Sep 10 - Oct 04	6	5	5	2	83%	100%	40%	50%		3.6	4.2
Res Mule Deer Antlered	Mule Deer	M	035	Sep 10 - Oct 04	19	15	15	6	79%	100%	40%	50%		4.3	4.9
Res Mule Deer Antlered	Mule Deer	M	041 - 042	Sep 10 - Oct 04	12	10	9	2	83%	89%	25%	0%		3.3	5.4
Res Mule Deer Antlered	Mule Deer	M	043 - 046	Sep 10 - Oct 04	24	20	20	6	83%	100%	30%	50%		3.8	6.6
Res Mule Deer Antlered	Mule Deer	M	051	Sep 10 - Oct 04	39	10	10	0	26%	100%	0%			8.4	8.9
Res Mule Deer Antlered	Mule Deer	M	061 - 062, 064, 066 - 068	Sep 10 - Oct 04	195	75	73	22	38%	96%	31%	27%		5.8	8.0
Res Mule Deer Antlered	Mule Deer	M	065	Sep 10 - Oct 04	49	10	9	5	20%	100%	56%	20%		9.8	12.0
Res Mule Deer Antlered	Mule Deer	M	071 - 079, 091	Sep 10 - Oct 04	204	60	56	20	29%	96%	37%	60%		6.7	8.5
Res Mule Deer Antlered	Mule Deer	M	081	Nov 21 - Dec 10	255	15	12	7	6%	100%	58%	100%		6.1	6.8
Res Mule Deer Antlered	Mule Deer	M	101 - 109	Sep 10 - Sep 30	129	90	90	17	70%	93%	20%	29%		5.0	6.8
Res Mule Deer Antlered	Mule Deer	M	111 - 113	Sep 10 - Oct 04	69	25	23	10	36%	91%	48%	30%		5.4	7.4
Res Mule Deer Antlered	Mule Deer	M	114 - 115	Nov 10 - Nov 30	88	20	20	8	23%	100%	40%	75%		5.3	7.1
Res Mule Deer Antlered	Mule Deer	M	121	Sep 10 - Oct 04	37	25	21	5	68%	100%	24%	20%		5.0	7.8
Res Mule Deer Antlered	Mule Deer	M	131 - 134	Sep 10 - Oct 04	248	35	33	14	14%	94%	45%	57%		6.0	9.5
Res Mule Deer Antlered	Mule Deer	M	141 - 145	Sep 10 - Oct 04	48	30	29	10	63%	100%	34%	10%		5.1	6.7
Res Mule Deer Antlered	Mule Deer	M	151 - 156	Sep 10 - Oct 04	37	10	9	1	27%	100%	11%	0%		5.9	8.1
Res Mule Deer Antlered	Mule Deer	M	161 - 164	Sep 10 - Oct 04	112	35	34	5	31%	97%	15%	20%		5.8	7.0

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Mule Deer Antlered	Mule Deer	M	171 - 173	Sep 10 - Oct 04	103	85	81	14	83%	98%	18%	21%		4.7	5.9
Res Mule Deer Antlered	Mule Deer	M	181 - 184	Nov 10 - Nov 30	69	15	15	8	22%	100%	53%	63%		5.8	8.2
Res Mule Deer Antlered	Mule Deer	M	192	Sep 10 - Oct 04	27	15	15	5	56%	100%	33%	20%		7.3	10.6
Res Mule Deer Antlered	Mule Deer	M	194, 196	Sep 10 - Oct 04	64	5	5	3	8%	100%	60%	0%		10.2	16.8
Res Mule Deer Antlered	Mule Deer	M	195	Sep 10 - Oct 04	20	5	5	2	25%	80%	50%	50%		6.3	12.8
Res Mule Deer Antlered	Mule Deer	M	201, 204	Dec 01 - Dec 15	14	5	5	4	36%	100%	80%	75%		2.8	3.0
Res Mule Deer Antlered	Mule Deer	M	202, 205 - 208	Dec 01 - Dec 15	23	15	15	4	65%	100%	27%	50%		5.7	7.8
Res Mule Deer Antlered	Mule Deer	M	211 - 213	Sep 10 - Oct 10	13	8	8	5	62%	100%	63%	40%		4.0	7.8
Res Mule Deer Antlered	Mule Deer	M	221 - 223	Sep 10 - Oct 04	93	25	25	8	27%	96%	33%	75%		6.4	8.3
Res Mule Deer Antlered	Mule Deer	M	231	Sep 10 - Oct 04	130	25	22	7	19%	100%	32%	57%		6.5	10.0
Res Mule Deer Antlered	Mule Deer	M	241 - 245	Sep 10 - Oct 04	40	6	5	5	15%	100%	100%	100%		5.8	9.6
Res Mule Deer Antlered	Mule Deer	M	251 - 254	Sep 10 - Oct 04	11	5	4	2	45%	100%	50%	100%		4.5	11.8
Res Mule Deer Antlered	Mule Deer	M	261 - 268	Sep 10 - Oct 04	35	15	15	7	43%	100%	47%	43%		6.2	11.3
Res Mule Deer Antlered	Mule Deer	M	271 - 272	Sep 10 - Oct 04	19	10	10	2	53%	100%	20%	0%		4.9	10.6
Res Mule Deer Antlered	Mule Deer	M	291	Sep 10 - Oct 04	8	5	5	2	63%	80%	50%	50%		7.0	9.0
Res Mule Deer Antlerless	Mule Deer	ALW	051	Oct 10 - Oct 31	321	30	30	13	9%	100%	43%			3.0	4.6
Res Mule Deer Antlerless	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 10 - Oct 31	642	225	225	107	35%	95%	50%			3.2	4.3
Res Mule Deer Antlerless	Mule Deer	ALW	062, 067 - 068	Nov 06 - Nov 20	334	225	224	91	67%	97%	42%			2.9	3.6
Res Mule Deer Antlerless	Mule Deer	ALW	071 - 079, 091	Oct 10 - Oct 31	482	275	273	166	57%	97%	62%			3.0	4.1
Res Mule Deer Antlerless	Mule Deer	ALW	101 - 102, 109	Oct 05 - Oct 20	437	225	221	89	51%	96%	42%			3.1	3.8
Res Mule Deer Antlerless	Mule Deer	ALW	114 - 115 (Baker Ranch)	Dec 01 - Dec 15	105	40	39	12	38%	97%	32%			2.7	3.8
Res Mule Deer Antlerless	Mule Deer	ALW	114 - 115 (Baker Ranch)	Sep 17 - Sep 24	99	15	15	7	15%	100%	47%			2.8	3.6
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	011 - 013	Aug 10 - Nov 05	55	20	20	9	36%	100%	45%	43%		3.3	4.5
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	014	Aug 10 - Nov 05	38	20	20	7	53%	95%	37%	33%		3.9	5.1
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	015	Aug 10 - Jan 01	25	10	10	5	40%	100%	50%	20%		3.7	6.6
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	021	Dec 01 - Jan 01	108	15	15	9	14%	100%	60%	44%		4.1	7.9
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	022	Aug 10 - Nov 05	49	20	20	10	41%	95%	53%	70%		4.6	6.8
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	031	Aug 10 - Nov 05	86	70	70	52	81%	99%	75%	48%		4.1	5.7
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	032	Aug 10 - Nov 05	99	85	83	34	86%	99%	41%	17%		3.6	5.1
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	033	Aug 10 - Nov 05	11	8	8	4	73%	88%	57%	25%		3.1	4.1
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	034	Aug 10 - Nov 05	13	10	10	7	77%	100%	70%	0%		4.3	5.6
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	035	Aug 10 - Nov 05	57	35	35	21	61%	100%	60%	45%		4.9	7.0
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	041 - 042	Aug 10 - Nov 02	26	15	15	8	58%	100%	53%	17%		3.3	4.7
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	043 - 046	Aug 10 - Nov 02	120	110	109	54	92%	97%	51%	34%		4.6	6.5
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	051	Aug 10 - Nov 05	95	65	65	39	68%	98%	61%	28%		4.8	7.0
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	061 - 062, 064, 066 - 068	Aug 10 - Nov 02	418	375	375	220	90%	97%	61%	46%		4.8	6.3
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	065	Aug 10 - Nov 02	76	25	25	19	33%	100%	76%	47%		4.9	7.5
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	071 - 079, 091	Aug 10 - Nov 02	437	300	300	205	69%	98%	70%	61%		4.5	6.1
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	081	Nov 10 - Jan 01	146	20	20	13	14%	95%	68%	85%		7.1	8.8
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	101 - 109	Aug 10 - Nov 02	410	450	418	188	100%	97%	47%	33%		4.8	6.0

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	111 - 113	Aug 10 - Nov 02	197	150	150	92	76%	98%	63%	39%		4.0	5.1
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	114 - 115	Aug 10 - Nov 02	44	30	30	15	68%	97%	52%	75%		3.7	5.0
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	121	Aug 10 - Nov 02	106	75	75	50	71%	96%	69%	28%		4.1	5.3
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	131 - 134	Aug 10 - Oct 31	222	150	150	77	68%	95%	54%	39%		3.9	4.9
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	141 - 145	Aug 10 - Nov 02	215	180	180	116	84%	96%	67%	29%		4.6	6.3
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	151 - 156	Aug 10 - Nov 02	86	75	75	44	87%	99%	59%	32%		3.6	4.7
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	161 - 164	Aug 10 - Nov 02	173	140	139	52	81%	96%	39%	26%		4.8	6.4
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	171 - 173	Aug 10 - Nov 02	141	140	139	58	99%	96%	43%	24%		4.3	5.4
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	181 - 184	Aug 10 - Nov 02	116	65	65	33	56%	94%	54%	38%		4.8	6.8
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	192	Aug 10 - Nov 30	39	20	20	17	51%	100%	85%	38%		4.7	7.9
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	194, 196	Aug 10 - Nov 30	395	30	30	25	8%	97%	86%	64%		3.4	6.8
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	195	Aug 10 - Nov 02	42	10	10	6	24%	100%	60%	50%		6.0	9.2
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	201, 204	Nov 05 - Jan 01	61	5	5	3	8%	100%	60%	33%		2.3	3.7
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	202, 205 - 208	Nov 05 - Jan 01	40	25	25	13	63%	92%	57%	25%		3.3	5.6
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	203	Aug 10 - Nov 30	27	20	20	11	74%	100%	55%	45%		5.3	7.5
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	211 - 213	Aug 10 - Nov 30	28	20	20	10	71%	95%	53%	70%		4.3	5.6
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	221 - 223	Aug 10 - Oct 31	301	190	186	78	63%	95%	44%	52%		4.8	6.5
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	231	Aug 10 - Oct 31	262	85	85	49	32%	96%	60%	46%		3.8	4.8
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	241 - 245	Aug 10 - Oct 31	218	30	31	22	14%	100%	71%	47%		5.4	8.5
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	251 - 254	Aug 10 - Nov 02	48	30	29	9	63%	93%	33%	50%		3.7	4.9
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	261 - 268	Aug 10 - Nov 30	141	35	35	24	25%	97%	71%	52%		4.9	9.2
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	271 - 272	Aug 10 - Nov 30	23	15	15	9	65%	100%	60%	33%		4.6	8.2
Res Mule Deer Junior Antlered or Antlerless	Mule Deer	SWR	291	Aug 10 - Nov 30	62	20	20	14	32%	100%	70%	46%		4.6	8.1
Res PIW Mule Deer Antlered	Mule Deer	SWR	Any Open Unit	Aug 10 - Jan 01	4,721	22	22	16	0.5%	100%	73%	81%		10.5	12.7
Res Silver State Mule Deer	Mule Deer	ALW	Any Open Unit	Aug 01 - Dec 31	8,391	1	1	1	0.01%	100%	100%	100%		9.0	30.0
Res Wildlife Heritage Mule Deer	Mule Deer	ALW	Any Open Unit	Aug 01 - Dec 31			2	2		100%	100%	100%		8.0	14.5
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	012	See CR 19-05			2	1		100%	50%	100%		2.5	2.5
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	013	See CR 19-05			3	2		100%	67%	100%		4.7	5.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	022	See CR 19-05			1	1		100%	100%	100%		7.0	13.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	031	See CR 19-05			15	12		87%	92%	58%		6.9	7.7
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	031 - 032	See CR 19-05			2	1		100%	50%	100%		2.5	2.5
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	032	See CR 19-05			5	3		80%	75%	67%		1.3	2.5
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	034	See CR 19-05			6	4		100%	67%	75%		6.0	7.7
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	035	See CR 19-05			3	3		100%	100%	100%		3.0	3.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	046	See CR 19-05			1	0		100%	0%			2.0	2.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	051	See CR 19-05			13	8		92%	67%	50%		5.6	7.1
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	062	See CR 19-05			7	3		100%	43%	67%		7.4	8.1
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	073	See CR 19-05			4	3		100%	75%	100%		6.5	10.3
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	101	See CR 19-05			10	6		100%	60%	83%		5.7	6.3
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	102	See CR 19-05			16	13		100%	81%	75%		6.4	6.9

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	114 - 115	See CR 19-05			5	2		100%	40%	100%		8.3	9.8
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	115	See CR 19-05			2	2		100%	100%	100%		4.0	4.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	121	See CR 19-05			4	3		100%	75%	100%		4.7	9.3
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	131	See CR 19-05			1	0		100%	0%			20.0	20.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	132	See CR 19-05			2	1		100%	50%	100%		5.0	5.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	132, 221	See CR 19-05			4	2		75%	67%	100%		10.3	10.3
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	133	See CR 19-05			1	0		100%	0%			4.0	4.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	141	See CR 19-05			1	1		100%	100%	100%		4.0	9.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	142	See CR 19-05			1	0		100%	0%			4.0	4.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	143	See CR 19-05			3	3		100%	100%	67%		6.0	9.7
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	144	See CR 19-05			9	6		100%	67%	33%		4.8	5.9
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	152	See CR 19-05			3	3		100%	100%	67%		4.7	4.7
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	161	See CR 19-05			1	1		100%	100%	100%		6.0	11.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	164	See CR 19-05			2	1		50%	100%	0%		7.0	10.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	172	See CR 19-05			1	1		100%	100%	100%		3.0	5.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	173	See CR 19-05			1	0		100%	0%			5.0	10.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	223	See CR 19-05			1	0		100%	0%			10.0	10.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	223, 242	See CR 19-05			1	1		100%	100%	100%		20.0	20.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	231	See CR 19-05			50	30		94%	64%	90%		6.6	8.4
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	231, 242	See CR 19-05			3	0		100%	0%			11.0	12.3
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	241	See CR 19-05			2	2		100%	100%	100%		11.5	13.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	241 - 242	See CR 19-05			3	1		100%	33%	100%		8.3	11.7
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	242	See CR 19-05			4	3		100%	75%	100%		5.5	11.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	245	See CR 19-05			2	2		100%	100%	100%		2.0	4.0
NR Landowner Damage Compensation Mule Deer	Mule Deer	SWR	272	See CR 19-05			1	0		100%	0%			10.0	10.0
NR Mule Deer Antlered	Mule Deer	ALW	011 - 013	Oct 05 - Nov 05	234	3	3	3	1%	100%	100%	67%		8.7	12.7
NR Mule Deer Antlered	Mule Deer	ALW	014	Oct 05 - Nov 05	58	2	1	1	3%	100%	100%	0%		14.0	14.0
NR Mule Deer Antlered	Mule Deer	ALW	015	Dec 11 - Jan 01	160	3	3	1	2%	67%	50%	100%		14.0	18.5
NR Mule Deer Antlered	Mule Deer	ALW	021	Dec 11 - Jan 01	232	3	3	1	1%	100%	33%	100%		6.7	11.0
NR Mule Deer Antlered	Mule Deer	ALW	022	Oct 05 - Nov 05	47	3	3	2	6%	100%	67%	100%		7.3	8.7
NR Mule Deer Antlered	Mule Deer	ALW	031	Oct 05 - Nov 05	271	10	8	5	4%	100%	63%	100%		3.6	4.7
NR Mule Deer Antlered	Mule Deer	ALW	032	Oct 05 - Nov 05	62	10	10	6	16%	90%	67%	33%		3.8	6.1
NR Mule Deer Antlered	Mule Deer	ALW	033	Oct 05 - Nov 05	49	2	2	1	4%	100%	50%	100%		11.0	11.0
NR Mule Deer Antlered	Mule Deer	ALW	034	Oct 05 - Nov 05	39	3	1	0	8%	100%	0%			3.0	3.0
NR Mule Deer Antlered	Mule Deer	ALW	035	Oct 05 - Nov 05	40	8	8	4	20%	100%	50%	50%		4.7	4.7
NR Mule Deer Antlered	Mule Deer	ALW	041 - 042	Oct 05 - Nov 05	23	3	3	1	13%	100%	33%	0%		6.0	6.3
NR Mule Deer Antlered	Mule Deer	ALW	043 - 046	Oct 05 - Oct 20	38	8	7	3	21%	100%	43%	100%		4.3	7.5
NR Mule Deer Antlered	Mule Deer	ALW	043 - 046	Oct 21 - Nov 05	29	3	3	3	10%	100%	100%	0%		3.0	3.3
NR Mule Deer Antlered	Mule Deer	ALW	051	Oct 05 - Nov 05	164	10	10	6	6%	100%	60%	67%		6.0	8.2
NR Mule Deer Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 05 - Oct 20	414	50	44	22	12%	95%	52%	27%		5.0	6.2

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Mule Deer Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 21 - Nov 05	311	4	4	1	1%	75%	33%	0%		6.3	6.3
NR Mule Deer Antlered	Mule Deer	ALW	065	Oct 05 - Nov 02	91	4	2	0	4%	100%	0%			5.0	5.0
NR Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	Oct 05 - Oct 20	482	50	46	31	10%	100%	67%	58%		5.0	6.7
NR Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	Oct 21 - Nov 05	679	15	15	10	2%	100%	67%	80%		6.0	6.7
NR Mule Deer Antlered	Mule Deer	ALW	081	Dec 11 - Jan 01	1,096	5	5	3	0.5%	100%	60%	100%		5.6	5.8
NR Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 01 - Oct 16	240	45	44	11	19%	89%	28%	36%		5.6	7.0
NR Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 17 - Oct 30	184	45	43	13	24%	100%	30%	31%		6.3	7.5
NR Mule Deer Antlered	Mule Deer	ALW	101 - 109	Oct 31 - Nov 08	278	10	9	6	4%	100%	67%	83%		4.0	4.7
NR Mule Deer Antlered	Mule Deer	ALW	111 - 113	Oct 05 - Oct 20	239	10	10	5	4%	90%	56%	100%		3.4	5.2
NR Mule Deer Antlered	Mule Deer	ALW	111 - 113	Oct 21 - Nov 05	119	2	2	1	2%	100%	50%	100%		3.0	3.0
NR Mule Deer Antlered	Mule Deer	ALW	114 - 115	Oct 05 - Oct 20	50	2	2	0	4%	100%	0%			7.0	7.0
NR Mule Deer Antlered	Mule Deer	ALW	114 - 115	Oct 21 - Nov 05	42	2	1	1	5%	100%	100%	0%		8.0	8.0
NR Mule Deer Antlered	Mule Deer	ALW	115	Dec 01 - Dec 15	165	2	2	2	1%	100%	100%	50%		6.0	7.0
NR Mule Deer Antlered	Mule Deer	ALW	121	Oct 05 - Oct 20	59	6	6	4	10%	100%	67%	50%		4.3	6.0
NR Mule Deer Antlered	Mule Deer	ALW	121	Oct 21 - Nov 05	77	2	2	1	3%	100%	50%	0%		6.5	10.0
NR Mule Deer Antlered	Mule Deer	ALW	131 - 134	Oct 05 - Oct 20	221	20	19	7	9%	100%	37%	71%		6.0	8.1
NR Mule Deer Antlered	Mule Deer	ALW	131 - 134	Oct 21 - Nov 05	378	3	3	1	1%	67%	50%	100%		5.0	5.0
NR Mule Deer Antlered	Mule Deer	ALW	141 - 145	Oct 05 - Oct 20	119	20	20	9	17%	95%	47%	33%		5.9	7.4
NR Mule Deer Antlered	Mule Deer	ALW	141 - 145	Oct 21 - Nov 05	39	3	3	3	8%	100%	100%	67%		10.3	13.0
NR Mule Deer Antlered	Mule Deer	ALW	151 - 156	Oct 05 - Oct 20	77	10	10	6	13%	90%	67%	33%		5.3	6.7
NR Mule Deer Antlered	Mule Deer	ALW	151 - 156	Oct 21 - Nov 05	34	2	2	2	6%	100%	100%	50%		4.0	4.0
NR Mule Deer Antlered	Mule Deer	ALW	161 - 164	Oct 05 - Oct 20	162	25	25	6	15%	84%	29%	33%		5.2	6.2
NR Mule Deer Antlered	Mule Deer	ALW	161 - 164	Oct 21 - Nov 05	78	5	5	5	6%	100%	100%	80%		5.2	5.2
NR Mule Deer Antlered	Mule Deer	ALW	171 - 173	Oct 05 - Oct 20	125	25	22	7	20%	100%	32%	14%		4.4	5.3
NR Mule Deer Antlered	Mule Deer	ALW	171 - 173	Oct 21 - Nov 05	51	10	9	6	20%	100%	67%	67%		4.1	5.1
NR Mule Deer Antlered	Mule Deer	ALW	181 - 184	Oct 05 - Nov 05	40	10	10	8	25%	100%	80%	63%		3.1	4.1
NR Mule Deer Antlered	Mule Deer	ALW	192	Nov 05 - Nov 30	50	4	4	3	8%	100%	75%	33%		4.3	7.0
NR Mule Deer Antlered	Mule Deer	ALW	194, 196	Nov 05 - Nov 30	643	5	5	4	1%	100%	80%	50%		7.8	10.0
NR Mule Deer Antlered	Mule Deer	ALW	195	Oct 05 - Nov 02	16	2	2		13%	100%	0%				
NR Mule Deer Antlered	Mule Deer	ALW	201, 204	Nov 05 - Nov 30	44	2	2	0	5%	50%	0%			4.0	6.0
NR Mule Deer Antlered	Mule Deer	ALW	202, 205 - 208	Nov 05 - Nov 30	64	4	4	1	6%	100%	25%	0%		6.8	12.5
NR Mule Deer Antlered	Mule Deer	ALW	203	Nov 05 - Nov 30	16	4	4	2	25%	75%	67%	0%		2.5	3.0
NR Mule Deer Antlered	Mule Deer	ALW	211 - 213	Nov 05 - Nov 30	83	5	5	2	6%	100%	40%	50%		7.4	8.0
NR Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 05 - Oct 16	145	20	19	11	14%	95%	61%	82%		4.6	5.3
NR Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 17 - Oct 30	154	10	9	2	6%	100%	22%	100%		7.8	7.9
NR Mule Deer Antlered	Mule Deer	ALW	221 - 223	Oct 31 - Nov 08	1,487	2	2	1	0.1%	50%	100%	0%		6.0	6.0
NR Mule Deer Antlered	Mule Deer	ALW	231	Oct 05 - Oct 31	689	15	15	7	2%	93%	50%	100%		9.0	13.2
NR Mule Deer Antlered	Mule Deer	ALW	241 - 245	Oct 05 - Oct 31	1,463	10	10	5	1%	80%	63%	100%		8.1	10.1
NR Mule Deer Antlered	Mule Deer	ALW	251 - 254	Oct 05 - Nov 02	34	5	5	1	15%	80%	25%	100%		4.3	5.0
NR Mule Deer Antlered	Mule Deer	ALW	261 - 268	Nov 05 - Nov 30	81	5	5	4	6%	80%	100%	75%		3.8	4.5

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Mule Deer Antlered	Mule Deer	ALW	271 - 272	Nov 05 - Nov 30	58	2	2	1	3%	50%	100%	100%		8.0	8.0
NR Mule Deer Antlered	Mule Deer	ALW	291	Nov 05 - Nov 30	28	2	1	0	7%	100%	0%			8.0	9.0
NR Mule Deer Antlered	Mule Deer	AR	011 - 013	Aug 10 - Sep 09	24	2	2	0	8%	50%	0%			9.0	12.0
NR Mule Deer Antlered	Mule Deer	AR	014	Aug 10 - Sep 09	9	2	2	1	22%	100%	50%	100%		11.0	19.0
NR Mule Deer Antlered	Mule Deer	AR	015	Aug 10 - Sep 09	6	2	1	1	33%	100%	100%	100%		4.0	9.0
NR Mule Deer Antlered	Mule Deer	AR	021	Dec 01 - Dec 10	33	3	3	1	9%	100%	33%	0%		3.3	4.3
NR Mule Deer Antlered	Mule Deer	AR	022	Aug 10 - Sep 09	4	2	2	1	50%	100%	50%	0%		3.5	5.0
NR Mule Deer Antlered	Mule Deer	AR	031	Aug 10 - Sep 09	16	2	2	1	13%	50%	100%	0%		5.0	5.0
NR Mule Deer Antlered	Mule Deer	AR	032	Aug 10 - Sep 09	20	15	12	0	75%	92%	0%			6.1	7.3
NR Mule Deer Antlered	Mule Deer	AR	033	Aug 10 - Sep 09	15	2	2	0	13%	100%	0%			14.0	19.5
NR Mule Deer Antlered	Mule Deer	AR	034	Aug 10 - Sep 09	4	2	1	0	50%	100%	0%			2.0	2.0
NR Mule Deer Antlered	Mule Deer	AR	035	Aug 10 - Sep 09	7	4	4	0	57%	100%	0%			4.7	5.0
NR Mule Deer Antlered	Mule Deer	AR	041 - 042	Aug 10 - Sep 09	3	2	1	0	67%	100%	0%			3.0	3.0
NR Mule Deer Antlered	Mule Deer	AR	043 - 046	Aug 10 - Sep 09	12	7	7	1	58%	86%	17%	100%		5.3	6.5
NR Mule Deer Antlered	Mule Deer	AR	051	Aug 10 - Sep 09	29	8	8	2	28%	100%	25%	100%		4.5	5.9
NR Mule Deer Antlered	Mule Deer	AR	061 - 062, 064, 066 - 068	Aug 10 - Sep 09	77	30	28	2	39%	100%	7%	50%		6.4	7.2
NR Mule Deer Antlered	Mule Deer	AR	065	Aug 10 - Sep 09	7	3	3	2	43%	100%	67%	50%		3.3	4.0
NR Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	Aug 10 - Sep 09	123	20	18	7	16%	94%	41%	71%		6.6	8.6
NR Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	Nov 10 - Nov 20	70	2	2	0	3%	100%	0%			5.0	5.0
NR Mule Deer Antlered	Mule Deer	AR	081	Nov 10 - Nov 20	97	2	2	2	2%	100%	100%	100%		3.5	4.0
NR Mule Deer Antlered	Mule Deer	AR	101 - 109	Aug 10 - Sep 09	144	50	46	10	35%	98%	22%	40%		6.2	7.0
NR Mule Deer Antlered	Mule Deer	AR	101 - 109	Nov 10 - Nov 20	40	2	2	0	5%	100%	0%			9.5	10.5
NR Mule Deer Antlered	Mule Deer	AR	111 - 113	Aug 10 - Sep 09	38	4	4	0	11%	100%	0%			7.8	7.8
NR Mule Deer Antlered	Mule Deer	AR	114 - 115	Aug 10 - Sep 09	35	7	6	2	20%	100%	33%	50%		4.8	6.8
NR Mule Deer Antlered	Mule Deer	AR	121	Aug 10 - Sep 09	14	5	4	0	36%	100%	0%			7.3	8.0
NR Mule Deer Antlered	Mule Deer	AR	121	Nov 10 - Nov 20	22	2	2	2	9%	100%	100%	0%		6.0	7.0
NR Mule Deer Antlered	Mule Deer	AR	131 - 134	Aug 10 - Sep 09	176	7	7	2	4%	100%	29%	100%		9.0	11.1
NR Mule Deer Antlered	Mule Deer	AR	141 - 145	Aug 10 - Sep 09	52	25	22	5	48%	95%	24%	60%		4.8	6.5
NR Mule Deer Antlered	Mule Deer	AR	151 - 156	Aug 10 - Sep 09	16	10	10	1	63%	100%	10%	100%		5.9	6.3
NR Mule Deer Antlered	Mule Deer	AR	161 - 164	Aug 10 - Sep 09	65	20	19	5	31%	100%	26%	40%		7.3	8.2
NR Mule Deer Antlered	Mule Deer	AR	171 - 173	Aug 10 - Sep 09	35	20	18	3	57%	89%	19%	0%		4.7	5.8
NR Mule Deer Antlered	Mule Deer	AR	181 - 184	Aug 10 - Sep 09	11	6	6	0	55%	100%	0%			6.2	7.4
NR Mule Deer Antlered	Mule Deer	AR	192	Aug 10 - Sep 09	10	5	5	1	50%	100%	20%	100%		5.8	6.8
NR Mule Deer Antlered	Mule Deer	AR	192	Dec 01 - Jan 01	12	3	2	1	25%	100%	50%	100%		8.0	10.0
NR Mule Deer Antlered	Mule Deer	AR	194, 196	Aug 10 - Sep 09	26	3	3	1	12%	100%	33%	100%		10.3	12.0
NR Mule Deer Antlered	Mule Deer	AR	194, 196	Dec 01 - Jan 01	85	3	3	2	4%	100%	67%	50%		9.0	11.3
NR Mule Deer Antlered	Mule Deer	AR	195	Aug 10 - Sep 09	6	2	1	1	33%	100%	100%	100%		1.0	1.0
NR Mule Deer Antlered	Mule Deer	AR	201 - 202, 204 - 208	Aug 10 - Sep 09	8	2	2	0	25%	100%	0%			7.0	11.0
NR Mule Deer Antlered	Mule Deer	AR	201, 204	Dec 16 - Jan 01	7	2	1		29%	0%					
NR Mule Deer Antlered	Mule Deer	AR	202, 205 - 208	Dec 16 - Jan 01	15	2	2	0	13%	100%	0%			8.0	9.5

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Mule Deer Antlered	Mule Deer	AR	203	Aug 10 - Sep 09	3	3	2	0	100%	100%	0%			7.0	12.0
NR Mule Deer Antlered	Mule Deer	AR	203	Dec 16 - Jan 01	6	3	3	0	50%	100%	0%			4.0	3.7
NR Mule Deer Antlered	Mule Deer	AR	211 - 213	Aug 10 - Sep 09	2	2	1	0	100%	100%	0%			13.0	16.0
NR Mule Deer Antlered	Mule Deer	AR	221 - 223	Aug 10 - Sep 09	71	7	5	1	10%	80%	25%	100%		7.3	10.0
NR Mule Deer Antlered	Mule Deer	AR	231	Aug 10 - Sep 09	274	5	5	1	2%	100%	20%	100%		7.4	7.4
NR Mule Deer Antlered	Mule Deer	AR	241 - 245	Aug 10 - Sep 09	232	2	2	0	1%	50%	0%			14.0	14.0
NR Mule Deer Antlered	Mule Deer	AR	251 - 254	Aug 10 - Sep 09	6	2	2	0	33%	100%	0%			6.0	6.0
NR Mule Deer Antlered	Mule Deer	AR	261 - 268	Aug 10 - Sep 09	3	2	1	0	67%	100%	0%			7.0	15.0
NR Mule Deer Antlered	Mule Deer	AR	271 - 272	Aug 10 - Sep 09	7	2	1	0	29%	100%	0%			5.0	5.0
NR Mule Deer Antlered	Mule Deer	AR	291	Aug 10 - Sep 09	3	2	1		67%	100%	0%				
NR Mule Deer Antlered	Mule Deer	M	011 - 013	Sep 10 - Oct 04	13	2	2	2	15%	100%	100%	100%		3.5	6.5
NR Mule Deer Antlered	Mule Deer	M	014	Sep 10 - Oct 04	12	2	2	0	17%	100%	0%			4.5	7.5
NR Mule Deer Antlered	Mule Deer	M	015	Sep 10 - Oct 04	15	2	2	0	13%	100%	0%			7.0	8.5
NR Mule Deer Antlered	Mule Deer	M	021	Dec 11 - Dec 20	32	2	2	2	6%	100%	100%	100%		3.0	4.5
NR Mule Deer Antlered	Mule Deer	M	022	Sep 10 - Oct 04	6	2	2	1	33%	100%	50%	100%		4.5	5.5
NR Mule Deer Antlered	Mule Deer	M	031	Sep 10 - Oct 04	16	2	2	1	13%	100%	50%	100%		3.0	6.0
NR Mule Deer Antlered	Mule Deer	M	032	Sep 10 - Oct 04	4	2	2	1	50%	100%	50%	100%		5.0	6.0
NR Mule Deer Antlered	Mule Deer	M	033	Sep 10 - Oct 04	5	2	2	0	40%	100%	0%			5.0	6.5
NR Mule Deer Antlered	Mule Deer	M	034	Sep 10 - Oct 04	3	2	1	0	67%	100%	0%			8.0	11.0
NR Mule Deer Antlered	Mule Deer	M	035	Sep 10 - Oct 04	5	2	2	1	40%	100%	50%	0%		5.0	6.0
NR Mule Deer Antlered	Mule Deer	M	041 - 042	Sep 10 - Oct 04	6	2	2	1	33%	100%	50%	100%		6.0	12.5
NR Mule Deer Antlered	Mule Deer	M	043 - 046	Sep 10 - Oct 04	3	2	2	1	67%	100%	50%	0%		9.0	12.0
NR Mule Deer Antlered	Mule Deer	M	051	Sep 10 - Oct 04	13	2	2	1	15%	100%	50%	100%		8.0	12.0
NR Mule Deer Antlered	Mule Deer	M	061 - 062, 064, 066 - 068	Sep 10 - Oct 04	38	8	7	0	21%	100%	0%			8.6	10.4
NR Mule Deer Antlered	Mule Deer	M	065	Sep 10 - Oct 04	12	2	0		17%						
NR Mule Deer Antlered	Mule Deer	M	071 - 079, 091	Sep 10 - Oct 04	44	5	4	4	11%	100%	100%	100%		3.5	4.5
NR Mule Deer Antlered	Mule Deer	M	081	Nov 21 - Dec 10	301	2	2	1	1%	100%	50%	100%		5.5	10.5
NR Mule Deer Antlered	Mule Deer	M	101 - 109	Sep 10 - Sep 30	51	8	8	3	16%	100%	38%	67%		8.3	9.4
NR Mule Deer Antlered	Mule Deer	M	111 - 113	Sep 10 - Oct 04	20	2	1	0	10%	100%	0%			10.0	14.0
NR Mule Deer Antlered	Mule Deer	M	114 - 115	Nov 10 - Nov 30	99	2	2	1	2%	100%	50%	100%		6.0	9.0
NR Mule Deer Antlered	Mule Deer	M	121	Sep 10 - Oct 04	6	3	0		50%						
NR Mule Deer Antlered	Mule Deer	M	131 - 134	Sep 10 - Oct 04	76	4	4	3	5%	100%	75%	67%		6.5	9.0
NR Mule Deer Antlered	Mule Deer	M	141 - 145	Sep 10 - Oct 04	11	3	3	0	27%	100%	0%			6.5	7.0
NR Mule Deer Antlered	Mule Deer	M	151 - 156	Sep 10 - Oct 04	6	2	2	1	33%	100%	50%	0%		4.0	6.0
NR Mule Deer Antlered	Mule Deer	M	161 - 164	Sep 10 - Oct 04	18	4	3	1	22%	100%	33%	0%		3.0	4.5
NR Mule Deer Antlered	Mule Deer	M	171 - 173	Sep 10 - Oct 04	16	8	8	5	50%	100%	63%	20%		3.5	4.4
NR Mule Deer Antlered	Mule Deer	M	181 - 184	Nov 10 - Nov 30	11	2	2	1	18%	100%	50%	0%		3.5	4.5
NR Mule Deer Antlered	Mule Deer	M	192	Sep 10 - Oct 04	9	4	4	1	44%	100%	25%	0%		9.5	8.0
NR Mule Deer Antlered	Mule Deer	M	194, 196	Sep 10 - Oct 04	15	2	2	0	13%	100%	0%			8.0	8.0
NR Mule Deer Antlered	Mule Deer	M	195	Sep 10 - Oct 04	4	2	2	1	50%	100%	50%	0%		4.5	6.5

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Mule Deer Antlered	Mule Deer	M	201, 204	Dec 01 - Dec 15	13	2	2	1	15%	100%	50%	100%		7.5	13.0
NR Mule Deer Antlered	Mule Deer	M	202, 205 - 208	Dec 01 - Dec 15	15	6	6	3	40%	100%	50%	33%		5.2	6.2
NR Mule Deer Antlered	Mule Deer	M	211 - 213	Sep 10 - Oct 10	4	2	1	1	50%	100%	100%	0%		2.0	2.0
NR Mule Deer Antlered	Mule Deer	M	221 - 223	Sep 10 - Oct 04	34	2	2	1	6%	100%	50%	100%		7.5	9.0
NR Mule Deer Antlered	Mule Deer	M	231	Sep 10 - Oct 04	67	2	1	1	3%	100%	100%	100%		7.0	7.0
NR Mule Deer Antlered	Mule Deer	M	241 - 245	Sep 10 - Oct 04	95	2	2	0	2%	100%	0%			7.5	8.0
NR Mule Deer Antlered	Mule Deer	M	251 - 254	Sep 10 - Oct 04	13	2	1	0	15%	100%	0%			3.0	3.0
NR Mule Deer Antlered	Mule Deer	M	261 - 268	Sep 10 - Oct 04	7	2	2	2	29%	100%	100%	100%		2.0	14.5
NR Mule Deer Antlered	Mule Deer	M	271 - 272	Sep 10 - Oct 04	5	2	1	0	40%	100%	0%			1.0	1.0
NR Mule Deer Antlered	Mule Deer	M	291	Sep 10 - Oct 04	3	2	2	0	67%	100%	0%			7.0	13.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	011 - 013	Oct 05 - Nov 05	8	3	3	2	38%	100%	67%	100%		3.7	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	014	Oct 05 - Nov 05	10	2	2	2	20%	100%	100%	50%		4.0	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	015	Dec 11 - Jan 01	2	1	1	1	50%	100%	100%	0%		3.0	3.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	021	Dec 21 - Jan 01	16	1	1	1	6%	100%	100%	100%		2.0	2.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	022	Oct 05 - Nov 05	2	1			50%						
NR Mule Deer Guided Antlered	Mule Deer	ALW	031	Oct 05 - Nov 05	18	8	8	5	44%	88%	71%	100%		4.1	5.3
NR Mule Deer Guided Antlered	Mule Deer	ALW	033	Oct 05 - Nov 05	3	1	1	1	33%	100%	100%	100%		7.0	7.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	034	Oct 05 - Nov 05	4	1	1	1	25%	100%	100%	100%		4.0	8.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	035	Oct 05 - Nov 05	4	4	4	2	100%	75%	67%	100%		7.0	11.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	041 - 042	Oct 05 - Nov 05	1	1	1	1	100%	100%	100%	100%		6.0	6.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	043 - 046	Oct 05 - Oct 20	4	4	4	2	100%	100%	50%	100%		4.3	6.3
NR Mule Deer Guided Antlered	Mule Deer	ALW	043 - 046	Oct 21 - Nov 05	2	2	2	1	100%	100%	50%	100%		3.0	3.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	051	Oct 05 - Nov 05	12	11	11	9	92%	100%	82%	67%		3.5	4.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 05 - Oct 20	38	34	32	16	89%	97%	52%	75%		3.9	4.2
NR Mule Deer Guided Antlered	Mule Deer	ALW	061 - 062, 064, 066 - 068	Oct 21 - Nov 05	41	6	6	3	15%	83%	60%	67%		4.6	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	065	Oct 05 - Nov 02	9	2	1	1	22%	100%	100%	100%		6.0	7.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	071 - 079, 091	Oct 05 - Oct 20	83	15	15	11	18%	100%	73%	100%		4.0	5.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	071 - 079, 091	Oct 21 - Nov 05	274	3	3	3	1%	100%	100%	100%		3.0	3.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	081	Dec 11 - Jan 01	70	1	1	1	1%	100%	100%	100%		4.0	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	101 - 109	Oct 01 - Oct 16	39	33	33	14	85%	91%	47%	57%		4.3	4.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	101 - 109	Oct 17 - Oct 30	34	30	28	12	88%	93%	46%	50%		3.9	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	101 - 109	Oct 31 - Nov 08	50	6	4	1	12%	100%	25%	100%		3.3	3.3
NR Mule Deer Guided Antlered	Mule Deer	ALW	111 - 113	Oct 05 - Oct 20	24	18	17	11	75%	100%	65%	91%		4.7	5.8
NR Mule Deer Guided Antlered	Mule Deer	ALW	111 - 113	Oct 21 - Nov 05	3	1			33%						
NR Mule Deer Guided Antlered	Mule Deer	ALW	114 - 115	Oct 05 - Oct 20	5	4	4	4	80%	100%	100%	100%		2.3	2.8
NR Mule Deer Guided Antlered	Mule Deer	ALW	114 - 115	Oct 21 - Nov 05	3	1	1	1	33%	100%	100%	100%		3.0	3.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	121	Oct 05 - Oct 20	7	7	7	3	100%	100%	43%	100%		5.3	5.3
NR Mule Deer Guided Antlered	Mule Deer	ALW	121	Oct 21 - Nov 05	2	1	1	1	50%	100%	100%	0%		4.0	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	131 - 134	Oct 05 - Oct 20	21	12	10	4	57%	100%	40%	75%		5.3	5.4
NR Mule Deer Guided Antlered	Mule Deer	ALW	131 - 134	Oct 21 - Nov 05	14	1	1	0	7%	100%	0%			5.0	5.0

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2019 Quota	Hunters	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days
NR Mule Deer Guided Antlered	Mule Deer	ALW	141 - 145	Oct 05 - Oct 20	18	15	15	10	83%	100%	67%	60%		3.6	5.1
NR Mule Deer Guided Antlered	Mule Deer	ALW	141 - 145	Oct 21 - Nov 05	4	1	1	1	25%	100%	100%	0%		1.0	1.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	151 - 156	Oct 05 - Oct 20	5	9	4	3	100%	100%	75%	67%		2.0	2.3
NR Mule Deer Guided Antlered	Mule Deer	ALW	151 - 156	Oct 21 - Nov 05	1	1	1	1	100%	100%	100%	100%		11.0	11.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	161 - 164	Oct 05 - Oct 20	24	14	14	11	58%	100%	79%	73%		3.4	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	161 - 164	Oct 21 - Nov 05	3	1	1	1	33%	100%	100%	0%		2.0	2.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	171 - 173	Oct 05 - Oct 20	2	16	2	2	100%	100%	100%	100%		5.5	6.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	171 - 173	Oct 21 - Nov 05	5	4	1		80%	0%					
NR Mule Deer Guided Antlered	Mule Deer	ALW	181 - 184	Oct 05 - Nov 05	2	6	2	1	100%	100%	50%	0%		5.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	192	Nov 05 - Nov 30	1	30	1	1	100%	100%	100%	0%		2.0	2.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	194, 196	Nov 05 - Nov 30	26	2	2	2	8%	100%	100%	100%		4.5	4.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	202, 205 - 208	Nov 05 - Nov 30	3	2	2	1	67%	100%	50%	0%		1.0	3.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	203	Nov 05 - Nov 30	2	2	2	2	100%	100%	100%	100%		2.5	3.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	211 - 213	Nov 05 - Nov 30	7	2	2	2	29%	100%	100%	100%		1.0	2.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	221 - 223	Oct 05 - Oct 16	31	9	9	7	29%	100%	78%	100%		4.8	4.8
NR Mule Deer Guided Antlered	Mule Deer	ALW	221 - 223	Oct 17 - Oct 30	74	8	6	3	11%	100%	50%	100%		5.7	5.7
NR Mule Deer Guided Antlered	Mule Deer	ALW	221 - 223	Oct 31 - Nov 08	222	1	1	1	0.5%	100%	100%	100%		5.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	231	Oct 05 - Oct 31	69	8	7	4	12%	100%	57%	100%		5.3	5.7
NR Mule Deer Guided Antlered	Mule Deer	ALW	241 - 245	Oct 05 - Oct 31	488	4	4	3	1%	100%	75%	100%		5.8	5.8
NR Mule Deer Guided Antlered	Mule Deer	ALW	251 - 254	Oct 05 - Nov 02	3	2	1	1	67%	100%	100%	100%		5.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	261 - 268	Nov 05 - Nov 30	13	3	1	1	23%	100%	100%	100%		7.0	7.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	271 - 272	Nov 05 - Nov 30	5	1	1	1	20%	100%	100%	100%		5.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	291	Nov 05 - Nov 30	1	1	1	0	100%	100%	0%			5.0	10.0
NR PIW Mule Deer Antlered	Mule Deer	SWR	Any Open Unit	Aug 10 - Jan 01	3,428	3	3	1	0.1%	100%	33%	100%		7.5	8.5
Dream Mule Deer	Mule Deer	SWR	Any Open Unit	Aug 10 - Jan 01			1	0		100%	0%			10.0	10.0
Res Rocky Mountain Bighorn Sheep Any Ram	Rocky Bighorn	ALW	074	Sep 01 - Oct 31	1,317	1	1	0	0.1%	100%	0%			13.0	13.0
Res Rocky Mountain Bighorn Sheep Any Ram	Rocky Bighorn	ALW	091	Sep 01 - Oct 31	817	1	1	1	0.1%	100%	100%			1.0	19.0
Res Rocky Mountain Bighorn Sheep Any Ram	Rocky Bighorn	ALW	114	Aug 15 - Oct 31	2,231	2	1	1	0.1%	100%	100%			7.0	17.0
Res Rocky Mountain Bighorn Sheep Any Ram	Rocky Bighorn	ALW	114	Dec 20 - Feb 20	668	1	1	1	0.1%	100%					
Res Rocky Mountain Bighorn Sheep Any Ram	Rocky Bighorn	ALW	115	Dec 20 - Feb 20	527	2	2	2	0.4%	100%	100%			10.0	11.5

TABLE 1. 2019 BIG GAME HARVEST BY HUNT AND UNIT GROUP - FIELD DESCRIPTIONS

Field Header	Description
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.
Hunters	Formerly referred to as "Tags". Number of hunters with valid tags on season opener accounting for tags returned by hunters that were not reissued.
Draw Rate	A relative representation of draw probability. Proportion of 2019 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.
Survey Rate	Proportion of hunt surveys received compared to Tags (see definition above) available.
Success Rate	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 **OR** 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 **OR** elk with antlers 50-in or longer.
Hunt Days	Average number of hunt days reported for a given hunt.
Effort Days	Average number of scouting and hunting days reported for a given hunt.

TABLE 2. 2019 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
			0	1	2	3	4	5+			
011 - 013	2	0	0	1	5	19	20	5	50	50%	52
014	1	0	0	0	5	8	5	0	18	28%	19
015	0	0	0	0	5	8	4	1	18	28%	18
021	0	0	0	1	4	13	23	4	45	60%	45
022	0	0	0	1	3	10	16	4	34	59%	34
031	11	0	0	4	35	57	65	12	173	45%	184
032	10	1	2	3	24	16	15	1	61	26%	72
033	0	0	0	0	3	6	6	0	15	40%	15
034	3	0	0	0	3	7	10	0	20	50%	23
035	9	1	1	2	11	24	24	4	66	42%	76
041 - 042	2	0	0	2	10	5	4	1	22	23%	24
043 - 046	9	1	0	3	23	42	37	6	111	39%	121
051	27	0	0	3	24	51	57	10	145	46%	172
061 - 062, 064, 066 - 068	237	13	3	16	146	179	213	26	583	41%	833
065	0	0	0	1	9	26	30	4	70	49%	70
071 - 079, 091	184	11	1	8	90	172	348	70	689	61%	884
081	0	0	0	0	3	8	47	9	67	84%	67
101 - 109	143	11	1	21	179	206	181	38	626	35%	780
111 - 113	25	3	0	10	58	80	64	18	230	36%	258
114 - 115	21	2	0	1	5	15	35	2	58	64%	81
121	11	0	1	2	56	59	33	11	162	27%	173
131 - 134	8	0	0	7	61	82	104	20	274	45%	282
141 - 145	28	1	0	11	101	114	83	12	321	30%	350
151 - 156	7	0	0	7	36	56	43	7	149	34%	156
161 - 164	10	0	1	13	61	75	70	9	229	34%	239
171 - 173	20	1	1	11	59	73	59	3	206	30%	227
181 - 184	7	0	1	3	24	28	37	7	100	44%	107
192	1	0	0	2	15	23	14	2	56	29%	57
194, 196	0	0	0	0	8	36	46	16	106	58%	106
195	0	0	0	0	6	9	5	3	23	35%	23
201, 204	0	0	0	0	7	7	6	1	21	33%	21
202, 205 - 208	1	0	0	1	10	27	14	1	53	28%	54
203	0	0	0	1	8	15	14	1	39	38%	39
211 - 213	0	0	0	2	9	9	15	3	38	47%	38
221 - 223	20	2	0	4	42	58	114	30	248	58%	270
231	9	0	0	3	20	45	88	23	179	62%	188
241 - 245	3	0	0	2	7	11	58	33	111	82%	114
251 - 254	1	0	0	0	2	6	9	1	18	56%	19
261 - 268	1	0	0	2	11	25	40	12	90	58%	91
271 - 272	0	0	0	0	3	6	10	1	20	55%	20
291	1	0	0	2	8	24	13	4	51	33%	52
TOTAL	**812**	**47**	**12**	**150**	**1,199**	**1,740**	**2,079**	**415**	**5,595**	**45%**	**6,454**

SPECIALTY TAGHOLDER HARVEST BY UNIT

Unit Group of Harvest	#
021	1
051	1
061 - 062, 064, 066 - 068	1
081	4

Unit Group	#
114 - 115	1
192	1
194, 196	1
221 - 223	5

Unit Group	#
241 - 245	4
261 - 268	1

TABLE 3. % FOUR-POINT OR GREATER MULE DEER HARVEST BY UNIT GROUP, 2009-2019

Unit Group	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
011- 013	56%	51%	56%	40%	38%	38%	43%	46%	47%	50%	50%
014	60%	51%	48%	54%	41%	40%	25%	32%	18%	27%	28%
015	44%	53%	59%	47%	42%	36%	42%	33%	58%	65%	28%
021	48%	42%	56%	47%	45%	46%	65%	57%	43%	62%	60%
022	50%	48%	73%	67%	57%	51%	52%	52%	42%	32%	59%
031	54%	46%	36%	39%	48%	50%	48%	43%	46%	38%	45%
032	43%	38%	24%	27%	32%	34%	24%	23%	32%	28%	26%
033	44%	51%	49%	26%	36%	44%	33%	63%	45%	41%	40%
034	75%	62%	56%	45%	64%	45%	43%	49%	68%	32%	50%
035	60%	67%	40%	39%	45%	30%	34%	41%	25%	29%	42%
041, 042	58%	55%	43%	21%	27%	55%	46%	53%	37%	18%	23%
043 - 046	47%	47%	34%	32%	33%	35%	33%	32%	31%	29%	39%
051	46%	33%	29%	27%	38%	40%	40%	46%	41%	46%	46%
061,062,064,066-068	47%	44%	49%	46%	40%	39%	39%	40%	42%	40%	41%
065	64%	65%	71%	58%	58%	51%	54%	54%	66%	65%	49%
071 - 079, 091	43%	41%	40%	40%	33%	33%	40%	51%	54%	56%	61%
081	84%	71%	78%	65%	71%	87%	81%	79%	88%	88%	84%
101 - 108	39%	39%	37%	30%	28%	27%	29%	32%	37%	34%	35%
111 - 113	32%	27%	31%	24%	26%	25%	31%	32%	34%	33%	36%
114, 115	46%	48%	59%	40%	41%	45%	44%	50%	55%	62%	64%
121	32%	28%	32%	22%	36%	32%	31%	36%	36%	27%	27%
131 - 134	53%	43%	56%	45%	43%	42%	44%	43%	51%	43%	45%
141 - 145	36%	40%	35%	27%	30%	28%	23%	33%	30%	31%	30%
151, 152, 154, 155	54%	49%	42%	32%	31%	37%	28%	41%	40%	37%	34%
161 - 164	47%	34%	35%	34%	39%	30%	39%	44%	33%	36%	34%
171 - 173	45%	33%	36%	26%	33%	28%	33%	25%	29%	29%	30%
181 - 184	41%	40%	39%	37%	32%	36%	40%	41%	35%	42%	44%
192	35%	46%	17%	41%	54%	38%	41%	44%	35%	35%	29%
194, 196	59%	54%	68%	64%	61%	60%	72%	74%	72%	65%	58%
195	46%	52%	38%	66%	25%	74%	36%	53%	60%	43%	35%
201, 204	45%	17%	25%	42%	19%	23%	30%	21%	33%	32%	33%
202, 205-208	46%	38%	53%	27%	49%	46%	28%	28%	29%	40%	28%
203	34%	26%	35%	33%	42%	39%	38%	29%	33%	36%	38%
211, 212	42%	64%	30%	39%	44%	55%	29%	28%	52%	35%	47%
221 - 223	48%	48%	48%	42%	43%	37%	40%	49%	47%	48%	58%
231	69%	61%	65%	55%	55%	54%	61%	58%	65%	60%	62%
241 - 245	65%	76%	74%	62%	62%	65%	69%	64%	75%	75%	82%
251 - 253	54%	31%	65%	56%	53%	74%	67%	81%	41%	47%	56%
261 - 268	40%	52%	27%	35%	27%	40%	57%	47%	43%	43%	58%
271, 272	70%	90%	44%	54%	45%	65%	62%	46%	65%	33%	55%
291	41%	46%	23%	22%	46%	34%	36%	33%	40%	38%	33%
Statewide	**46%**	**42%**	**42%**	**37%**	**37%**	**37%**	**38%**	**41%**	**43%**	**41%**	**45%**

*Includes harvest from all hunts and weapon classes combined

TABLE 4. 2019 PRONGHORN HARVEST COMPOSITION BY UNIT GROUP

Unit Group of Harvest	Does	Fawns	Yrlg Bucks	Adult Bucks	Total Bucks	Total Harvest
011	0	0	0	50	50	50
012 - 014	0	0	0	108	108	108
015	0	0	0	62	62	62
021 - 022	0	0	0	40	40	40
031	27	3	6	67	73	103
032, 034	6	0	1	48	49	55
033	0	0	0	52	52	52
035	6	0	0	34	34	40
041 - 042	21	3	5	112	117	141
043 - 046	0	0	0	66	66	66
051	0	0	0	31	31	31
061 - 062, 064, 071, 073	70	10	21	120	141	221
065, 142, 144[A]	30	2	8	70	78	110
066	6	2	1	27	28	36
067 - 068	66	4	14	109	123	193
072, 074 - 075	21	0	1	53	54	75
076 - 077, 079, 081, 091	9	0	2	46	48	57
078, 105 - 107, 121	38	3	7	96	103	144
101 - 104, 108 - 109, 144[B]	15	4	6	96	102	121
111 - 114	43	4	3	84	87	134
115, 231, 242	3	0	0	46	46	49
131, 145, 163 - 164	21	1	2	64	66	88
132 - 134, 245	0	0	0	47	47	47
141, 143, 151 - 156	277	27	52	214	266	570
161 - 162	0	0	0	41	41	41
171 - 173	0	0	0	45	45	45
181 - 184	19	3	2	68	70	92
202, 204	0	0	0	6	6	6
203, 291	0	0	0	7	7	7
205 - 208	0	0	0	29	29	29
211 - 213	0	0	0	6	6	6
221 - 223, 241	0	0	0	35	35	35
251	0	0	0	34	34	34
TOTAL	**678**	**66**	**131**	**2,013**	**2,144**	**2,888**

SPECIALTY TAGHOLDER HARVEST BY UNIT GROUP

Unit Group of Harvest	Specialty Tag	#
033	Dream	1
076 - 077, 079, 081, 091	Heritage	1
101 - 104, 108 - 109, 144[B]	PIW	1
132 - 134, 245	PIW	1
202, 204	PIW	1
221 - 223, 241	PIW	1
251	Silver State	1

TABLE 5. PRONGHORN HORN TRENDS - % OF BUCKS 15+ INCHES BY UNIT GROUP, 2010-2019

Unit Group	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
011	46%	39%	32%	22%	28%	30%	31%	30%	22%	24%
012 - 014	27%	38%	32%	15%	31%	35%	36%	26%	30%	22%
015	49%	37%	31%	10%	21%	25%	28%	26%	41%	31%
021, 022	55%	53%	41%	32%	55%	39%	46%	52%	43%	45%
031	32%	20%	27%	20%	18%	27%	19%	19%	34%	21%
032, 034	39%	37%	29%	27%	19%	18%	34%	13%	20%	10%
033	62%	55%	36%	19%	44%	48%	34%	30%	46%	37%
035	38%	27%	14%	16%	6%	18%	23%	22%	15%	26%
041, 042	44%	34%	40%	31%	26%	39%	41%	28%	25%	32%
043 - 046		50%	40%	10%	24%	13%	33%	25%	33%	18%
051	36%	40%	20%	24%	21%	30%	21%	16%	32%	33%
061, 062, 064, 071, 073	30%	30%	26%	23%	31%	39%	32%	32%	33%	27%
065, 142, 144	52%	54%	33%	42%	39%	38%	32%	36%	25%	26%
066	47%	67%	29%	48%	36%	46%	58%	28%	40%	33%
067, 068	32%	30%	27%	24%	31%	33%	44%	40%	37%	34%
072, 074, 075	33%	33%	21%	28%	35%	35%	37%	26%	21%	25%
076, 077, 079, 081, 091	51%	40%	43%	50%	54%	60%	50%	55%	62%	57%
078, 105 - 107, 121	22%	35%	26%	8%	27%	19%	25%	27%	38%	24%
101 – 104, 108, 109, 144	27%	27%	21%	25%	34%	45%	31%	42%	29%	36%
111 – 114	14%	15%	13%	14%	8%	10%	17%	17%	14%	21%
115, 231, 242	48%	11%	40%	20%	22%	24%	24%	30%	24%	30%
131, 145, 163, 164	31%	35%	20%	27%	38%	29%	37%	33%	25%	28%
132 – 134, 245	53%	41%	32%	38%	37%	40%	36%	24%	44%	28%
141, 143, 151 - 156	32%	29%	31%	28%	24%	17%	28%	27%	27%	27%
161, 162	38%	23%	32%	35%	20%	41%	29%	35%	19%	39%
171 - 173	35%	36%	12%	27%	14%	21%	20%	12%	38%	40%
181 - 184	30%	29%	13%	19%	21%	21%	27%	27%	36%	40%
202, 204	0%	0%	0%	0%	0%	33%	20%	40%	100%	50%
203, 291	20%	0%	0%		25%	0%	20%	40%	0%	14%
205, 206, 207, 208	18%	7%	17%	13%	20%	25%	8%	22%	21%	21%
211, 212			50%	0%	100%	67%	29%	0%	0%	17%
221 – 223, 241	28%	24%	12%	14%	31%	33%	28%	23%	23%	14%
251	50%	76%	53%	46%	60%	42%	74%	33%	52%	50%
Statewide	**37%**	**34%**	**28%**	**24%**	**27%**	**30%**	**32%**	**28%**	**30%**	**29%**

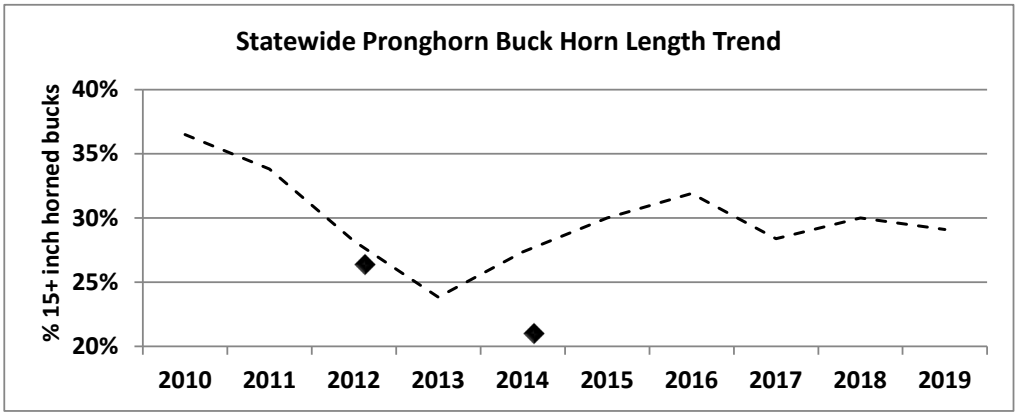


TABLE 6. ELK 2019 HARVEST COMPOSITION BY UNIT GROUP

Unit Group of Harvest	Cows	Calves	Bulls by Antler Points								Unit Group Bull Total	% 6+ Pts*	Total Harvest
			0	1	2	3	4	5	6	7+			
051	1								2		2	100%	3
061, 071	122	19		18	1	2	5	12	33	2	73	66%	214
062, 064, 066 - 068	52	3		7	2		1	3	25	2	40	84%	95
065	2										0	-	2
072 - 074	81	5		11	3		9	44	100	12	179	67%	265
075	27	1					2	10	11		23	48%	51
076 - 077, 079, 081	81	5		10		2	2	17	95	11	137	83%	223
078, 105 - 107, 109	41	3		4					21	2	27	92%	71
091	8								5	3	8	100%	16
101 - 103	17	2	1	4	1		4	15	16	1	42	40%	61
104, 121, 108[A]	55	1		1		1	3	11	21	5	42	62%	98
108[B], 131 - 132	28					2	1	5	15	3	26	69%	54
111 - 115	181	5		4	2	3	5	20	119	26	179	81%	365
144 - 145	2							1	1		2	50%	4
161 - 164, 171 - 173	42				1	1	1	16	28	3	50	62%	92
221 - 223	90	4		1	2		1	15	62	9	90	79%	184
231	78	6		1		1	3	23	38	4	70	60%	154
241 - 242	2							3	2		5	40%	7
251									1		1	100%	1
262									4		4	100%	4
Unknown													
TOTAL	**910**	**54**	**1**	**61**	**12**	**12**	**37**	**195**	**599**	**83**	**1,000**	**72%**	**1,964**

***% 6+ Pts omits reported harvest from spike-only hunts.**

SPECIALTY TAGHOLDER HARVEST BY UNIT GROUP

Unit Group of Harvest	Specialty Tag	#
078, 105 - 107, 109	PIW	1
161 - 164, 171 - 173	PIW	1
221 - 223	Silver State	1
221 - 223	Heritage	1
231	Heritage	1

TABLE 7. ELK 2019 ANTLER LENGTH BY UNIT GROUP

	Count of Antlers by Class Size						Percent of Antlers by Class Size				Avg Beam
Unit Group	**0"-29"**	**30"-43"**	**44"-49"**	**50" plus**	**Total**	**Response**	**0"-29"**	**30"-43"**	**44"-49"**	**50" plus**	**Length (in)**
051	0	1	0	1	2	100%	0%	50%	0%	50%	46
061, 071	4	25	14	10	53	100%	8%	47%	26%	19%	40
062, 064, 066 - 068	1	12	14	5	32	100%	3%	38%	44%	16%	44
065	0	0	0	0	0						
072 - 074	13	69	48	37	168	100%	8%	41%	29%	22%	42
075	3	7	9	4	23	100%	13%	30%	39%	17%	40
076 - 077, 079, 081	5	44	48	31	128	100%	4%	34%	38%	24%	44
078, 105 - 107, 109	3	4	6	12	25	100%	12%	16%	24%	48%	44
091	0	1	2	5	8	100%	0%	13%	25%	63%	50
101 - 103	7	25	6	4	42	100%	17%	60%	14%	10%	36
104, 121, 108[A]	4	12	7	19	42	100%	10%	29%	17%	45%	44
108[B], 131 - 132	3	9	3	11	26	100%	12%	35%	12%	42%	43
111 - 115	15	30	47	87	179	100%	8%	17%	26%	49%	46
144 - 145	0	2	0	0	2	100%	0%	100%	0%	0%	40
161 - 164, 171 - 173	4	13	13	20	50	100%	8%	26%	26%	40%	44
221 - 223	7	22	26	35	90	100%	8%	24%	29%	39%	45
231	6	27	13	24	70	100%	9%	39%	19%	34%	43
241 - 242	2	0	2	1	5	100%	40%	0%	40%	20%	30
251	0	0	0	1	1	100%	0%	0%	0%	100%	53
262	0	1	2	1	4	100%	0%	25%	50%	25%	45
Statewide	**77**	**304**	**260**	**308**	**950**	**100%**	**8%**	**32%**	**27%**	**32%**	**43**

TABLE 8. ELK 2019 COMPOSITION OF 50-IN BEAMS IN HARVEST, 2010-2019

Note: Historic main beam data has been updated to exclude spike hunt results from 2014-2019

Unit Group	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
051						100%	100%	29%	17%	50%
061, 071	23%	17%	12%	10%	11%	21%	21%	22%	8%	19%
062, 064, 066 - 068	49%	55%	24%	27%	37%	30%	25%	39%	37%	16%
065					50%			0%	0%	
072, 073, 074	33%	31%	32%	23%	30%	26%	26%	20%	23%	22%
075	18%	11%	37%	13%	12%	28%	23%	10%	26%	17%
076, 077, 079, 081	28%	27%	23%	18%	33%	22%	23%	17%	26%	24%
078, 105 - 107, 109	63%	58%	40%	42%	42%	44%	35%	45%	68%	48%
091	33%	100%	33%	0%	67%	25%	71%	60%	33%	63%
101, 102, 103	22%	23%	14%	15%	5%	11%	4%	16%	17%	10%
104, 108, 121	29%	48%	34%	38%	42%	29%	34%	42%	29%	45%
108, 131, 132	40%	38%	20%	16%	70%	30%	19%	39%	39%	42%
111-115	28%	39%	40%	46%	48%	48%	40%	44%	45%	49%
144, 145			30%	20%	33%	11%	0%	17%	100%	0%
161 - 164, 171 - 173	18%	40%	40%	40%	44%	32%	44%	25%	29%	40%
221 - 223	27%	28%	32%	34%	47%	43%	39%	39%	25%	39%
231*	24%	36%	42%	40%	39%	35%	29%	30%	16%	34%
241, 242							100%	50%	20%	20%
251									0%	100%
262	67%	0%	33%	0%	20%	20%	0%	67%	25%	25%
Statewide	**29%**	**32%**	**29%**	**26%**	**35%**	**32%**	**30%**	**29%**	**28%**	**32%**

*For 2008-2015, includes 50+ inch main beams from Unit Group 241, 242.

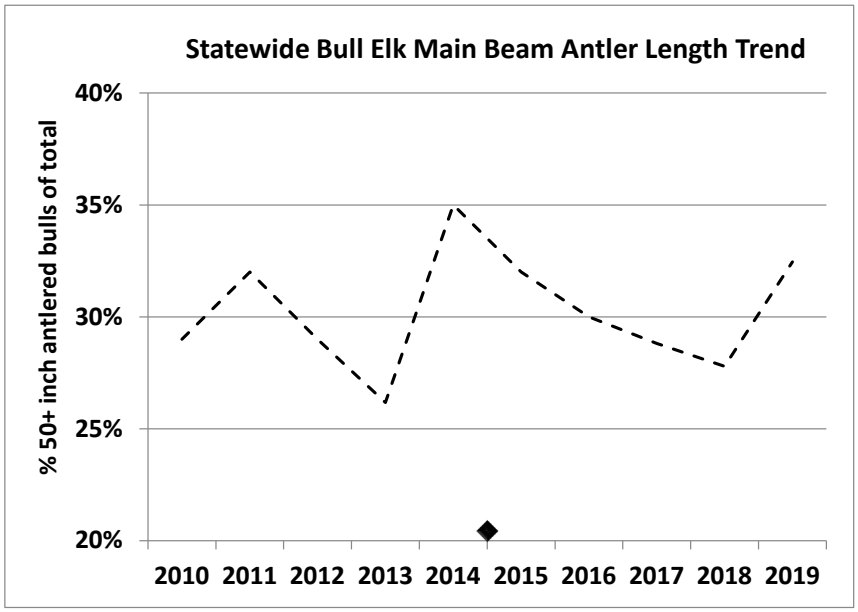


TABLE 9. BIGHORN SHEEP RAM HARVEST HISTORY

DESERT BIGHORN BY YEAR

Year	# Tags Issued	Percent Success	Avg Days Hunted	Average Age	Average B&C Score	Maximum B&C Score
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
2019	311	89%	5.0	7.0	154	185
Total/Avg	**4,388**	**88%**	**5.5**	**6.4**	**152**	**189 6/8**

* Includes Rocky Mtn Rams harvested in Unit 131

**% Success doesn't include tags returned and not reallocated to alternates

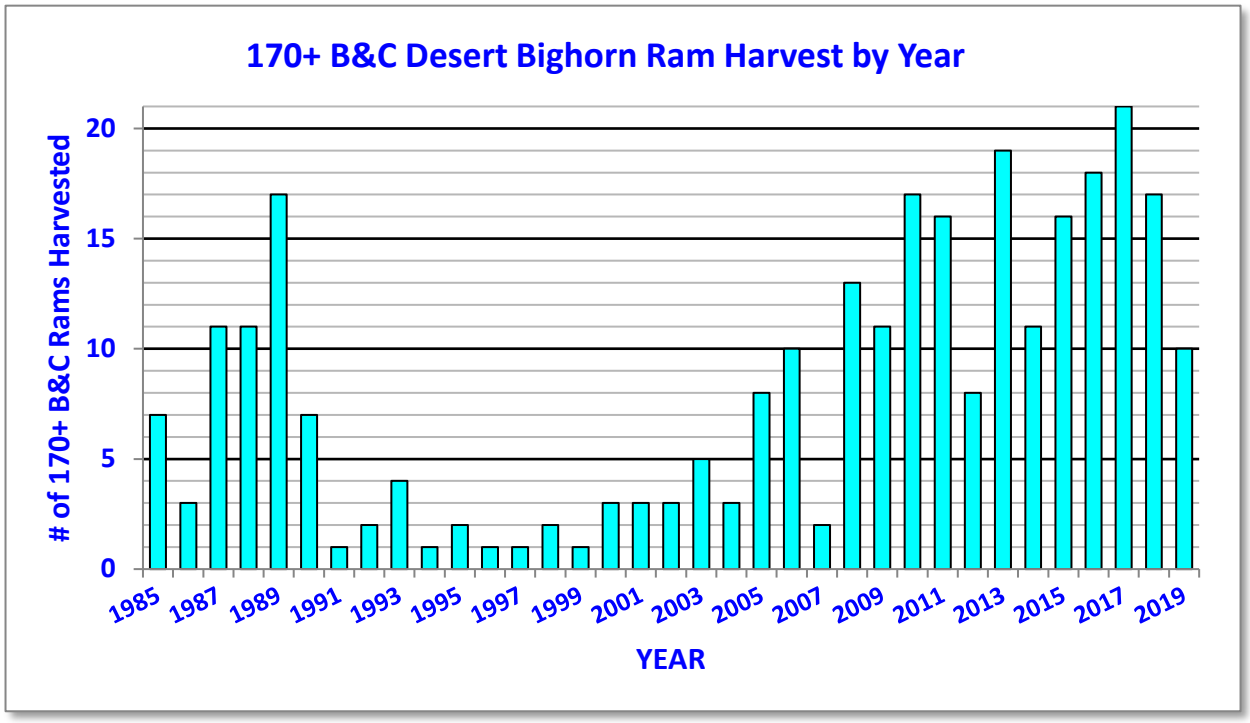


TABLE 9. BIGHORN SHEEP RAM HARVEST HISTORY

CURRENT COMPARISON - DESERT BIGHORN BY UNIT GROUP 2017 - 2019

Unit	# Tags Issued	Percent Success	Average Ram Age	Max Horn Length	Maximum Horn Base	Average B&C Score	Max B&C Score
045, 153	26	92%	5.8	35 4/8	15 7/8	147 4/8	157 6/8
131, 164	10	70%	6.4	35 7/8	15 1/8	151 7/8	168 2/8
132	10	70%	5.1	32 5/8	15	141 6/8	150
134	15	73%	6.7	33	15 3/8	153 3/8	163 6/8
161	39	92%	6.1	34 6/8	16	153 3/8	173 4/8
163, 162	27	89%	6.1	37 5/8	16 1/8	153 7/8	173 5/8
173 N	13	62%	5.3	33 2/8	15 2/8	143 1/8	159
173 S	4	100%	6.8	36 4/8	15 7/8	163 4/8	165 4/8
181	56	98%	6.5	37 7/8	16 3/8	156 4/8	170 7/8
182, 044	50	98%	6.0	37 4/8	16	153 3/8	174 6/8
183	37	100%	6.1	35 3/8	16	156 3/8	170 6/8
184	14	93%	4.9	34	15 5/8	141 7/8	163
202	18	94%	5.7	35 2/8	15 7/8	150 5/8	167 7/8
204	4	75%	5.0	31	15	146 4/8	155 4/8
205	47	85%	6.1	36 7/8	15 7/8	156	170 5/8
206, 208	14	71%	6.5	31 5/8	15	148 6/8	153 6/8
207	26	96%	5.2	34 1/8	15	142 3/8	162
211	35	86%	6.9	37 7/8	15 5/8	151 2/8	171 1/8
212	43	88%	7.7	35 4/8	15	149 6/8	161 6/8
213	52	90%	5.9	33 6/8	15	140 2/8	159 3/8
223, 241	12	75%	6.4	36 6/8	15 4/8	153 4/8	175 6/8
241	8	75%	6.3	34 4/8	15 3/8	153 2/8	165 6/8
243	13	46%	7.8	40 1/8	14 6/8	157 2/8	177 2/8
244	19	95%	7.7	37 2/8	15 7/8	159 3/8	176 4/8
245	11	91%	5.0	33 6/8	16	139 5/8	163 3/8
252	17	82%	6.8	36 3/8	16	155 2/8	172 4/8
253	23	100%	6.9	36 5/8	15 7/8	160 1/8	172 2/8
254	9	78%	5.3	33	15 2/8	137 2/8	165 2/8
261	16	75%	6.8	35 4/8	15	145 2/8	164
262	18	89%	7.8	41	15 2/8	165 2/8	178 7/8
263	29	97%	7.5	39	15 2/8	163 7/8	178 6/8
264, 265	7	57%	7.8	35 2/8	15 1/8	153	154 3/8
266	3	67%	5.0	32	15	147 4/8	148 3/8
267	28	96%	7.6	37 3/8	15	157 7/8	170 4/8
268	86	98%	7.7	40 6/8	16	160 5/8	185
271	32	91%	7.6	38 2/8	15 4/8	161 6/8	179 7/8
272	5	60%	6.3	34 4/8	14 6/8	157 6/8	164
280	12	75%	9.2	37 7/8	15 1/8	160	173 2/8
281	20	75%	7.7	39 4/8	15 1/8	157 6/8	172 3/8
282	13	85%	8.3	39 5/8	16 1/8	169 3/8	179 2/8
283, 284	19	79%	7.2	37 4/8	15 5/8	154 7/8	169 7/8
286	13	92%	8.0	37 2/8	15 1/8	162 1/8	175 4/8

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
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
2019	7	71%	9.0	5.4	137 6/8	166 2/8
Total/Avg	**123**	**85%**	**6.4**	**6.8**	**163 1/8**	**195 4/8**

CURRENT COMPARISON - ROCKY MOUNTAIN BIGHORN BY UNIT GROUP 2017 - 2019

Unit	# Tags Issued	Percent Success	Average Ram Age	Max Horn Length	Maximum Horn Base	Average B&C Score	Max B&C Score
091	2	100%	9.5	33 6/8	14 4/8	164 4/8	166 2/8
114	11	82%	5.8	35	15 7/8	149	167 6/8
115	4	75%	4.3	28 4/8	15 4/8	127 4/8	152 4/8

TABLE 9. BIGHORN SHEEP RAM HARVEST HISTORY

CALIFORNIA BIGHORN BY YEAR

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
2018	59	88%	7.5	6.9	150 7/8	172
Total/Avg	**1,007**	**90%**	**6.5**	**6.9**	**150 6/8**	**184 7/8**

CURRENT COMPARISON - CALIFORNIA BIGHORN BY UNIT GROUP 2017 - 2019

Unit	# Tags Issued	Percent Success	Average Ram Age	Max Horn Length	Maximum Horn Base	Average B&C Score	Max B&C Score
012	12	100%	6.8	35.0	15 7/8	147	163 7/8
014	8	75%	5.7	33.5	14	137 5/8	151 7/8
021, 022	8	75%	7.2	34.0	16	155	167 6/8
031	18	94%	6.9	34.5	16	157 7/8	169 4/8
032	40	100%	6.2	35.0	15 2/8	145 3/8	164 3/8
033	7	100%	6.7	34.3	15 4/8	152 5/8	166 2/8
034	26	96%	7.2	33.8	15 2/8	150 1/8	159 4/8
035	18	89%	6.6	34.9	15 4/8	150 6/8	163 3/8
041	3	100%	6.0	35.8	14 6/8	153 6/8	164 1/8
051	13	92%	6.4	37.8	16 2/8	155 6/8	177 4/8
066	3	33%	10.0	32.5	13 6/8	155 6/8	155 6/8
068	21	100%	6.8	38.0	15	152 5/8	172

TABLE 10. BIGHORN SHEEP RAM MAXIMUM B&C SCORE TRENDS, 2012 - 2019

Unit Group	2012	2013	2014	2015	2016	2017	2018	2019
DESERT BIGHORN								
045, 153	161 2/8	138 2/8	165 6/8	156 4/8	161	156 7/8	157 3/8	157 6/8
131, 164	155 7/8	162 5/8	159 3/8	170 1/8	157 2/8	162 4/8	168 2/8	139 3/8
132	165 7/8	158 1/8	155		148 3/8	145 2/8	150	145 4/8
134	153 1/8	155 2/8	158	156	156 3/8	161 5/8	160 2/8	163 6/8
161	160 7/8	165 7/8	162 6/8	156 2/8	164 7/8	162 3/8	160 7/8	173 4/8
162, 163	163	160 7/8	164	164	164	164 6/8	173 5/8	168 5/8
173 N	164 3/8	172 1/8	156 4/8	155 3/8	135 6/8	159	158 6/8	148 2/8
173 S		162 5/8	155 7/8	161 7/8	161 6/8	165 4/8	164 4/8	161 5/8
181	170 2/8	168 3/8	167 1/8	170 5/8	172	170 7/8	166 5/8	166 5/8
182, 044	159 7/8	160 3/8	168	172 7/8	163 2/8	164	168 6/8	174 6/8
183	162 4/8	165 3/8	161 3/8	165 4/8	165 2/8	170 2/8	168	170 6/8
184	157 1/8	162 7/8	161 3/8	152 1/8	146 2/8	158 4/8	161 2/8	163
202	157 3/8	162 3/8	155 7/8	165	157	151	163 2/8	167 7/8
204		136 4/8	147 7/8				155 4/8	154 1/8
205	163 4/8	166 4/8	166 6/8	163 6/8	177 2/8	169 1/8	170 5/8	169 2/8
206, 208	159 3/8	164 6/8	163 4/8	160 5/8	156 4/8	153 6/8	152 4/8	149 7/8
207	164 7/8	160	155 3/8	159 1/8	156 2/8	161 5/8	147 4/8	162
211	162	152 1/8	165 6/8	159 2/8	163 6/8	171 1/8	170 1/8	159 1/8
212	163 6/8	167 5/8	154	167 2/8	160 4/8	159 7/8	161 6/8	158 5/8
213	152 2/8	154 3/8	155 3/8	158 4/8	157 4/8	159 3/8	154 5/8	151 6/8
223, 241	159	143 5/8		157	156 3/8	175 6/8	154 2/8	169 2/8
241			174 1/8	176 5/8	156 6/8	165 6/8	160 7/8	158
243	166 4/8	182 3/8	157 6/8	170 3/8	161 3/8	153	177 2/8	166 6/8
244	165	166 2/8	172 1/8	168 4/8	165 5/8	166 3/8	176 4/8	164 5/8
245	153 2/8	164 7/8	156 6/8	153 6/8	165 2/8	162 2/8	153 1/8	163 3/8
252	164 7/8	162 3/8	173 4/8	173 7/8	164 4/8	164 6/8	172 4/8	162 6/8
253	178 4/8	177 1/8	172 1/8	176 5/8	180 4/8	172 2/8	167 4/8	166 2/8
254	151 7/8	143 5/8	146 2/8	161 3/8	167 6/8	150 6/8	165 2/8	154 4/8
261	168 2/8	167 7/8	168 3/8	157 4/8	160 7/8	164	158 1/8	151 1/8
262	166 6/8	174 4/8	177	163 4/8	175	178 7/8	172 7/8	178 3/8
263	173	171 6/8	165 2/8	181 1/8	173	178 6/8	168 7/8	169 2/8
264, 265	163 1/8	169 3/8	166 3/8	168 5/8	161	154 3/8	151 2/8	152 6/8
266	167 2/8	159 6/8	149 4/8	174 2/8			146 4/8	148 3/8
267	177 4/8	174 1/8	172 7/8	160 3/8	168 5/8	170 4/8	170 4/8	164 1/8
268	182 2/8	180 5/8	183 3/8	170 2/8	175 6/8	173 1/8	175 2/8	185
271	164 5/8	168 1/8	165 7/8	171 1/8	168 5/8	172 7/8	179 7/8	166 7/8
272	176 2/8	156	170 6/8	161 5/8		164	147 7/8	

TABLE 10. BIGHORN SHEEP RAM MAXIMUM B&C SCORE TRENDS, 2012 - 2019

Unit Group	2012	2013	2014	2015	2016	2017	2018	2019
DESERT BIGHORN								
280	161 2/8	167 6/8	161 4/8	150	162 4/8	162 4/8	164 2/8	173 2/8
281	165 2/8	166 7/8	157 2/8	169 7/8	165 3/8	165 5/8	162 2/8	172 3/8
282	163 3/8	157 4/8	170 3/8	174 1/8	174 5/8	176	179 2/8	174 4/8
283, 284	164 3/8	166	164	169	171 2/8	163 5/8	167 6/8	169 7/8
286	164	159	164 7/8	153 4/8	182 7/8	175 4/8	166 6/8	172 6/8
Cells are gray if B&C Score is 168 or higher								
CALIFORNIA BIGHORN								
012	165	161 3/8	158 4/8	156 3/8	161	151 2/8	163 4/8	163 7/8
014	148 5/8	165 6/8	141	148	157 1/8	151 7/8	145 3/8	145 4/8
022	153 1/8	156 1/8	160 2/8	166 6/8	152 3/8	164 4/8	151 5/8	167 6/8
031	164 3/8	170 4/8	173 4/8	172 7/8	166 4/8	162 4/8	169 4/8	164 1/8
032	169 4/8	171 7/8	168 1/8	164 1/8	163 6/8	162 7/8	164 3/8	159
033	157 5/8	160 6/8	152 4/8	159 3/8	139 7/8	166 2/8	146 5/8	160 7/8
034	163 6/8	168	163	154 2/8	166 2/8	154 3/8	156 6/8	159 4/8
035	146 2/8	163 6/8	152 7/8	160 1/8	161	158 5/8	163 1/8	163 3/8
041				168 1/8	172 3/8	163 2/8	133 6/8	164 1/8
051	160 3/8	161	155 7/8	161	165 3/8	177 4/8	175 6/8	155 5/8
066				163 4/8	150		155 6/8	
068	149	149 5/8	149 5/8	156 7/8	165 4/8	164 6/8	162 4/8	172
Cells are gray if B&C Score is 168 or higher								
ROCKY MOUNTAIN BIGHORN								
074	174 7/8	161 2/8	154 6/8					
091	169 3/8	141		146 5/8		162 6/8		166 2/8
114	114 2/8	170	146		155 6/8	167 6/8	166 2/8	147 7/8
115	172 5/8	152 6/8	153 2/8		147 4/8		152 4/8	129 2/8

TABLE 11. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2004 - 2019

Year	Harvest	Average Age	Average Left Horn	Average Right Horn	Average Days Hunted
Unit 101 - East Humboldt Range					
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
2019	1	7.0	9.3	9.1	8.0
Long-term Avg.	**4**	**5.5**	**8.5**	**8.5**	**3.3**
Unit 102 - Ruby Mountains					
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
2019	4	6.0	7.4	8.2	6.3
Long-term Avg.	**12**	**5.0**	**8.6**	**8.5**	**4.3**

TABLE 11. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2004 - 2019

Year	Harvest	Average Age	Average Left Horn	Average Right Horn	Average Days Hunted
Unit 103 - Pearl Peak Area, Southern Ruby Mountains					
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				
2019	1	12.0	10.3	10.3	7.0
Long-term Avg.	**1**	**4.8**	**8.8**	**8.9**	**4.0**

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%
2019	75%	8	6	5	1	17%
Total		**296**	**272**	**213**	**59**	
Average	**92%**	**17**	**16**	**13**	**3**	**22%**

TABLE 12. 2019 BLACK BEAR DRAW AND HUNT RESULTS

Unit Group	Apps	Tags	Tags Avail	Demand	# Returns	% Returns	# Did not Hunt	# Succ. Hunters	% Hunter Success
RESIDENT BLACK BEAR HUNT									
Statewide	2,859	45	42	64 to 1	42	100%	3	17	40%
NONRESIDENT BLACK BEAR HUNT									
Statewide	237	5	3	48 to 1	3	100%	1	0	0%

BLACK BEAR HARVEST COMPOSITION

Year	Gender	Harvest	Mean Age	3-yr Average Age	Average Days Hunted by Successful Tagholders
2019	Males	14	8.6	6.5	4.9
	Females	3	4.7	5.1	

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 Male	Female	Total
192	1	0	1
194	1	1	2
196	2	0	2
201	2	0	2
202	1	0	1
203	0	0	0
204	0	1	1
291	7	1	8
TOTAL	14	3	**17**

TABLE 13. FALL 2019 AND SPRING 2020 MULE DEER SURVEY COMPOSITION

UNIT GROUP	2019 FALL BUCKS	2019 FALL DOES	2019 FALL FAWNS	2019 FALL TOTAL	2019 Bucks: 100 Does	2019 Fawns: 100 Does	2019 Fawns: 100 Adults	2020 Spring Adults	2020 Spring Fawns	2020 Spring TOTAL	2020 Fawns: 100 Adults	*Spring 2019 Fawns: 100 Adults*
011 - 013, 033				0	--	--	**--**	262	96	358	**37**	***33***
014				0	--	--	**--**	79	24	103	**30**	***31***
015				0	--	--	**--**	79	27	106	**34**	***32***
021				0	--	--	**--**	143	58	201	**41**	***33***
022				0	--	--	**--**	71	24	95	**34**	***29***
031	25	126	73	224	20	58	**48**	798	254	1,052	**32**	***35***
032, 034	14	64	31	109	22	48	**40**	63	24	87	**38**	***31***
035	24	77	43	144	31	56	**43**	140	40	180	**29**	***21***
041, 042				0	--	--	**--**			--	**--**	***--***
043 - 046	14	55	14	83	26	26	**20**	230	59	289	**26**	***32***
051	50	123	61	234	41	50	**35**	406	141	547	**35**	***26***
061,062,064, 066-068	330	942	648	1,920	35	69	**51**			--	**--**	***28***
065				0	--	--	**--**			--	**--**	***--***
071 - 079, 091	226	808	406	1,440	28	50	**39**	975	335	1,310	**34**	***20***
101 - 109	278	859	351	1,488	32	41	**31**			--	**--**	***21***
111 - 113	325	1,153	403	1,881	28	35	**27**	1,709	367	2,076	**21**	***21***
114 - 115				0	--	--	**--**	450	104	554	**23**	***24***
121				0	--	--	**--**	825	139	964	**17**	***38***
131 - 134				0	--	--	**--**	605	166	771	**27**	***33***
141 - 145				0	--	--	**--**	1,050	274	1,324	**26**	***29***
151, 152, 154-156	103	390	172	665	26	44	**35**	498	127	625	**26**	***39***
161 - 164	58	202	85	345	29	42	**33**			--	**--**	***27***
171 - 173				0	--	--	**--**			--	**--**	***28***
181 - 184				0	--	--	**--**	65	21	86	**32**	***28***
192	43	144	50	237	30	35	**27**	84	20	104	**24**	***31***
194, 196	95	374	115	584	25	31	**25**	315	57	372	**18**	***24***
201 - 206				0	--	--	**--**			--	**--**	***--***
221 - 223	57	148	59	264	39	40	**29**			--	**--**	***25***
231	70	598	219	887	12	37	**33**			--	**--**	***28***
241 - 244				0	--	--	**--**			--	**--**	***32***
2019-20 TOTALS	**1,712**	**6,063**	**2,730**	**10,505**	**28**	**45**	**35**	**8,847**	**2,357**	**11,204**	**27**	***26***
2018-19	3,237	9,743	4,747	*17,727*	*33*	*49*	*37*	*26,297*	*6,851*	*33,148*	*26*	*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 2019 PRONGHORN SURVEY COMPOSITION

UNIT GROUP	BUCKS	DOES	FAWNS	TOTAL	2019 BUCKS: 100 DOES	2019 FAWNS: 100 DOES	*2018 FAWNS: 100 DOES*
011	68	168	38	274	41	**23**	*39*
012 - 014	96	225	69	390	43	**31**	*37*
015	71	257	100	428	28	**39**	*37*
021 - 022				--	--	**--**	*44*
031	58	178	54	290	33	**30**	*29*
032, 034, 035	74	316	90	480	23	**29**	*31*
033	43	156	37	236	28	**24**	*23*
041, 042	81	259	91	431	31	**35**	*37*
043-046	215	419	155	789	51	**37**	*41*
051	70	173	43	286	41	**25**	*50*
061 - 064, 071, 073	159	489	234	882	33	**48**	*31*
065, 142, 144	73	219	61	353	33	**28**	*37*
066				--	--	**--**	*--*
067 - 068	111	352	108	571	32	**31**	*35*
072, 074, 075	74	228	71	373	33	**31**	*21*
076, 077, 079, 081, 091	84	185	27	296	45	**15**	*20*
078, 105 - 107, 121	89	291	48	428	31	**17**	*33*
101 - 104, 108	211	428	87	726	49	**20**	*23*
111 - 114	193	561	80	834	34	**14**	*12*
115, 231, 242	33	57	23	113	58	**40**	*35*
131, 145, 163, 164	64	293	50	407	22	**17**	*19*
132 - 134, 245	62	251	51	364	25	**20**	*21*
141, 143, 151 - 155	216	518	130	864	42	**25**	*41*
161, 162	34	79	19	132	43	**24**	*27*
171 - 173	20	73	18	111	27	**25**	*27*
181 - 184	78	173	66	317	45	**38**	*27*
202, 204	14	48	24	86	29	**50**	*28*
203, 291				--	--	**--**	*39*
205, 206				--	--	**--**	*--*
211 - 213	9	38	10	57	24	**26**	*36*
221 - 223, 241	25	46	21	92	54	**46**	*31*
251	46	169	65	280	27	**39**	*29*
2019 TOTALS	**2,371**	**6,649**	**1,870**	**10,890**	**36**	**28**	*30*
2018 TOTALS	*3,063*	*7,300*	*2,182*	*12,096*	*42*	*30*	*--*

Units with (--) were not surveyed.

TABLE 15. LATE SUMMER/FALL 2019 DESERT BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2019 RAMS: 100 EWES	2019 LAMBS: 100 EWES	*2018 LAMBS: 100 EWES*	*2017 LAMBS: 100 EWES*
045, 153	27	80	31	138	34	**39**	*37*	*49*
131, 164	8	37	14	59	22	**38**	--	*11*
132	25	58	20	103	43	**35**	--	*58*
134	19	67	15	101	28	**22**	--	*28*
153				--	--	**--**	--	--
161	115	258	91	464	45	**35**	--	*41*
162				--	--	**--**	*36*	--
163				--	--	**--**	*27*	--
173	9	26	10	45	35	**39**	*56*	*42*
181	118	239	95	452	49	**40**	*24*	*28*
182, 044	70	152	43	265	46	**28**	*37*	*40*
183	62	124	6	192	50	**5**	*16*	*46*
184	9	22	7	38	41	**32**	*44*	*34*
195	12	19	0	31	63	**0**	*11*	*32*
202	6	22	7	35	27	**32**	--	*35*
204				--	--	**--**	--	*39*
205, 207	122	171	66	359	71	**39**	*33*	*49*
206, 208	27	71	31	129	38	**44**	--	*51*
211	90	166	59	315	54	**36**	--	*31*
212	98	105	27	230	93	**26**	*26*	--
213				--	--	**--**	*24*	--
221, 223, 241				--	--	**--**	*22*	*33*
241 SE	8	12	1	21	67	**8**	*29*	*26*
243	48	88	22	158	55	**25**	--	*38*
244				--	--	**--**	*34*	--
245, 133				--	--	**--**	*35*	--
252				--	--	**--**	*12*	*9*
253				--	--	**--**	*4*	--
254				--	--	**--**	*10*	*19*
261				--	--	**--**	*33*	--
262				--	--	**--**	*32*	--
263				--	--	**--**	*10*	--
264				--	--	**--**	*0*	--
265	2	6	2	10	33	**33**	--	--
266	1	20	8	29	5	**40**	--	*25*
267	75	145	31	251	52	**21**	--	*16*
268	153	211	106	470	73	**50**	--	*42*
269				--	--	**--**	*7*	--
271	35	79	30	144	44	**38**	*26*	*35*
272	17	29	9	55	59	**31**	--	*33*
280				--	--	**--**	*28*	*36*
281				--	--	**--**	*22*	*25*
282	14	28	15	57	50	**54**	*14*	*20*
283, 284*	24	42	11	77	57	**26**	*32*	*16*
286	32	80	36	148	40	**45**	*42*	*42*
2019 TOTALS	**1,226**	**2,357**	**793**	**4,376**	**52**	**34**		
2018 TOTALS	*1,089*	*2,187*	*506*	*3,782*	*50*	*23*		

TABLE 16. LATE SUMMER/FALL 2019 CALIFORNIA BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2019 RAMS/ 100 EWES	2019 LAMBS/ 100 EWES	*2018 LAMBS/ 100 EWES*
011, 013	2	33	15	50	6	46	*51*
012	31	71	29	131	44	41	*34*
014	5	30	12	47	17	40	*79*
021, 022	17	27	9	53	63	33	*27*
031	8	68	35	111	12	52	39
032	47	92	28	167	51	30	19
033	19	36	11	66	53	31	42
034	19	44	28	91	43	64	42
035	17	100	45	162	17	45	75
041	10	12	9	31	83	75	38
051	14	81	23	118	17	28	--
066				--	--	--	*38*
068	31	47	31	109	66	66	*50*
2019 TOTALS	**220**	**641**	**275**	**1,136**	**34**	**43**	
2018 TOTALS	*218*	*441*	*176*	835	49	40	

TABLE 17. SUMMER/WINTER/EARLY SPRING 2019 - 2020 ROCKY MOUNTAIN BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2019-20 RAMS/ 100 EWES	2019-20 LAMBS/ 100 EWES	*2018-19 LAMBS/ 100 EWES*
074	7	9	4	20	78	44	*80*
091	8	24	6	38	33	25	*17*
101	*6*	*12*	*6*	24	50	50	*55*
102	*8*	*14*	*7*	29	57	50	*67*
114	3	10	4	17	30	40	*43*
115	6	2	1	9	300	50	*29*
2019-20 TOTALS	**38**	**71**	**28**	**137**	**54**	**39**	
2018-19 TOTALS	*40*	*94*	*38*	*172*	*43*	*40*	

Units with (--) were not surveyed.

TABLE 18. JANUARY 2020 MOUNTAIN GOAT SURVEY COMPOSITION

UNIT GROUP	ADULTS	KIDS	TOTAL	2020 KIDS/ 100 ADULTS	*2019* KIDS/ 100 ADULTS
101	26	2	28	8	15
102	87	17	**104**	20	23
103	--	--	**--**	--	10
2019 TOTALS	**113**	**19**	**132**	**17**	
2018 TOTALS	*134*	*25*	*159*	*19*	

TABLE 19. WINTER 2019-2020 ROCKY MOUNTAIN ELK SURVEY COMPOSITION

UNIT GROUP	BULLS	COWS	CALVES	TOTAL	2019-2020 BULLS/ 100 COWS	2019-2020 CALVES/ 100 COWS	*2018-19 CALVES/ 100 COWS*
051	4	15	11	30	27	73	*25*
061, 071	496	1042	433	1,971	48	42	*41*
062, 064, 066-068	102	158	38	298	65	24	*50*
065	2	15	6	23	13	40	*28*
072 - 074	478	404	146	1,028	118	36	*36*
075	21	55	27	103	38	49	*31*
076, 077, 079, 081	184	783	297	1,264	24	38	*50*
078,104, 105-107	93	270	79	442	34	29	*45*
091	--	--		--	--	--	*34*
104,108,121	42	431	79	552	10	18	*44*
108,131 - 132	40	51	11	102	78	22	*29*
111 - 115	453	923	253	1,629	49	27	*33*
221 - 223	232	464	116	812	50	25	*34*
161 - 164	93	260	71	424	36	27	*34*
171 - 173	--	--		--	--	--	--
231	38	86	34	158	44	40	*39*
241, 242	3	12	4	19	25	33	--
262	6	5	1	12	120	20	*26*
2019-2020 Totals	**2,287**	**4,974**	**1,606**	**8,867**	**46**	**32**	
2018-2019 Totals	*1,931*	*4,733*	*1,823*	--	*41*	*39*	

Units with (--) were not surveyed.

TABLE 20. 2020 MULE DEER POPULATION ESTIMATES

UNIT GROUP	2020 ESTIMATE*	*2019 ESTIMATE**
011 - 013	1,200	*1,150*
014	550	*650*
015**	230	*240*
021**	500	*440*
022	550	*550*
031	2,100	*2,000*
032***	1,100	*1,150*
033	400	*390*
034***	290	*290*
035	1,000	*1,000*
041, 042	700	*750*
043 - 046	1,800	*2,000*
051	2,300	*2,300*
061,062,064, 066 - 068	9,200	*8,600*
065	800	*800*
071 - 079, 091	11,400	*11,300*
081	900	*900*
101 - 108	14,000	*14,200*
111 - 113	4,200	*4,500*
114 - 115	1,200	*1,300*
121	2,800	*2,700*
131 - 134	4,900	*5,000*
141 - 145	4,200	*4,500*
151, 152 ,154, 155	2,000	*2,200*
161 - 164	4,000	*4,100*
171 - 173	3,700	*3,700*
181 - 184	1,300	*1,300*
192**	500	*450*
194, 196**	1,000	*1,100*
195	500	*500*
201, 204**	550	*550*
202, 205 - 208**	450	*450*
203	500	*500*
211, 213	400	*400*
221 - 223	4,200	*4,300*
231	3,600	*3,700*
241 - 245	1,200	*1,200*
251 - 254	400	*400*

TABLE 20. 2020 MULE DEER POPULATION ESTIMATES

261 - 268	500	*500*
271, 272	240	*240*
291	600	*600*
TOTAL	**92,000**	***92,000***
Percent Change	**0%**	

*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. 2020 ROCKY MOUNTAIN ELK POPULATION ESTIMATES

UNIT GROUP	**2020 ESTIMATE***	*2019 ESTIMATE**
051	90	120
061, 071**	1,900	1,700
062, 064, 066 - 068**	350	450
065	60	80
072 - 074**	1,200	1,300
075	90	100
076, 077, 079, 081**	1,100	950
078, 105 - 107, 109	450	450
091	360	380
104, 108, 121	950	800
108, 131, 132	260	310
111 - 115	2,800	2,500
221 - 223	1,700	1,700
145	30	30
161 - 164	750	800
171 - 173	100	100
231	500	450
241, 242	110	150
262	170	170
TOTAL	**13,000**	*12,500*
Percent Change	**4%**	

*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. 2020 PRONGHORN POPULATION ESTIMATES

UNIT GROUP	2020 ESTIMATE*	*2019 ESTIMATE**
011	900	1,000
012-014	1,800	2,000
015	900	1,000
021, 022	650	650
031	1,400	1,500
032, 034, 035	1,900	1,850
033**	1,200	1,200
041, 042	1,700	2,000
043 - 046	1,200	800
051	700	700
061, 062, 064, 071, 073	1,400	1,450
065, 142, 144	850	900
066	400	400
067, 068	1,100	1,200
072, 074, 075	1,100	1,100
076, 077, 079, 081, 091	650	600
078, 105 - 107, 121	900	1,000
101 - 104, 108, 109, 144	950	1,000
111 - 114	1,300	1,500
115, 231, 242	500	500
131, 145, 163, 164	850	850
132 - 134, 245	600	600
141, 143, 151 - 156	3,400	3,400
161, 162	450	450
171 - 173	360	380
181 - 184	850	850
202, 204	110	110
203, 291	90	90
205 - 208	300	300
211 - 213	90	90
221 - 223, 241	450	500
251	300	300
TOTAL	***29,500***	***30,300***
Percent Change	**-3%**	

*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. 2020 DESERT BIGHORN POPULATION ESTIMATES

UNIT GROUP	2020 ESTIMATE*	*2019 ESTIMATE**
045	270	*260*
131, 164	100	*100*
132	130	*120*
134	180	*220*
153	20	*20*
161	550	*500*
162	50	*50*
163	270	*260*
173	180	*190*
181	600	*500*
182, 044	600	*600*
183	320	*320*
184	170	*180*
195	110	*130*
202	170	*190*
204	60	*60*
205, 207	550	*750*
206, 208	240	*300*
211	450	*450*
212	360	*340*
213	400	*450*
221, 223, 241	190	*190*
243	180	*160*
244	130	*130*
245, 133	140	*130*
252	150	*180*
253	140	*170*
254	130	*130*
261	150	*150*
262	140	*140*
263	190	*220*
264	50	*50*
265, 266	90	*80*
267, 268	950	*1000*
269	200	*200*
271	300	*320*
272	90	90
280	160	160
281	200	200
282	150	140
283, 284	220	230
286	170	150
TOTAL	***9,900***	*10,200*
Percent Change	**-3%**	

*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. 2020 CALIFORNIA BIGHORN POPULATION ESTIMATES

UNIT GROUP	2020 ESTIMATE*	*2019 ESTIMATE**
011, 013	80	*80*
012	180	*160*
014	120	*90*
021, 022	90	*80*
031	140	*130*
032	330	*330*
033	120	*120*
034	310	*270*
035	290	*250*
041	50	*50*
051	130	*140*
066	40	*30*
068	150	*170*
TOTAL	**2,000**	*1,900*
Percent Change	**5%**	

TABLE 25. 2020 ROCKY MOUNTAIN BIGHORN POPULATION ESTIMATES

UNIT GROUP	2020 ESTIMATE*	*2019 ESTIMATE**
074	40	*30*
091	40	*50*
101	40	*20*
102	50	*40*
114	90	*90*
115	50	*50*
TOTAL	**310**	**280**
Percent Change	**11%**	

TABLE 26. 2020 MOUNTAIN GOAT POPULATION ESTIMATES

UNIT GROUP	2020 ESTIMATE*	*2019 ESTIMATE**
101	50	*70*
102	200	*200*
103	40	*40*
TOTAL	**290**	*310*
Percent Change	**-6%**	

*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, 1986 - 2020

YEAR	MULE DEER	ANTELOPE	ELK	DESERT BIGHORN	CALIFORNIA BIGHORN	ROCKY MOUNTAIN BIGHORN	MOUNTAIN GOAT
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
2020	92,000	29,500	13,000	9,900	2,000	310	290
10-YR AVG	*100,000*	*29,000*	*15,000*	*9,000*	*2,000*	*200*	*300*
%Diff to AVG	**-8%**	**2%**	**-13%**	**10%**	**0%**	**55%**	**-3%**

TABLE 28. BIG GAME TAG SALES AND HARVEST HISTORY BY SPECIES, 1988 - 2019

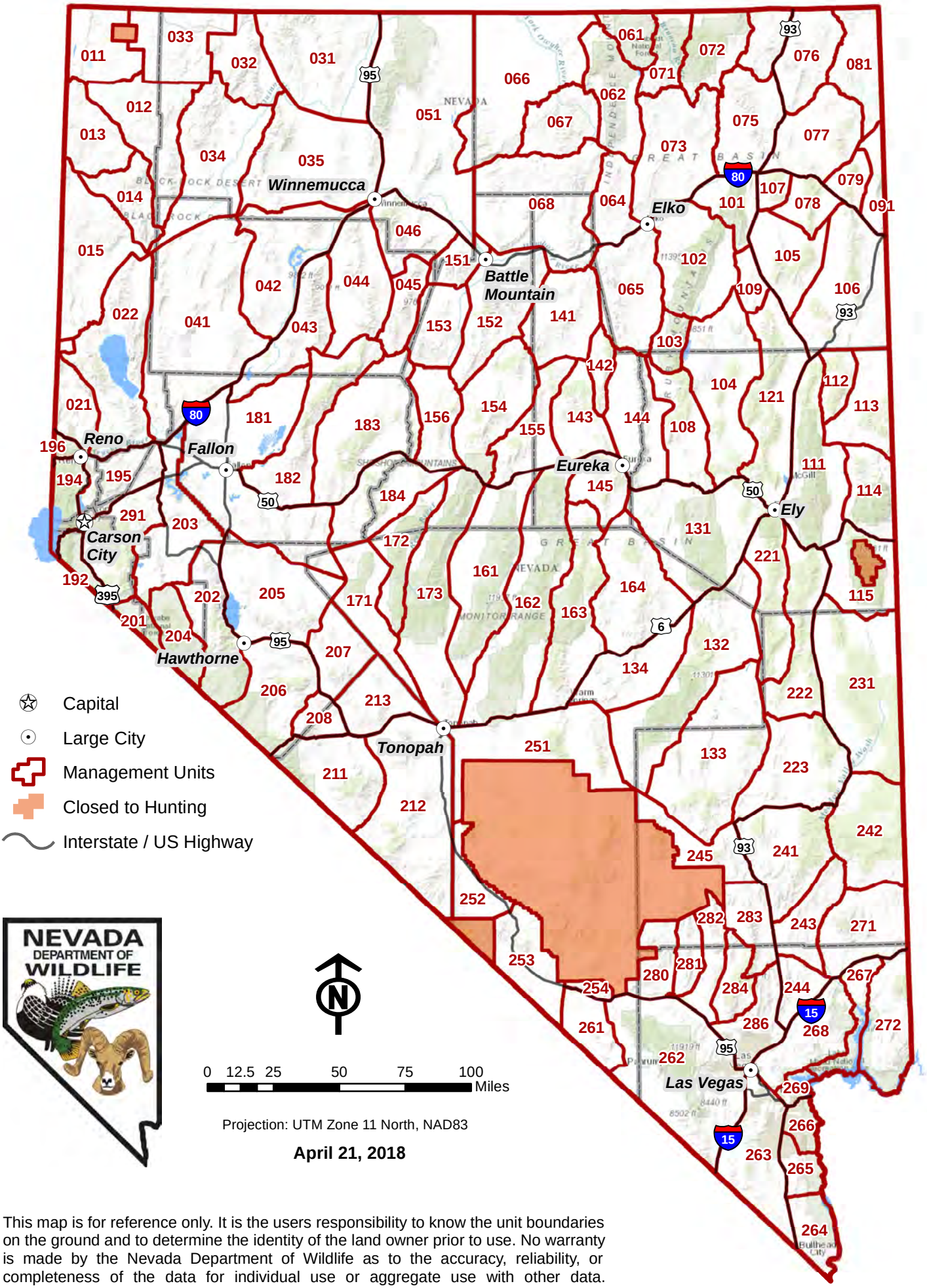
	DEER		ANTELOPE		ELK		DESERT BIGHORN RAM		CALIFORNIA BIGHORN RAM		ROCKY MTN BIGHORN		MOUNTAIN GOAT	
YEAR	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST
1988	51,011	26,784	1,342	949	182	91	136	114	4	3	2	2	2	1
1989	34,847	17,782	1,378	980	200	103	133	111	3	3	2	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
2019	16,868	6,454	4,541	2,888	6,764	1,964	311	268	59	52	7	5	8	6
10-YR AVG	19,208	8,005	3,706	2,365	7,321	2,447	265	236	57	53	7	5	14	13
%Diff to AVG	-12%	-19%	23%	22%	-8%	-20%	17%	13%	3%	-3%	5%	-7%	-43%	-54%

TABLE 29. MOUNTAIN LION TAG SALES, SPORT HARVEST, AND HUNTER SUCCESS, 1980 - 2019

	Tag Sales			Harvest			Hunter Success		
Year	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%
2019 - 2020*	3,389	126	3,515	*	*	156	*	*	4%
Totals	**71,816**	**7,361**	**79,177**	**3,057**	**1,892**	**5,284**			
Avg. (40 yrs)	**1,752**	**180**	**1,931**	**78**	**49**	**129**			
10-Year Avg	**4,611**	**312**	**4,923**	**101**	**44**	**150**			

*Due to a new accounting system, records may be updated next year.

NEVADA Game Management Units 2020



Projection: UTM Zone 11 North, NAD83

April 21, 2018

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.