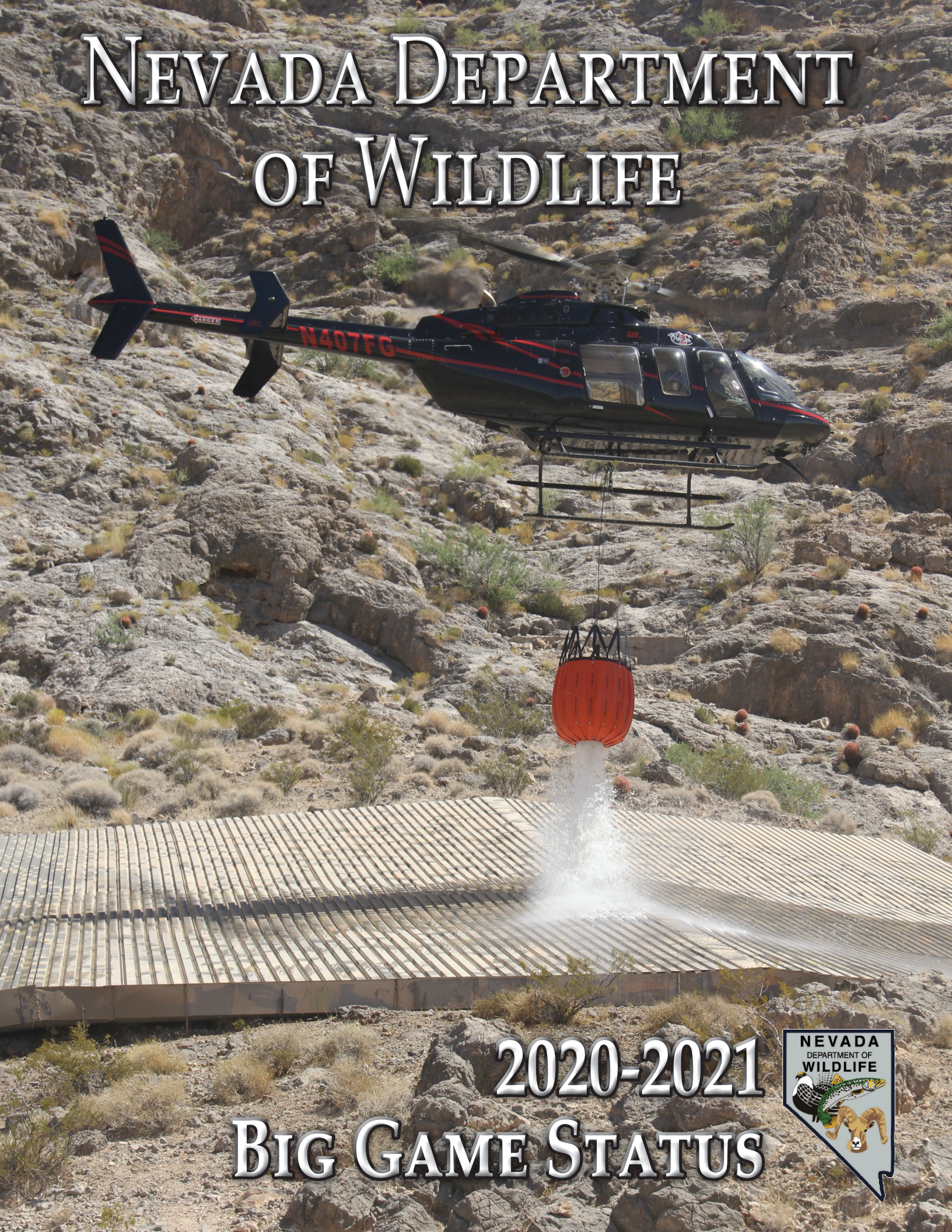
Nevada Department of Wildlife



2020-2021 Big Game Status

NEVADA DEPARTMENT OF WILDLIFE

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Photo courtesy of Doug Nielsen, Conservation Education Division
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NEVADA DEPARTMENT OF WILDLIFE

2020-2021 BIG GAME STATUS

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Federal Aid Project

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BIG GAME STATUS STATEWIDE SUMMARY

MULE DEER

The Nevada Department of Wildlife (NDOW) issued approximately 17,660 mule deer tags for the 2020 hunting season. This number is an approximate 4.5% increase from the previous year. The overall success rate for resident Any Legal Weapon seasons was 36% statewide, which is well below the previous 3-year average success rate of 46%. Resident muzzleloader and archery hunt success rates were 40% and 18% respectively, which were both consistent with the 3-year averages for those weapon categories. Junior hunters enjoyed a 61% overall hunt success rate, which is equivalent to the previous 3-year average. Overall, about 5,955 bucks and 900 does were harvested by all hunters and approximately 43% were 4-point or greater. The percentage of bucks with 4-points or greater is nearly identical to the 3-year.

During 2020, biologists classified approximately 12,360 mule deer during the fall survey. Statewide fawn production was higher during 2020 with 51 fawns per 100 does observed during post-season surveys, compared to 45 fawns per 100 does during the fall 2019. The observed post-season buck ratio was 29 bucks per 100 does for 2020 which is slightly below the 3-year average of 30 bucks per 100 does. The observed spring fawn ratio of 33 fawns per 100 adults was above the 5-year average of 27 fawns per 100 adults, indicating some potential for herd growth. The higher fawn recruitment may be attributed to mild winter conditions during 2020-2021.

The primary driver of mule deer populations is the numbers of fawns recruited into the population each year, in addition to the condition and productivity of adult females. While the higher number of fawns observed during spring surveys is promising, below average moisture and drought conditions persist throughout much of Nevada during late spring 2021. As of April 13, 2021, 100% of Nevada was in severe drought and 75% of the state was in extreme to exceptional drought conditions according to the U.S. Drought Monitor.

Nevada's mule deer populations have been on a downward trend in recent decades largely due to lack of consistent precipitation, large-scale range fires, conversion of native shrubs to invasive grasses, and degraded range conditions from feral horses and burros. In response to these declines, the NDOW recently chartered a Mule Deer Enhancement Program led by teams of game and habitat biologists, stakeholders, and members of the public. The overall goal of this effort is to identify factors limiting mule deer herds in all areas of the state and develop a strategic plan to address those limiting factors. The Wildlife Commission, County Advisory Boards (CABs), sportsman's organizations, and members of the public will be integral to helping the Department come up with projects and funding to improve habitat and have a positive long-term benefit for our mule deer populations.

ANTELOPE

The 2020 antelope season continued to provide excellent hunting opportunities for Nevada hunters. The Department issued approximately 4,326 antelope tags for the 2020 hunting season. There were approximately 37,887 applications for regular antelope tags (not including PIW, Dream Tag, or Silver State applications) in the 2020 main big game draw, which represents about a 14% increase from the previous year. Antelope hunters averaged about 3.5 days in the field during 2020. About 2,826 antelope were harvested during 2020 for all seasons and weapon types. Hunt success for the Any Legal Weapon seasons was 77% for 2020, which was identical to the 3-year average. The percentage of bucks with 15-inch or greater horn length was about 27% statewide for 2020, which was slightly below the 3-year average of 29%.

In 2020, biologists classified 9,970 antelope during post-season surveys with an observed buck and fawn ratio of 33 bucks:100 does:31 fawns. The fawn ratio is slightly higher than the previous year, but well

below the recruitment ratio necessary for herd growth. Two consecutive years of lower-than-average fawn recruitment will result in declining population trends and a reduction in the older age class bucks available for harvest in future years. The NDOW uses a management objective of 25 bucks:100 does (for bucks 2 years old and older) when making quota recommendations. The 2020 statewide population estimate is about 28,500 antelope for 2020.

The Department initiated a GPS radio-collaring study on antelope in fall 2019 and winter 2020. The study was in response to the US Department of Interior Secretarial Order 3362 which has an overall objective of identifying, prioritizing, and protecting migration corridors and winter ranges for mule deer, elk, and antelope. NDOW has captured and radio-collared approximately 100 antelope in 2 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. The final year for data collection for this study is 2021-2022, after which radio-collars will drop-off collared animals as scheduled and results will be analyzed.

ROCKY MOUNTAIN ELK

The Nevada Department of Wildlife issued 5,379 tags for elk hunts during the 2020-2021 season. The harvest of 1,020 bulls, including those taken during spike-only hunts, was 2% higher than 2019-2020. An additional 964 antlerless elk were harvested, representing a 7% decline from the previous year. Reported hunter success for all sex and weapon classes improved to 37% in 2020. Hunters of antlerless elk reported a success rate of 31%. Following the hunting season, biologists with the Department classified 7,817 elk during aerial surveys. Ratios representing the statewide sex and age composition were 37 bulls:100 cows:41 calves.

Currently, over 90% of unit groups for elk comply with local population objectives. Recent harvest of antlerless elk is intended to maintain elk herds at or below their population objective. In many areas, tag recommendations for antlerless elk will be well below historical highs and intended to stabilize populations or, in others, allow for growth.

Despite poor hunting conditions during the archery and muzzleloader seasons, the 2020-2021 elk season far surpassed Department expectations. Statewide, 34% of hunters harvested a bull with a main beam equal to or exceeding 50 inches in length, representing the second highest proportion of 50-inch main beams in the bull harvest since 2008. On-going analysis of main beam lengths and known ages has detected a predictable curve-linear relationship between bull age and main beam length until about 7 years of age when the main beam of many bulls has reached 50 inches. Further, to validate the main beam-age relationship and confirm the efficacy of using harvest objectives for antler length, the Department requested incisor teeth from all hunters to accurately age their bull during the 2020-2021 hunting season. Preliminary results indicate the statewide average age was 6.1, based on submitted incisor teeth, and 5.8 when adjusted to represent the entire bull harvest. Both estimates represent the highest average age since the Department began requesting incisor teeth in 2001. Indeed, the 2020-2021 hunting season was a banner year for harvesting mature bulls across all of Nevada.

Statewide results of the preliminary aging analysis for elk are promising, however, noticeable variation exists in estimated ages among many unit groups. Age structure in standard unit groups managed for a smaller composition of 50-in. main beams has increased since 2015 (e.g., Unit Groups 061, 071; 062, 064, 066 – 068; and 072 – 074), while average age decreased in other unit groups known for quality (e.g., Unit 231; Unit Groups 111 -115; 221 - 223). The Department's harvest objective for antler length continues to evolve as more data is assimilated and analyzed, however, regional differences in climate and habitat conditions may underpin changes in population structure of these elk herds since 2015. Regardless of the cause, regional quota reductions for the 2021-2022 hunting season may be warranted to maintain a quality experience for elk hunting in Nevada.

As will be noted throughout the 2021-2022 Big Game Status and Trend Report, Nevada is currently experiencing historical drought conditions. Nonetheless, many northeast unit groups often receive peripheral precipitation from jet streams dipping down from the Pacific Northwest. Even in years of drought, such as 2020, this moisture pattern can deliver enough precipitation to northern Nevada to moderate localized drought impacts. In contrast, eastern Nevada, south of Interstate 80, does not receive this added moisture. Summer precipitation, delivered by seasonal monsoons originating over Mexico, provides further relief to unit groups near the Great Basin and Mojave Desert transition zone. This subtropical moisture recharges important water sources and revives decadent vegetation. Expected winter and summer precipitation has been noticeably absent in many parts of eastern Nevada, which has been detrimental to forage quality and nutritional condition of elk. Elk in poor nutritional condition may be less able to support attendant calves and may lack important nutrients required to strengthen antlers. While effects of current drought to future population productivity are not fully understood, hunters in eastern Nevada should expect to encounter some bulls with broken or damaged antlers.

Department biologists continue to propose, coordinate, and implement habitat improvement projects across Nevada. Notably, large scale thinning of pinyon and juniper woodlands occurring in Elko, White Pine, and Lincoln Counties are promoting establishment and vigor of mountain brush communities. Construction and improvements to water developments offset the loss of natural water sources as annual moisture becomes more unpredictable. Further, reseeding efforts in areas recently burned by wildfire have improved habitat quality for elk and other species of wildlife. Nonetheless, competition from feral horses and burros on drought-stricken landscapes and loss of habitat caused by conversion of native shrub communities to non-native grasslands continue to threaten elk herds in Nevada. In the face of many opportunities and challenges, the Department remains committed to fostering a healthy and sustainable elk resource for all Nevadans.

DESERT BIGHORN SHEEP

For the 2020 hunting season, a similar total of desert bighorn ram tags was issued at 315 compared to the previous 2 years of 311 and 317. Ewe tags in 2020 were only used in 2 herds (Monte Cristo Range and Muddy Mountains) to reduce the population to their respective habitat carry capacity levels. Total ram harvest was 288, the second highest annual total with 300 in 2017, the highest ever in Nevada. The 2020 hunter success rate was the highest ever at 95%, excluding the 9 tag-returns and 2 tagholders that did not hunt.

Average days hunted was below 5 days at 4.6 with long-term average of 5.2. Average ram age continued to be good at 6.8 years following the highest average ram age of 6.9 in 2019 since 1984. This metric provides strong support for the recommended quotas that were approved the last 2 years. The average B&C score was 154 compared to long-term average of 152. There were 18 170+ B&C rams harvested in 2020 up from only 10 last year. These rams came from 11 different units. The demand for desert bighorn ram hunting keeps climbing with over 11,000 residents and almost 12,000 nonresidents in 2020 compared to only 12,500 a decade ago.

The 2020 desert bighorn ewe hunt resulted in 72 ewes harvested in Units 213 and 268. Fifteen tag holders chose not to hunt. The 1,200 desert bighorn ewe applicants in 2020 was a continued increase from all past years.

The 2020 statewide aerial desert bighorn survey resulted in the lowest lamb ratio every recorded at 21 lambs:100 ewes. This is likely attributable to many factors including persistent severe drought, competition with free-roaming horses and burros, invasive plants, and various anthropomorphic disturbances.

Polymicrobial pneumonia epizootics continue to plague desert bighorn herds. In previous status reports we described the pneumonia disease event that struck the Clan Alpine Mountain herd in fall 2018. It was confirmed through DNA sequencing of the deadly bacteria *Mycoplasma ovinpneumoniae* (*Movi*) in the

Clan Alpines that the *Movi* strain was identical to that which caused the Fairview/Slate Mountain disease event in 2007. This confirms that individual bighorn since 2007 have been alive, spreading *Movi,* and acting as "chronic carriers" of this deadly pathogen similarly to asymptomatic carriers of SARS-cov-2 in humans that are healthy and when they come in contact with others, they spread the pathogen. In the case of *Movi*, the most severe impacts to bighorn populations are the high mortality rate of lambs, potentially for multiple years. The same *Movi* strain continued to be spread in 2019 to the adjacent Stillwater Range and then further spread likely via bighorn movement across the Sou Hills to the Tobin Range in late summer/fall 2020. The initial conservative estimate is that half the adults in the Tobin's have been lost due to pneumonia deaths.

Elsewhere in Nevada serious population contractions are occurring from the long-term chronic effects of these disease events or pathogen spillovers. For example, the Bare Mountain and Stonewall Mountain herds associated with the greater Nevada Test and Training Range bighorn population have declined from chronic high lamb mortality caused by pneumonia. The Bares went from 250 adults in 2014 to only 130 in 2021 and even worse is Stonewall Mountain that went from 350 to 120 adults in the herd over the same 7-year period.

Due to severe to extreme drought conditions in southern and western Nevada, the Game and Habitat Divisions conducted several emergency water hauls to bighorn herds highly dependent on guzzlers that went dry in summer 2020. In the Southern Region both helicopter and ground delivery efforts from August through November supplied over 104,000 gallons of water to 27 guzzlers across 14 bighorn herds. The Western Region using mostly water trucks with some helicopter water drops, delivered 47,000 gallons to 10 guzzlers involving 5 bighorn herds. There will be continued efforts in 2021 to replenish dry guzzlers due to continued drought and lack of recharge to guzzlers this past winter and spring.

For the second consecutive year, the statewide desert bighorn sheep population declined from 9,900 last year to an estimated 9,500 in 2021.

CALIFORNIA BIGHORN SHEEP

California bighorn ram tags increased to 68 in 2020 from 59 in 2019. Unfortunately, hunter success declined a second consecutive year to 79% in 2020, from 97% and 88% the last 2 years. Average days hunted continued to increase to 9 days in 2020, with long-term average of 6.6. The average age of 7.0 for rams harvested in 2020 continued to be comparable to the long-term average of 6.9. Applicants for California bighorn ram tags in 2020 continued unprecedented increases with 8,600 resident and 10,400 nonresident applicants compared to 10,200 total a decade ago.

Aerial surveys classified almost 800 animals with a statewide average ratio of 52 lambs:100 ewes, a continued increase over the last few years. With the last 2 years of modest to good lamb recruitment in most herds, the 2021 statewide California bighorn population had a modest increase to 2,100 adults.

The winter of 2020-2021 was another busy bighorn capture season with many objectives to fulfill but mostly centered around disease surveillance. The recently reintroduced Bloody Run Hills population had collared young rams that dispersed and spent the summer with a band of rams to the north in the Santa Rosa Range. The fear was these rams could come in contact with Santa Rosa rams that could be chronic carriers for the deadly pathogen *Mycoplasma ovipneumoniae* (*Movi)*, return to the Bloody Runs for the rut period and transmit the pathogen to the rest of the herd. In January 2021, 13 rams and ewes were captured and tested in the Bloody Run Hills. None of the Bloody Run bighorn were positive for either active *Movi* infection or antibodies that would have indicated recent exposure to *Movi*. All seem healthy and the lamb ratio was strong, a further metric that no pathogen spillover had occurred into the Bloody Run Hills. This capture was also the beginning of a Test and Remove Project, similar to the one initiated years ago in the adjacent Snowstorm Mountains in an attempt to detect and remove chronic carriers of *Movi*. The Santa Rosa Range presents several challenges to successfully removing chronic carriers that have prevented this herd from recovering from its original die-off in 2004. This mountain's tremendous

bighorn habitat potential is enough reason to attempt a strategic Test and Remove Project that may take several years to implement. Test and Remove efforts continued in the Snowstorm Mountains with 21 bighorn captured in February and March 2021. Sampling occurred with animals that had previously tested positive while others were tested for the first time. Two animals that had previously tested positive for active infection of *Movi* were positive again and were subsequently removed from the population. We are encouraged with the high number of animals captured that were Movi negative, and the high probability that the last remaining chronic carriers were removed from the herd.

In early February 2021, captures were conducted for translocations and we were fortunate to be able to implement Covid Safety guidelines to allow 15 volunteers to help with the capture basecamp. Sixteen bighorn, primarily ewes were captured from the Black Rock Range to augment the Lake Range on Pyramid Lake Tribal Lands in support of the initial reintroduction in January 2020. The following day, 20 California bighorn were captured from the productive Sheep Creek Range and translocated to North McGee Mountain to augment that herd on BLM lands adjacent to the Sheldon National Wildlife Refuge.

ROCKY MOUNTAIN BIGHORN SHEEP

It was a challenging year for Rocky Mountain bighorn hunters. Only 2 of the 6 tagholders were successful. It was not from a lack of effort, with the average days hunted of 22 days from reporting hunters. On a positive note, 2020-2021 aerial and ground surveys classified 176 bighorn with ratios of 60 rams:100 ewes:36 lambs. To better understand Rocky Mountain bighorn habitat use, seasonal distribution, and disease status, several small bighorn captures were conducted. Three Leppy Hills bighorn were sampled and tested for *Movi* in cooperation with Utah Division of Wildlife Resources as part of a passive Test and Remove project to remove chronic shedders from the herd to restore lamb recruitment. An older ewe that had previously tested positive was sampled and lethally removed. Three ewes in the Badlands herd were captured and sampled for *Movi*. Two of the 3 ewes tested positive for active *Movi* infection using Polymerase Chain Reaction method. Three ewes were captured and GPS collared in the North Snake Range to help better understand habitat use and seasonal distribution that is extremely difficult to ascertain via helicopter or ground surveys if they are associated with the heavily tree-coverage areas of the mountain. Lastly, in cooperation with Great Basin National Park, 1 ewe and 2 rams were GPS collared to further assist with seasonal use area mapping and to alert NDOW, NPS, and the domestic sheep operation when potential exists for interaction with the domestic sheep band that grazes on BLM lands at lower elevations of the South Snake Range.

MOUNTAIN GOAT

Eight of 9 mountain goat tag holders were successful in 2020. All tag holders were required to view the online material in the Mountain Goat Hunting Orientation before receiving their tag to educate them on accurately determining the sex of mountain goats with the goal reducing nanny harvest. Unfortunately, 3 nannies were harvested in the 2020 season. Further outreach, additional online course testing or field requirements, or even a male-only mountain goat hunt may be needed to protect nannies from harvest to ensure sustainability of the relatively small mountain goat herds.

The average age of all harvested mountain goats was only 5 years old. Average horn length of harvested goats from all 3 hunt units were slightly above the long-term average horn length for each unit.

The 2021 mountain goat aerial survey was the most productive and informative survey in over a decade. All three herds were surveyed with 192 individuals classified with 26 kids:100 adults. The main Ruby Mountains continue to outperform the East Humboldt and Pearl Peak sub-herds.

The 2020 population estimate for all 3 herds is a combined 290, no change form 2019. As part of an ongoing Test and Remove effort in the East Humboldt Range, 7 additional mountain goats were captured, sampled and GPS collared in January and March 2021. Testing for *Mycoplasma ovipneumoniae (Movi)* the

trigger pathogen to pneumonia disease events, yielded promising results in that none of the individuals sampled were chronically shedding *Movi*. Concerted efforts will be made to follow up summer 2021 on the 12 active GPS collars on mountain goats to hopefully detect strong kid production and recruitment into the East Humboldt herd.

MOUNTAIN LION

In 2017 mountain lion harvest limits were changed from three regional to one statewide harvest limit of 245. A 2-mountain lion harvest limit for the interstate hunt with Utah in unit 091 remained in place.

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: 044, 045, 046, 051, 061, 062, 064, 065, 066, 067, 068, 071, 072, 073, 074, 075, 076, 077, 078, 079, 081, 091, 101, 107, 141, 151, 152, 153, 154, 156
4. West Population: 011, 012, 013, 014, 015, 021, 022, 032, 033, 034, 041, 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: 031, 035, 042, 043, 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 the 3-year average adult female and overall female harvest.

	Overall Female Harvest	Adult Female Harvest
East	38%	29%
South	21%	21%
North	41%	33%
Central	41%	31%
West	37%	24%
Transient	35%	29%

BLACK BEAR

Forty-five resident, 5 nonresident, and 1 dream tags were issued for the 2020 black bear season; 6 male and 7 female bears were harvested. Unique harvest limits and female harvest limits were set for Areas 19, 20, and Unit 291. The female harvest limit was reached for Unit Group 291 and 203. 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: Cooper Munson and Chris Hampson

Survey Data

No fall deer surveys were conducted during this reporting period. The most recent fall deer survey was conducted in 2018. The post-season survey from early November 2018 obtained a sample of 325 deer classified as a ratio of 34 bucks:100 does:44 fawns. The observed buck ratio from the survey was near the harvest objective.

Spring surveys were conducted in February 2021 resulting in the classification of 278 mule deer. The sample provided a ratio of 24 fawns:100 adults. The previous year's spring sample provided a ratio of 37 fawns:100 adults. The 2021 spring survey was abbreviated due to weather and flight time constraints. Portions of Unit 013 that generally provide a large sample size were not surveyed. Unit 012 was not surveyed.

Habitat

Limited precipitation throughout 2020 resulted in poor habitat conditions. Late winter provided snowpack to higher elevations, but lower elevations remain dry and continue to experience the negative impacts of the decreased precipitation. Habitat projects continue to improve important areas for mule deer and sage-grouse by removing juniper and allowing other desirable vegetation to persist. Important habitat is located on large tracts of private property and a significant number of natural water sources remain protected from overuse in the northern portions of this unit group.

Population Status and Trend

Following substantial declines in the recent past, mule deer populations in the northwestern corner of Nevada appear to be stable to slightly increasing. Harvest reports over the past 3 years would indicate improving population metrics within the hunt unit group. Models are also predicting a stable to increasing population with multi-year fawn ratios above maintenance levels.

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

Survey Data

No fall mule deer surveys were conducted in Washoe County hunt units in 2019 or 2020 due to weather and flight time constraints.

2021 spring surveys were difficult to complete due to both the current lower densities of mule deer and the very mild conditions during the months of January and February. Two and a half hours of survey were utilized surveying Fox Mountain and the Granite Range. An extremely low sample size of 30 deer was classified on the southern end of Unit 014. It is likely that many of the deer that utilize Unit 014 throughout much of the year transitioned into other units due to the late winter storms and had not yet moved back into the unit.

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.

Habitat

Habitat conditions continue to decline as precipitation and snowpack levels continue to decrease on an annual basis. Unit 014 is highly reliant on spring precipitation events to provide suitable mule deer habitat throughout the year. Past wildfires have resulted in a generally low-quality mule deer habitat and desirable mule deer forage has not been reestablished to maintain mule deer body condition.

Streamflow forecasts for spring and early summer 2021 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. The recommended quotas are expected to remain similar to 2019 levels.

Hunter success rates decreased with limited harvest and remains 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: Cooper Munson and Chris Hampson

Survey Data

Nevada biologists typically fly only the spring surveys in Unit 015 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 that remains in Nevada year-round.

A February 2021 aerial surveys resulted in the classification of 130 deer. This classification resulted in a ratio of 28 fawns:100 does.

Habitat

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 in Nevada have been negatively impacted by 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. The burned areas at the mid-to-lower elevations have mostly 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. In summer 2020, a large wildfire burned vast acreages in the northern portion of Unit 015. Bureau of Land Management (BLM) and Nevada Department of Wildlife have dedicated significant resources to rehabilitation and soil stabilization on this fire.

Population Status and Trend

The below-average recruitment observed this year indicates a stable-to-decreasing 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.

Quota recommendations for this interstate deer herd are expected to be similar to 2020.

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

Report by: Cooper Munson

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 state boundary. The survey resulted in 839 adults and 314 fawns being classified for an observed ratio of 37 fawns:100 adults.

The surveys were conducted in Unit 021 in late February and some of the interstate deer that wintered in Nevada had already began the migration back to California. A sample of 702 mule deer had a ratio of 34 fawns:100 adults matching the ratio observed in 2020.

Habitat

Additional large-scale wildfires have destroyed vast acreages of mule deer habitat across this unit in 2020. The northern portion of the Peterson Range was consumed by a wildfire that had high heat intensity, leaving no provisions for wintering mule deer. Another fire scorched the eastern side of the range, burning across the entire elevational gradient and a large segment of the remaining winter deer habitat. Pinyon and juniper removal on the north end of the Dogskin Mountains continues and may be expanded to include additional areas near spring sources.

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 2021 hunting season are expected to be similar to 2020.

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

Report by: Cooper Munson

Survey Data

Spring aerial helicopter surveys for mule deer were conducted in late February 2021. Only one hour of helicopter time was expended in this hunt unit. Deer were scattered and no longer concentrated on lower elevation winter ranges like typical for this time of year. A sample of 83 mule deer provided a ratio of 26 fawns:100 adults, well below favorable recruitment levels.

Habitat

Restoration projects continued in 2020 as additional work involving green stripping for firebreaks, pinyon and juniper removal, and seedling planting. The Nevada Department of Wildlife and the Bureau of Land Management's Carson City District have been working to restore some of the 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 in coming years. Restoration efforts continue but will only result in relatively small portions of these large burn areas being restored. Much of the habitat lost at the upper elevations of the Virginia

and Pah Rah Mountains is expected to naturally recover over the next decade if land use is limited and feral horse numbers are reduced.

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

Quotas for 2021 hunting season in Unit 022 are expected to be similar to 2020.

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 three days in early November 2020. During these flights, 721 deer were classified which is an increase from the previous year's flights, when 330 deer were classified. Ratios obtained from these surveys were 28 bucks:100 does:44 fawns.

Spring aerial surveys were conducted over a 2-day period in early March 2021. Conditions during this survey were ideal with sun and no wind. During this survey, 1,588 deer were observed yielding a ratio of 38 fawns:100 adults. The number of deer classified on this flight slightly increased 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 in the upper elevations within Area 3. This year's precipitation has been slightly better than last year. Snowfall events occurred later in the winter, however as of March 1, 2021, the snowpack for these units is at 101% of average. Habitat conditions remain stable due to the amount of moisture received to date. With the favorable conditions 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 95% of normal. Spring and summer moisture will be needed to sustain the current conditions.

Habitat rehabilitation on disturbed areas due to wildfire continues through cooperative management between Nevada Department of Wildlife and the Bureau of Land Management.

Population Status and Trend

Mule deer herds within Area 3 are all showing small decreases in population estimates. Fawn and buck ratios are mostly stable with only minor fluctuations due to overwinter fawn loss. It is expected that a drop in population numbers will be experienced on a limited scale. With continued positive responses in the habitat and continued moisture throughout the spring, there should be recruitment of fawns into the population. Some of the units in Area 3 have had some population model adjustments to better reflect current trends in the data. 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: Jon Ewanyk

Survey Data

The spring sample for Unit Group 011-013, and Unit 033 combined was 278 mule deer with a composition ratio of 25 fawns:100 adults. No fall surveys were completed within the unit group or on the Sheldon in

2020 due to Covid-19, and no fall surveys were completed within the unit group in 2019 due to inclement weather.

The last fall survey for the entire unit group was conducted in 2018. The 2018 fall survey 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

Some late winter storms in March 2021 helped to increase precipitation levels, which were still below average. As of mid-April 2021, precipitation totals were between 65% and 70% of average conditions for the Sheldon. With precipitation totals below average for the past two years, there is potential for a negative impact on habitat conditions and water availability in this hunt unit.

For the past few years, US Fish and Wildlife Service personnel have been removing juniper which are invading important brush communities on 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

Hunter success rates for tagholders hunting on the Sheldon have improved in recent years when compared with the lower success rates from just a few years ago. Overall, deer numbers remain low on the Sheldon, but are slowly increasing, which is reflected in the recommended tag quotas. Recommended tag quotas for this hunt unit are expected to be slightly higher than those allocated during the 2020 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 48%, with the 3-year mean at 42%. Recommended 2021 quotas for all hunts will mirror 2020 quotas.

Habitat

The planned construction of a big game guzzler in the Kamma Mountains near Wildrose Spring did not occur due to the Covid-19 pandemic. This project has been rescheduled for 2021. Feral horse and burro numbers within the unit group have been substantially over the Bureau of Land Management's (BLM) Appropriate Management Levels (AML) for many years. Units 041, 042 consists of 5 BLM Herd Management Areas (HMAs) for feral horses and burros. The 5 herd management areas include: Sahwave, Bluewing, Seven Trough, Lava Beds and Kamma.

The remainder of the mountain ranges in Unit 041, 042 are BLM Herd Areas (HA) managed for zero feral horse and burro use. In summer 2021, BLM conducted gathers in the Sahwave HMA that removed 1,653 feral horses and 220 burros. Additionally, a total of 218 burros were removed in the Selenite HA. Table 1 reflects the most current BLM feral horse and burro estimates for Units 041, 042.

Table 1 lists total BLM horse and burro population estimates for Herd Management Areas (HMA) and Herd Areas (HA) in Units 041, 042. BLM Appropriate Management Levels (AML) are shown for comparison. BLM gathers performed in 2020 are reflected in these values.

HMAs and HAs Pershing County	2020 Est. Horse Population	2020 Est. Burro Population	Horse AML low/high	Burro AML low/high
HMAs in Units 041, 042	2,280	1,157	333/417	55/90
HAs in Units 041,042	839	336	0	0
Total estimates Units 041, 042	**3,119**	**1,493**	**333/417**	**55/90**

Population Status and Trend

This herd appears to be stable based on resident Any Legal Weapon harvest rates. High numbers of burros and feral horses around limited water sources throughout the unit group has 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.

Units 043 – 046: Eastern Pershing and Southern Humboldt Counties

Report by: Kyle Neill

Survey Data

No post-season survey was conducted in 2020. Aerial spring surveys occurred in early March 2021 in every unit within the group. A total of 600 mule deer was classified as 26 fawns:100 adults. Fawn production continues to remain below maintenance level. Overall, this survey resulted in the highest spring sample size since 2014 when 718 deer were counted.

Habitat

Feral horse numbers within the unit group have exceeded the Bureau of Land Management's (BLM) Appropriate Management Levels (AML) for many years. Units 043-046 consists of one BLM Herd Management Areas (HMA) managed for AML of feral horses and is listed as Tobin HMA. The remainder of the mountain ranges in Units 043-046 are BLM Herd Areas (HA) managed for zero feral horse and burro use. Table 1 reflects the most current BLM feral horse and burro estimates for Units 043-046. According to BLM's 2020 feral horse estimates, Tobin HMA is currently 240% over high feral horse AML and HMAs and HAs in Unit Group 043-046 are currently 1,876% over high feral horse AML.

Table 1 lists total BLM feral horse and burro population estimates for Herd Management Areas (HMA) and Herd Areas (HA) in Units 043-046. BLM Appropriate Management Levels (AML) are shown for comparison. BLM gathers performed in 2020 are reflected in these values.

HMAs and HAs Pershing County	2020 Est. Horse Population	2020 Est. Burro Population	Horse AML low/high	Burro AML low/high
HMAs in Units 043-046	143	0	25/42	0
HAs in Units 043-046	687	0	0	0
Total estimates Units 043-046	**830**	**0**	**25/42**	**0**

Population Status and Trend

The mule deer herd in this unit group has been declining since 2013, with major declines since 2018. This herd has diminished by 51% from 2013 to 2021 (3,500 to 1,700 mule deer). The 2021 population estimate is 1,700 mule deer. Declining spring fawn ratios from 2013 to 2021 (average 29 fawns:100 adults) have contributed significantly to this steady decline. A combination of factors leads this rapid decline: periodic drought conditions, poor winter range, continued wildfires, and predation. Future management objectives should include aggressive re-seeding efforts of habitat following wildfires and the continued recommendation for predator removal during the fawning period.

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

Survey Data

Post-season helicopter surveys were conducted in mid-November 2020. A total of 219 deer was classified during this survey which is a decrease from last year and the previous 5-year average. Very few large groups were located during these flights with many of the groups having five or fewer individuals. Snow levels were extremely high, and deer were found anywhere from 5,000 feet to 7,500 feet in elevation. Surveys resulted in an observed ratio of 45 bucks:100 does:47 fawns. The buck ratio may be slightly biased due to a comparatively small sample size.

In early March 2021, spring surveys were conducted. During this survey, a total of 900 animals were classified yielding a ratio of 47 fawns:100 adults. This survey nearly doubled the individuals observed in previous years. With the amount of snow that was present, 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 the highest since the 1980's. The Osgood Mountains and the Hot Springs Range contribute a large portion of the survey numbers in this unit, as well as the Santa Rosa Range.

Habitat

As of March 1, 2021, precipitation values are at 95% of normal with 101% snowpack. Snow conditions this spring have been much better than the previous year which should help yield positive results from the seeding efforts that are continuing along the Martin Fire burn scar. Herbicide treatments and seeding efforts were implemented again this winter to control invading cheatgrass. The timing of the seeding efforts this year were ideal and should yield good results. The Nevada Department of Wildlife and the Bureau of Land Management have worked together on rehabilitation efforts for this burn. Continued support from sportsman's organizations has assisted in rehabilitation efforts. Three sportsman's organizations have hired a contract crew to hand-plant 20,000 additional sagebrush and bitterbrush plants this spring.

Population Status and Trend

Over the last 3 years, the unit group's population has remained stable due to limited overwinter mortality. Observed fawn loss for 2020-2021 has decreased from the previous 2 years which will result in minimal growth of this herd. The limiting factor for this herd is the winter range. Summer range still seems to be intact; however, because of its fire history, the winter range has suffered catastrophic losses. With the continued moisture, summer range conditions and continued rehabilitation efforts should sustain these herds into next winter. Average harvest metrics over the last 3 years has been mirroring the statewide average. If current trends continue, 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 5-day period in late November and early December 2020. A sample of 2,414 deer was obtained with observed sex and age ratios of 31 bucks:100 does:68 fawns. This was the third consecutive fall survey with lower-than-average sample size.

A spring helicopter survey was conducted early March 2021, with a sample size of 3,894 deer and observed ratio of 43 fawns:100 adults. This is the highest spring fawn ratio since 2014.

Habitat

Much of the winter range for the Area 6 deer herd has been negatively impacted by wildfire. Most recently, the 2018 South Sugarloaf Fire in the Bull Run Mountains has converted what was once high value summering brush communities to largely undesirable grasslands. Fortunately, no significant wildfires have occurred in critical deer habitats since late 2018. The reprieve from wildfire has allowed for focused restoration efforts on recent burns along with the creation of several new, and the expansion of several existing, fuels-breaks across the unit group protecting both remaining intact habitats and rehabilitation projects. Post-fire rehabilitation is highly dependent on timely seeding, precipitation and proper management following establishment of seedings. Current drought conditions for the last two years are having an unfavorable impact on plant communities that deer rely on for forage and cover. Another mild winter in 2020-2021 may have increased overwinter survivability for deer, but there is concern that if current drought conditions continue, the long-term negative impacts of decreased forage quality may diminish any gain of higher overwinter survival.

Population Status and Trend

The 2021 Area 6 deer herd modeled population estimate of 7,300 deer is well below the published 2020 estimate of 9,200. This decline was not experienced during the past year though. The impacts of harsh winter conditions in 2018-2019 are more apparent and at a greater magnitude than originally believed. The impact of winter 2018-2019 was experienced by several herds throughout the eastern region. Overwinter fawn loss during the 2018-2019 winter was observed above 50% and cold-wet conditions persisted for weeks post survey, suggesting continued mortality. Adult radio collared does experienced mortality much later into summer than in most years and this additional adult mortality is now accounted for in the model. This, in combination with information gained from recent aerial surveys, coupled with two years of poor hunter success, led biologists to decrease the fall 2019 population estimate by approximately 1,200 deer.

Supporting this reduction is the impact that the 2018 South Sugarloaf Fire had on mule deer habitat. It is difficult to conclude how the effects of the catastrophic wildfire on summer and transition ranges may have directly impacted population numbers, however, sample sizes for this specific sub-herd observed on aerial surveys post-fire have been depressed. With the overwinter loss experienced in 2019, it is evident that the carrying capacity of the range is lower than believed and, as the landscape continues to be negatively impacted by factors such as drought and wildfire, will be constantly evolving. A new management objective of approximately 7,000 to 7,500 deer has been established. With the highly compromised nature of winter ranges and the recent summer range losses, maintaining the population below carrying capacity to avoid large scale die-off is a top priority. This herd is well known for its high reproductive success. A few springs with high recruitment and the population could grow rapidly. Female harvest should continue in order to meet this management objective and to reduce the likelihood of high overwinter rates of fawn and adult mortality.

Unit 065: Piñon Range; Southwestern Elko County

Report by: Matthew Jeffress

Survey Data

As a result of the small population size and an inability to readily survey for fawn recruitment each spring, this herd is being managed for a conservative harvest. In place of aerial 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 2020 range conditions were extremely dry. Hot and dusty conditions persisted well into November. Snowpack and moisture totals are well below average for much of this unit. Drought conditions are expected to persist well into 2021.

Fires have impacted this hunt unit over the past two decades. Last summer approximately 6,000 acres of mule deer winter range on the northeast side of Cedar Ridge burned. Bureau of Land Management and the Nevada Department of Wildlife seeded much of the burn scar with desirable grasses, shrubs, and subshrubs this past winter. If adequate moisture allows the seeded species to establish, the rehabilitation efforts will benefit mule deer. Range rehabilitation projects, including post-fire seeding, have worked to offset some of the negative impacts from range fires on this portion of the state's mule deer herd. Additional work targeting winter range will be explored in the future to continue to offset habitat loss from range fires, as well as impacts from anthropogenic disturbances throughout Unit 065.

Mineral exploration is taking place at an accelerated rate along the entirety of the Piñon Range. Opportunities to monitor mule deer in summer on the Piñon Range have been pursued to gain a better understanding of movement corridors and habitat selection. Biologists hope to capture 15 adult doe mule deer to fit with GPS collars in fall 2021 to monitor movements. 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 last year were based on a 10-year average. The cut in tags last year was directed at improving the declining percentage of bucks harvested supporting 4-points or better. For the 2020 season, a further decline in bucks harvested supporting 4-points or better was documented and a further reduction in tags may be warranted.

Units 071 – 079, 091: Northeastern Elko County

Report by: Kari Huebner

Survey Data

Post-season aerial composition surveys were not conducted in 2020. A spring aerial composition survey was conducted in March 2021. A total of 2,546 mule deer was classified with an observed ratio of 32 fawns:100 adults.

Habitat

An Environmental Assessment (EA) is being analyzed by the Bureau of Land Management's Wells Office for vegetation treatments within this unit group. Once the EA is completed, possible treatments may include removal of encroaching juniper, herbicide application, and creation of 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 six wildlife safety crossings on US Route 93 designed to facilitate movement across the highway. Three crossings over Interstate 80 were completed on Silverzone Pass in 2012 and four additional crossings on Pequop Summit were completed 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

A combination of fires, drought conditions, and possible plant senescence, may have made deer habitat in Area 7 incapable 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 2019 and 2020 showed increases 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. The higher elevation summer ranges had increased quality and quantity of forage from good snowpack and wet springs the past 2 years that contributed to increased body condition going into winter.

Since 2008, 225 deer have been radio collared in a collaborative effort between the Nevada Department of Wildlife, Newmont Mining Corporation, and University of Nevada, Reno, on the Pequop and Toano winter ranges. As of spring 2021, 46 collars remain active.

Nevada Department of Wildlife initiated the Mule Deer Enhancement Program (MDEP) this year. The Area 7,8, and 9 MDEP team met in February to view a presentation on the status and history of mule deer in Areas 7, 8, and 9 and challenges facing those herds. The MDEP team will meet later in the spring to start limiting factor ranking and the project identification process.

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. During the 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. The planting of bitterbrush seedlings should aid in the recovery of extensive stands lost in the White Rock portion of crucial winter range. In addition to recent fires in the winter range, 90,000 acres of this herd's summer range burned in Idaho during summer 2020.

An Environmental Assessment (EA) is being analyzed by the Bureau of Land Management's Wells Office for vegetation treatments within this unit group. Once the EA is completed, possible treatments may include removal of encroaching juniper, herbicide application, and creation of 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.

The large fires in the past five years on both summer and winter ranges are expected to negatively impact this deer herd until the range has time to recover. Success of seeding efforts and precipitation will determine how long the recovery will take.

Unit 081 has been identified as one of eight "alternative" deer herds to be managed more conservatively based on hunter success and antler point data. Hunter success increased this past year during the Any Legal Weapon season (82% success in 2020 compared to 61% success in 2019). The percentage of 4-points harvested dropped slightly from 84% in 2019 to 78% in 2020.

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

Report by: Scott Roberts

Survey Data

An aerial post-season composition survey was conducted in November 2020 employing both a directed search and a randomly generated and stratified polygon design. The total survey classified 3,033 deer yielding sex and age ratios of 33 bucks:100 does:53 fawns. The polygon survey classified 738 deer yielding sex and age ratios of 33 bucks:100 does:53 fawns. A spring helicopter survey was conducted in March 2021, resulting in 5,741 deer being classified in a ratio of 35 fawns:100 adults. The fawn ratio represents an approximate overwinter fawn loss of 18%, which is a significant departure from the previous 10-year average of 31%.

Habitat

In July 2019, the Corta Fire burned the west side of Harrison Pass on the boundary of Units 102 and 103. The fire burned 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 and is used to some degree by most of the Area 10 deer herd on an annual basis. The significance of this area cannot be overstated and, for that reason, the Nevada Department of Wildlife (NDOW), along with several partners, aerially seeded 8,108 acres with a number of native shrubs and grasses. In September 2019, the Cherry Fire burned approximately 3,500 acres on the westside of the South Ruby Mountains in Unit 103. The fire burned 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 NDOW and partners aerially seeded 1,900 acres of the burn scar with several native shrubs and grasses. Collar data has shown limited use within both burns. Fire rehabilitation efforts will continue to be monitored in the coming years to ensure seeding success and to combat the invasion of winter annual grass species.

The NDOW continues to work on habitat projects to improve mule deer winter and transitional range by creating a more browse-dominated landscape. 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 six 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 implementing since 2017. The majority of the projected 2020 work was delayed because of the complications posed by the COVID 19 pandemic. The work will resume in 2021. The combination of these two projects will improve the available seasonal habitat for a large percentage of the Area 10 deer herd.

Population Status and Trend

In February 2021, a radio collaring project was initiated focused on deer that summer in Unit 101 and winter in Units 105, 107, and 109. Collaring will aid in highlighting areas of greatest conservation concern and will provide information for updates to the efforts of implementing the US Department of the Interior's Secretarial Order 3362, which seeks to improve habitat quality of winter ranges and protect migration corridors of mule deer, antelope, and elk throughout the western states. Collaring will also document use patterns of the deer that winter in Unit 105 with respect to habitat treatment activities that have been completed on Spruce Mountain since 2013. The sites selected by the wintering deer will aid wildlife and habitat managers in designing and proposing future projects to maximize the benefit to local wildlife.

The Area 10 deer herd experienced population contractions due to severe conditions in the winters of 2015-2016, 2016-2017, and 2018-2019. The effects of these winters are still being realized as there are less prime age does on the landscape to take advantage of the mild conditions experienced in 2020-2021, resulting in above-average recruitment and population growth. The maturation and increased productivity of the numerous habitat enhancement projects and fire rehabilitation actions taken 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 2020. A composition survey sample of 1,690 mule deer yielded sex and age ratios of 26 bucks:100 does:46 fawns. Spring mule deer surveys were conducted in conjunction with post-season elk surveys in early March 2021. A composition survey sample of 1,590 mule deer yielded a ratio of 31 fawns:100 adults. The previous 5-year average (2016-2020) fawn recruitment is 27 fawns:100 adults for this herd.

Habitat

National Weather Service precipitation data measured at the Ely Airport for the 2020 calendar year was 50% of normal. Spring 2019 was the wettest recorded in Ely, but dry conditions have persisted since June 2019. National Weather Service precipitation data measured at the Ely Airport from June 2019 to February 2021 was 57% of normal. The Berry Creek SNOTEL site recorded 82% of the long-term average snowpack during the 2020-2021 winter (accessed 29 March 2021; www.nrcs.usda.gov). At the time of this writing, spring conditions have continued to be warm and dry. If precipitation patterns do not improve, prolonged drought is expected to further deteriorate habitat conditions.

The long-term habitat potential for mule deer is slowly declining due to the encroachment of pinyon and 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 three new wildlife water developments, several thousand acres of pinyon and 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 an attempt to increase beneficial forage production on winter range in Unit 111. In August 2020, pinyon and juniper cuttings were completed on 1,495 acres in Unit 113. Many other projects with potential benefits to mule deer are in 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

This population is continuing to decline, despite improved fawn recruitment in 2021. Multiple surveys with depressed samples size, a declining post-season buck ratio, poor fawn recruitment in 2019 and 2020, and declining harvest metrics all indicate that this population is continuing to decline for the fourth consecutive year.

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

Report by: Kody Menghini

Survey Data

Post-season surveys were not conducted in 2020. Spring mule deer surveys were conducted in conjunction with post-season elk and bighorn surveys in late February and early March 2021. A composition survey sample of 382 mule deer yielded a ratio of 28 fawns:100 adults. The previous 5-year average (2016-2020) 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 have deteriorated since fall 2019 due to prolonged drought conditions. As of April 12, 2021, the Wheeler Peak SNOTEL site had received 15.8” of precipitation since October 1, 2020, compared to 14.2” of precipitation in 2020 during the same period. At the time of this writing, spring conditions have continued to be warm and dry. Habitat conditions are expected to further deteriorate in 2021 unless precipitation patterns improve.

The long-term habitat potential for mule deer is slowly declining due to encroachment of pinyon and 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 and 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. In Unit 115, the Black Fire burned 4,900 acres in 2013, in Unit 114, the Hampton Fire 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 following some of those fires 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 (2011-2020) average percent 4-point or greater buck harvest at 52% compared to the statewide average of 40%, indicating an older age structure in the population. For 2021, 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 conducted in December 2020. A composition survey sample of 835 mule deer yielded sex and age ratios of 15 bucks:100 does:50 fawns. Spring mule deer surveys were conducted in April 2021. A composition survey sample of 967 mule deer yielded a ratio of 36 fawns:100 adults. The previous 5-year average (2016-2020) fawn recruitment is 30 fawns:100 adults for this herd.

Habitat

National Weather Service precipitation data measured at the Ely Airport for the 2020 calendar year was 50% of normal. Spring 2019 was the wettest recorded in Ely, but dry conditions have persisted since June 2019. National Weather Service precipitation data measured at the Ely Airport from June 2019 to February 2021 was 57% of normal. The Berry Creek SNOTEL site in Unit 111 recorded 82% of the long-term average snowpack during the 2020-2021 winter (accessed 29 March 2021, www.nrcs.usda.gov). At the time of this writing, spring conditions have continued to be warm and dry. Habitat conditions are expected to further deteriorate in 2021 unless precipitation patterns improve.

Pinyon and 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 and juniper woodlands. In 2020, the Nevada Department of Wildlife treated 1,135 acres in the 9-mile Chaining. The Bureau of Land Management and the Nevada Department of Wildlife have plans to treat additional acres in 2021. The Combs Creeks project was designed to reduce pinyon and 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

Multiple surveys with depressed samples size, declining post-season buck ratio, poor fawn recruitment in 2020, and declining harvest metrics all indicate that this population is decreasing. The current population estimate is 2,100 mule deer.

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

Survey Data

For 2020, no post season aerial survey was conducted. In February 2021, an aerial spring survey was conducted with 603 deer classified, yielding ratios of 25 fawns:100 adults. The 2021 spring observed fawn ratio is noticeably below the previous 5-year average of 33 fawns:100 adults, with last year's ratio being 27 fawns:100 does.

Weather and Habitat

As of March 2021, the valley summary report shows lower elevations for the Ely and Tonopah areas at slightly below normal precipitation and warmer temperatures (March 2021, Nevada Water Supply Outlook

Report, NRCS). The White River watershed snowpack analysis has dropped from 59% to 55% of median for 2021 and soil moisture for the Spring Mountains and southern Nevada dropped from 26% to 10% saturation for the area (March 2021, Nevada Water Supply Outlook Report, NRCS). For March 2021, the Western Regional Climate Center's Eureka site and Hiko site, the northern and southern ends of the unit groups, respectively, shows the Eureka site slightly below normal precipitation and the Hiko site well below normal precipitation at the lower elevations. Throughout most of the area, habitat conditions continue to worsen, with conditions reclassified from Class 1 drought to Exceptional Drought for 2021 (March 2021, Nevada Water Supply Outlook Report, NRCS). Unless weather conditions change, forage is expected to be less prevalent and lower quality on the landscape.

Pinyon and juniper removal projects and riparian fencing projects conducted by the US Forest Service and the Bureau of Land Management to benefit sage-grouse should benefit 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 negatively 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 and juniper encroachment, and oil and gas exploration. This collaring effort has helped identify movement corridors and stop-over areas the deer use during transition from summer to winter ranges. This knowledge has already helped with current and future habitat improvement project planning. Within the last five years, fawn recruitment rates have declined noticeably, with the last two years having particularly low rates. The winter-spring precipitation of 2019 was above normal but was followed by extreme drought conditions which likely contributed to below-average fawn production and recruitment. For 2021, the population estimate is showing a decrease and is below the previous 5-year average.

Units 141 – 145: Eureka and Western White Pine Counties

Report by: Clint Garrett

Survey Data

For 2020, no post season aerial survey was conducted. In February 2021, an aerial spring survey was conducted with 1,734 deer classified, yielding a ratio of 28 fawns:100 adults. The 2021 spring observed fawn ratio is noticeably below the previous 5-year average of 34 fawns:100 adults, with last year's ratio being 26 fawns:100 does.

Weather and Habitat

As of March 2021, the Western Regional Climate Center's Beowawe site and Eureka site, the northern and southern ends of the unit group, respectively, shows the Beowawe site at above normal precipitation and the Eureka site at slightly below normal precipitation at the lower elevations. The US Drought Monitor currently shows all units in extreme drought. The eastern Nevada watershed snowpack analysis and soil moisture are still below normal at 69% and 17%, respectively (March 2021, Nevada Water Supply Outlook Report, NRCS). The valley summary report shows lower elevations for the Elko and Eureka areas have received normal precipitation with temperatures warmer in Elko and cooler in Eureka when compared to normal (March 2021, Nevada Water Supply Outlook Report, NRCS). Unless weather condition trends change, forage is expected to be less prevalent and of poorer quality on the landscape.

Plans are still underway to fence and protect Robinson Spring in the Diamond Range. There are pinion and juniper treatments currently underway with additional treatments planned for Units 142 and 143. 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 horses were gathered in the Diamond and Cortez Ranges last year and habitat conditions should improve due to this effort if adequate precipitation is received. Large concentrations of feral horses remain above Appropriate Management Level within the Roberts – Whistler Mountain and Fish Creek Herd Management Areas. These concentrations are negatively affecting resources and wildlife in those areas.

Population Status and Trend

Deer are currently radio collared in Area 14 to gain a better understanding of seasonal movement patterns, potential effects of mining related development, pinyon and juniper encroachment, and oil and gas exploration. 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 and crucial mule deer habitat has been developed. Fawn recruitment rates have been low the last 3 years with 2021's rate well below the previous 5-year average. The extended precipitation and cooler temperatures during spring 2019, followed by a historically dry year, have likely contributed to below average fawn production and recruitment. For 2021, 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

Inclement weather resulted in the post-season aerial survey being cancelled in Area 15 and during November 2020 ground surveys were conducted. A total of 487 mule deer was classified, with an observed ratio of 31 bucks:100 does:57 fawns. Winter conditions limited road access to higher elevations, so approximately 60% of the sample size occurred on agricultural fields in valley bottoms. Buck and fawn ratios were lower among deer that used agricultural fields than among deer that were found in more typical areas. An aerial spring survey was conducted during March 2021 and was aided by fresh snowfall that enhanced the ability to locate deer. A sample size of 709 deer was classified with an observed ratio of 30 fawns:100 adults, which is similar to the previous 5-year average of 29 fawns:100 adults. The estimated 2020-2021 overwinter fawn loss was 36%, which is slightly higher than the previous 5-year average of 32%.

Weather and Habitat

Between January 1, 2020 and April 1, 2021, Lander and Eureka Counties have experienced 60 consecutive weeks of dry conditions ranging from abnormally dry to extreme drought. Prolonged dry conditions have reduced the quantity and quality of forage available to mule deer and have created a greater potential for catastrophic wildfires. Consequently, drought will continue to be a major factor affecting the Area 15 mule deer herd.

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 (most notably, BLM's South Shoshone Herd Management Area was estimated at over 1400% of Appropriate Management Level in 2020), and feral 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: Hunter Burkett

Survey Data

No formal composition surveys were conducted in 2020. The 2019 post-season composition survey yielded a sample size of 345 deer, classified as 58 bucks, 202 does, and 85 fawns. The 2019 survey was conducted in a new randomized aerial survey design. With the new aerial survey strategy, lower sample sizes are expected since only portions of each hunt unit are surveyed. Observed fawn and buck ratios stabilize at this lower sample size and larger samples are not necessary to obtain statistically reliable ratios.

The spring 2021 aerial composition survey was completed in March 2021, yielding a sample size of 279 deer classified as 227 adults and 52 fawns. In comparison, the 2019 survey yielded a sample size 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.

Habitat

According to Community Environmental Monitoring and Planning (CEMP) precipitation data from January 2020 to January 2021, central Nevada received 39% of the 30-year average. Spring precipitation (March, April, and May) resulted in 66% of the 2020-2021 precipitation total. The single SNOTEL site located in central Nevada measured snowpack levels at approximately 73% of average in February 2020. Precipitation inequities from the northern end of the unit group compared to the southern end will create poor habitat quality and quantity throughout the southern portions of the unit group. Limited precipitation, along with feral equid competition, will result in degraded habitat conditions. The snowpack in the northern end of the unit group may offer greater forage for mule deer in higher elevations. Drought conditions have plagued central Nevada, reducing forage quality and in turn affecting adult fitness and recruitment rates for mule deer.

Multiple US Forest Service pinyon and juniper removal projects have been conducted in Little Fish Lake Valley in Unit 162. In 2017, about 700 acres of pinyon and juniper were removed near Clear Creek. In 2018, 500 acres of pinyon and juniper were removed near Horse Canyon and approximately 2,000 acres south of Danville Canyon via lop and scatter techniques. The removal of these trees will allow the herbaceous understory to regenerate providing good forage and habitat for mule deer at certain times of the year. In addition, another 217 acres of pinyon and juniper was removed near Pasco Canyon with the help of local resource conservation programs.

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, senescent browse species, and increasing pinyon and juniper densities have collectively managed to keep mule deer populations in central Nevada from experiencing significant growth.

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

Units 171 – 173: Northwestern Nye and Southern Lander Counties
Report by: Hunter Burkett

Survey Data

In 2020, a post-season aerial composition survey was conducted yielding a sample of 618 deer classified as 120 bucks, 360 does, and 138 fawns. In comparison, the 2018 post-season aerial survey yielded a

sample of 574 deer classified as 112 bucks, 310 does, and 152 fawns. Since 2017, a new random-stratified survey design has been implemented in Area 17. With the new aerial survey strategy, lower sample sizes are expected since only portions of each hunt unit are surveyed. Since fawn and buck ratios stabilize at this lower sample size, larger samples are not necessary to obtain statistically reliable ratios.

A spring composition survey was conducted in March 2021. The survey yielded a sample of 347 deer, classified as 271 adults and 76 fawns. In comparison, the 2019 spring survey yielded a sample of 594 deer, classified as 464 adults and 130 fawns.

Habitat

Central Nevada received 39% of the 30-year precipitation average according to the Community Environmental Monitoring and Planning (CEMP) from January 2020 to January 2021. Spring precipitation (March, April, and May) resulted in 66% of the 2020-2021 precipitation total. The singular SNOTEL site located in central Nevada measured snowpack levels at approximately 73% of average in February 2020. With below-average precipitation for the 2020-2021 winter, forage quantity and quality will continue to be impacted. The snowpack in the northern end of the unit group will offer deer better forage at high elevations. Unless additional precipitation arrives in the spring, poor habitat conditions will persist and be reflected in the 2021 fawn to doe ratios.

In 2018, a radio collaring and habitat enhancement project of pinyon and 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 and juniper were treated on the bench, and 30 adult female mule deer were collared to study response to the removal. The collaring effort occurred over 2years with 20 deer collared in April 2018 and an additional 10 collared in March 2019. This 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 the collaring data has depicted is 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.

Population Status and Trend

Periods of drought have plagued central Nevada over the past decade. This has resulted in little overall growth of mule deer populations and a relatively stable trend. Drought conditions coupled with senescent browse and pinyon and juniper encroachment prevent this herd from expanding.

Fawn recruitment in Area 17 was slightly depressed in 2020-2021. This results in a modest decrease in population size.

Units 181 – 184: Churchill, Southern Pershing, and Western Lander Counties

Report by: Jason Salisbury

Survey Data

A brief ground survey in March 2021 resulted in the classification of 138 mule deer; yielding a ratio of 31 fawns: 100 adults.

Habitat

The Wood Canyon Fire ignited in 2019, on the east side of the Stillwater Mountains. This fire consumed a pinyon and juniper woodland habitat type. This 1,200-acre 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.

Pinyon and juniper encroachment within the Desatoya Mountain Range constrains mule deer summer range. In the last 5 years, 8,900 acres of woodland has burned in the Desatoya Mountains 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. To help facilitate a faster recovery, the Nevada Department of Wildlife seeds as much land as possible given limited resources. This habitat conversion will enable the deer herd to thrive in these early successional-stage plant communities. The recently converted foraging areas may also draw in feral horses, which will compete with the mule deer herd for resources.

To allow for the successful establishment of plants and a thriving mule deer herd, it is imperative feral horses be kept within Appropriate Management Levels (AML). In 2019, 430 horses were removed from the Desatoya Mountains. The removal of feral horses alleviates 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 fence will increase the flow of water and make available areas of shrubs, grasses, and forbs to wildlife.

Population Status and Trend

The Area 18 mule deer herd is relatively stable. The 2020 hunter data indicates that 31% of harvested bucks were 4-point or greater with the 10-year average being 38% 4-points or greater for the general rifle hunt. The overall success for this unit in the rifle hunt approximates last year's success. These high success rates for Area 18 indicates 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 conducted in November 2020 and resulted in the classification of 100 deer with a ratio of 44 bucks:100 does:56 fawns. The timing of this flight was presumably prior to the fall interstate migration, indicating resident deer were surveyed. The spring survey flight was conducted in early April 2021. The result was a classification of 272 deer, with a ratio of 33 fawns:100 adults. Most deer were found between 6200-6500 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. Most 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 2021 population estimate is approximately 1,300 animals. For the last several years this herd has fluctuated between 1100 and 1500 deer, indicating a stable population. The resident portion of this population does not migrate into California and is estimated at 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 November 2020 and resulted in the classification of 195 deer with a ratio of 25 bucks:100 does:32 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 in early April 2021 and resulted in a classification of 425 deer with a ratio of 17 fawns:100 adults.

Habitat

Urban sprawl and the accompanying human recreation are the biggest challenges facing the Carson Front deer herds. Most 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 2020-2021. Large-scale housing developments are planned for the near future that will present significant challenges to this struggling population.

Population Status and Trend

The 2021 population estimate is 1,600 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. Urban development continues near Garson Road in the north end of unit 194, and all lower elevations of Peavine Mountain. The long-term trend in abundance is downward, mostly due to habitat loss and fragmentation.

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 and juniper and the deer in this unit spend a considerable amount of time in these pinyon and 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 ground survey will be conducted in April 2021 by California Fish and Wildlife. Data from the survey will be incorporated into the model when received.

Habitat

The Baldwin Canyon Project is near completion at 4,000 acres and removes pinyon and juniper along the western slope of the Wassuk Mountains. Projects like this will increase the summer and winter ranges for the migrating herd.

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

Population Status and Trend

The population decline this herd is experiencing suggests a density-dependent response to limited resources. Mule deer appear in poor body condition. This assumption is based on continued low fawn ratios observed from the ground by California biologists. 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. To reduce competition, a management doe hunt may be instituted, which would also allow biologists to assess body condition. 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

This unit is not surveyed for population status metrics. This unit is managed by harvest metrics such as overall hunter success and the percentage of 4-points harvested.

Habitat

Mason Valley mule deer habitat consists of alfalfa fields surrounded by buffaloberry and salt desert shrub communities. The Mason Valley Wildlife Management Area contributes significant habitat resources to this mule deer herd and serves as a sanctuary to the fragmented habitat 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 and the addition of new water developments to the management area.

Population Status and Trend

In early 2021, several deer were euthanized in Smith Valley due to a suspected disease event. The deer were tested and indicated positive results for Malignant Catarrhal Fever. This is a highly fatal viral disease in cervids and some other animals. It is carried by domestic sheep and the outbreak likely started when

sheep were grazed near the site of the outbreak shortly before the first death was reported. Currently, it is unknown to what extent the disease has impacted population levels.

There is no modeled population estimate for this herd. This population is believed to be stable and has the potential to increase under favorable habitat conditions. The 2020 overall hunter success rate for Any Legal Weapon hunt was 65% with 32% of the bucks being 4-point or better. The 10-year average 4-point or better is 36% compared to the statewide overall hunter success in the past 10 years being 40%.

Units 211, 212: Esmeralda County
Report by: Hunter Burkett

Survey Data

No formal surveys are conducted in Area 21. Past survey efforts have not resulted in sufficient sample sizes for use in monitoring population dynamics. Harvest metrics, coupled with annual precipitation data, help derive quota recommendations by the department.

Habitat

Central Nevada received 39% of the 30-year average of precipitation based off the Community Environmental Monitoring and Planning (CEMP) from January 2020 to January 2021. Spring precipitation (March, April, and May 2020) resulted in 66% of the 2020-2021 precipitation total. Drought conditions will impact the available forage for mule deer in this unit. Reduced disturbance in the area has created an aging browse community and enabled pinyon and juniper to expand in many areas.

Population Status and Trend

Based on annual harvest data and ground survey data, the Area 21 mule deer population appears to have remained stable at comparatively low levels for some time.

Post-season aerial surveys and spring aerial surveys in adjacent units have seen slightly depressed fawn to doe ratios due to the reduced quality mule deer habitat. Currently, the Management Area 21 mule deer population is stable or slightly decreasing.

Units 221 – 223: Northern Lincoln and Southern White Pine Counties
Report by: Daniel Sallee

Survey Data

A post season aerial survey was conducted in December 2020. This survey resulted in the classification of 875 individual animals comprised of 120 bucks, 549 does, and 206 fawns.

Spring aerial surveys were conducted in March 2021. During the spring survey, 801 deer were classified. The classification was comprised of 664 adults and 137 fawns. During this survey, deer were distributed in the southern portion of the area. Seasonal migrations occur within this population where deer spend the summer months primarily in the high elevations of Unit 222 and Unit 221. With the onset of fall, these deer begin migrating south into portions of Unit 222 and Unit 223 to spend the winter months.

Habitat

Habitat conditions were poor relative to previous years due to severe drought conditions. Annual precipitation was 38% of the long-term average and no precipitation was received during July through October 2020. Forage was limited and water resources were reduced in many areas. To reduce overuse

of forage resources, the Bureau of Land Management (BLM) conducted feral horse gathers to remove excess horses from the landscape. In March 2019, the BLM removed nearly 1,000 horses throughout Area 22. In February 2021, an additional 256 feral horses were removed, and 25 mares were treated with fertility control and released onto the range to reduce reproductive potential in the coming years.

Pinyon and juniper encroachment continues to reduce habitat across Area 22 by reducing understory growth and limiting forage for deer. Fire suppression and wilderness areas allow dense pinyon and juniper stands to remain undisturbed; however, the Nevada Department of Wildlife and the BLM, as well as other local groups, have conducted several habitat projects targeted at removing pinyon and juniper. Since 2014, over 27,000 acres have been treated to decrease pinyon and juniper and increase productive wildlife habitat.

Population Status and Trend

The Area 22 mule deer herd has undergone a modest decline this year. Severe drought conditions resulted in limited forage and water distribution, likely contributing to the observed decline. Removal of feral horses from the landscape and implementation of habitat improvement projects will lead to increased habitat and benefit the mule deer population.

Unit 231: Wilson Creek Range; Northeastern Lincoln County

Report by: Daniel Sallee

Survey Data

Post-season aerial surveys were conducted in December 2020, resulting in a sample of 871 deer. Composition of the sample included 144 bucks, 527 does, and 200 fawns.

Spring aerial surveys were conducted in March 2021, resulting in a sample of 1,085 animals comprised of 912 adults and 173 fawns. Most deer were observed in the Panaca Hills, Rose Valley, and Dry Valley winter range areas.

Habitat

Habitat conditions were poor relative to previous years, as the area experienced severe drought conditions for much of the year. The area received 38% of the long-term average precipitation receipts. Forage resources were reduced through late summer and the distribution of water on the landscape was constricted. Several agricultural operations exist throughout Area 23 and deer use these areas heavily during certain times of the year. Mule deer utilize alfalfa and other agricultural lands in late fall and early winter. Landowners receive compensation tags to offset costs of damage by mule deer on agricultural lands. In 2020, the Miller Fire burned 4,761 acres of habitat that supported use by mule deer. Re-seeding efforts have been conducted to promote restoration of favorable forage.

Habitat in Area 23 is threatened by overuse from feral horses and continued invasion of pinyon and juniper throughout the area. In February 2020, over 1,700 excess feral horses were removed from Area 23 by the Bureau of Land Management (BLM). In February 2021, over 1,000 additional excess horses were removed from the range and 50 mares were treated with fertility control and released. The Nevada Department of Wildlife, BLM, and local organizations have completed multiple habitat improvement projects targeted at reducing pinyon and juniper expansion and increasing forage productivity. Over the past 10 years, several thousand acres have been cleared of pinyon and juniper trees to allow sagebrush and other preferred mule deer forage to improve on the landscape. Unite

Population Estimates and Trend

The mule deer population in Area 23 underwent a slight decline this year. Survival and recruitment of fawns into the adult population were likely lower this year due to severe drought conditions. Habitat improvement projects and removal of excess feral horses will allow a healthy mule deer population to persist in the area.

Units 241 – 245: Clover, Delamar, and Meadow Valley Mountain Ranges; Lincoln County

Report by: Daniel Sallee

Survey Data

Post-season aerial surveys were conducted in December 2020 in Area 24, resulting a sample of 313 animals. During this survey, 53 bucks, 177 does, and 83 fawns were observed.

Spring aerial surveys were conducted in March 2021. During spring surveys, 399 deer were observed comprised of 325 adults and 74 fawns. Most deer were observed on the southern slope of the Clover Mountains on historic winter range.

Habitat

Habitat conditions were poor relative to previous years throughout the area due to severe drought conditions observed for much of the year. The area received 38% of the long-term average precipitation, with no precipitation received during the hottest months of the year. Vegetative growth was reduced, and water resources were limited in much of the area due to drought conditions. Competition with excessive numbers of feral horses also contributes to degraded habitat conditions. Two fires burned in 2020 in areas that support use by mule deer. The Stewart Canyon Fire in Unit 241 burned 12,718 acres and the Meadow Valley Fire in Unit 243 burned 59,310 acres. Re-seeding efforts have been conducted to promote restoration of native plant species.

Most mule deer in Area 24 are found in Units 241 and 242 due to the distribution of suitable habitat in the area. The Clover Mountains in Unit 242 have dense pinyon and juniper stands through much of mule deer range. Pinyon and juniper reduce understory growth and degrade mule deer habitat through eliminating forage availability. The highest densities of deer are found in areas that have either been burned or manipulated by habitat improvement projects to remove pinyon and juniper. In addition, mule deer inhabit the Delamar Mountains in Unit 241, however densities are lower than Unit 242. Pinyon and juniper encroachment is also a problem in the Delamar mountains. Feral horses exist in excessive numbers in the Delamar mountains and compete heavily with mule deer for forage and water resources.

Population Estimates and Trend

The population model for the Area 24 mule deer population was updated in 2021 in response to metrics indicating the buck portion of the population was being underestimated. Survival rates for young bucks was increased slightly to track the high buck to doe ratio that has been consistently observed in this unit. The overall mule deer population is exhibiting a downward trend this year in Area 24, likely due to severe drought conditions. Severe drought conditions contributed to reduced survival of fawns and low recruitment into the adult population. Continued habitat degradation through pinyon and juniper encroachment and excessive use by feral horses threaten mule deer in this area.

Units 251-253: South Central Nye County
Report by: Hunter Burkett

Survey Data

Neither post-season, nor spring surveys, are conducted in Area 25. The last survey conducted was in 1998 and failed to yield a sufficient sample for analysis.

Habitat

Area 25 has limited amounts of quality mule deer habitat. Much of the mule deer population resides in Unit 251 because of the higher quality and quantity of habitat. Due to recent drought periods, impacts from feral equids, pinyon and juniper expansion, and senescent browse species, the mule deer population in Area 25 has remained stable at relatively low numbers for some time. Due to poor fawn recruitment in adjacent units, this population is experiencing moderate decreases currently. Drought will impact this deer herd. With limited browse and available habitat, deer will concentrate in higher elevations during the dry season.

Population Status and Trend

Aerial survey data from 2020-2021 collected in adjacent units indicate that fawn production and recruitment rates in much of central Nevada is slightly depressed.

Units 261 – 268: Clark and Southern Nye Counties
Report by: Pat Cummings

Survey Data

Most of the mule deer in Area 26 inhabit the Spring Mountains in 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 near 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 2021, environmental conditions are fair to poor due to protracted dry conditions that began in early 2020. Most of the storms that developed in early 2021 were lacking in rainfall intensity and duration. Consequently, plant vigor and forage plant production may be less than optimal in the months ahead. Thus, mule deer may face constraints in nutrient and energy availability in 2021. The National Weather Service expects above-normal temperatures and below-normal precipitation to persist at least through June 2021.

Units 271, 272: Southern Lincoln and Northeastern Clark Counties
Report by: Daniel Sallee

Survey Data

No mule deer surveys were conducted in Unit 271 or Unit 272 during the reporting period. Mule deer densities are low enough that standard surveys will not result in sufficient sample sizes for data 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. Unit 271 and Unit 272 are located within Mojave Desert ecotypes with pinyon and juniper found at higher elevations. Water is very limited, and mule deer are generally found in areas not far from water, particularly during the hottest periods of the year. This area experienced severe drought conditions for much of the year, with 38% of the long-term average precipitation received. Forage and water resources were likely restricted relative to years where drought conditions dis not persist.

Population Status and Trend

Although no population model exists for the Area 27 deer herd, it appears to be stable and healthy with consistent harvest and regular observations of deer in the area. Survival of both adults and fawns was likely slightly below average this year due to severe drought conditions, which was typical of adjacent mule deer populations this year.

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 and juniper trees, much of which is dead. Nevada Department of Wildlife and Bureau of Land Management are conducting habitat treatment in several areas under the Pine Nut Health Project funded in part by habitat and upland game stamp funds and the Nevada Wildlife Heritage Project to increase browse and decrease the pinyon and 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: Jon Ewanyk and Chris Hampson

Survey Data

In Unit 011, a sample of 335 antelope was classified and resulted in a composition ratio of 29 bucks:100 does:22 fawns. In 2019, the ratio was 40 bucks:100 does:23 fawns. Buck ratios were slightly lower than previous years, which could be a result of the sampling effort.

Fawn ratios were observed to be much lower the past 2 years for those herds in the northern Washoe and western Humboldt Counties. In Unit 011, the composition ratio of 22 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.

Habitat

As of mid-April 2021, precipitation totals were between 65% and 70% of average conditions for the area. With precipitation totals below average for the past 2 years, there is potential for a negative impact on habitat conditions and water availability in this hunt unit. Due to water levels being below average at this time, it is anticipated this region will be impacted heavily by the drought cycle throughout the summer months. As of mid-April, all of Unit 011 is categorized as being in “extreme drought” conditions.

Population Status and Trend

Thirty-five antelope were captured in 2020 and fitted with satellite telemetry collars in Unit 011. The radio 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 BLM Applegate Field Office assisted in funding and capture logistics for 25 animals captured in Unit 011. The remaining 10 animals captured in Unit 011 were part of another antelope capture and collaring project that distributed a total of 35 satellite collars on animals throughout Units 011, 013, and 015 in northwestern Nevada.

The antelope population in Unit 011 has had a stable to increasing trend over the past few years. However, the lower recruitment values observed the past 2 years 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 for 2 consecutive years.

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

Report by: Jon Ewanyk and Chris Hampson

Survey Data

A total of 440 antelope was classified during the 2020 survey with a composition ratio of 26 bucks:100 does:31 fawns. In 2019, the observed ratio was 43 bucks:100 does:31 fawns.

Buck ratios decreased in this hunt unit group, but the fawn ratio of 31 fawns per 100 does remained the same as 2019. A fawn to doe ratio of 31:100 will result in a declining population trend this year. However, the herd has experienced strong increasing trends for several consecutive years prior to 2019 due to strong fawn recruitment rates.

Habitat

Although the Northern Great Basin showed promising signs of precipitation in the month of November, the precipitation totals remained below average through April of 2021. As of April, the Northern Great Basin is at 73% of average precipitation totals. Due to precipitation totals being less than average this early in the year, it is anticipated that continued drought will impact the availability of forage and water during the summer months for antelope in this unit group. All of Unit Group 012-014 falls in the "extreme drought" classification.

Population Status and Trend

In October 2019, 15 antelope were captured and fitted with satellite telemetry collars in Unit 013. The capture and radio 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 habitat for antelope.

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.

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

Report by: Jon Ewanyk and Chris Hampson

Survey Data

The survey in Unit 015 classified a total of 422 antelope with a composition ratio of 32 bucks:100 does:43 fawns for 2020. In 2019, a sample of 428 antelope was classified with a ratio of 28 bucks:100 does:39 fawns. The observed buck ratio was within the range of ratios observed the past few years (3-year average 32 bucks:100 does, range 28-36:100) indicating a stable number of bucks within this population.

Habitat

Habitat improvement projects, in cooperation with the BLM Eagle Lake and Applegate field offices, are ongoing within this unit and have included post-fire restoration, spring improvement and protection, juniper removal, and the herbicide treatments to combat the invasion of annual grasses such as cheatgrass and medusahead.

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

Population Status and Trend

Ten GPS radio 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. Hunt units in northwestern Nevada were chosen as one of 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.

For 2021, the tag quotas for this unit should be like the 2020 season due to the continued increasing trend in this population. Increased buck quality should also be observed as the population continues to thrive and more bucks reach mature age classes.

Units 021, 022: Virginia Mountains, Dogskin Mountains, Petersen Mountains, Seven Lakes Mountains, Fort Sage Mountains, Lake Range, Fox Range

Report by: Jon Ewanyk and Chris Hampson

Survey Data

Within this low-density hunt unit, a total of 31 antelope were classified during the 2020 survey and had a ratio of 32 bucks:100 does:32 fawns, although the small sample size should be considered when evaluating these ratios. In 2019, surveys in this hunt unit were canceled due to high winds and storm cells in the area. The adjacent hunt units that were surveyed in 2019 had observed fawn ratios of between 31 and 39 fawns:100 does.

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 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.

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 at higher elevations depending upon the amount of moisture received following the reseeding or planting efforts. 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 BLM Carson City District has applied herbicide treatments to some of these infested areas to prevent further spread.

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 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 and Sparks. Future human encroachment and urbanization into these wild areas will also have a long-term negative impact on most wildlife.

The increased fawn:doe ratios observed should result in a stable to upward trend for this population. Over recent years, the herd has increased in number due to strong recruitment and high survival of adult does.

Hunter success rates and buck quality remain strong in this unit group. Recommended quotas for hunting this antelope herd in 2021 are expected to be similar to the number allocated in 2020.

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

Report by: Ed Partee

Survey Data

Post-season aerial composition surveys were conducted in mid-September 2020. During these surveys weather conditions were extremely hot, dry, and very smokey from fires outside the area. Water and forage were very limited in most areas with the antelope scattered. The number of animals surveyed in 2020 was down considerably compared to 2019 and well below the 5-year average. Animals were spread out and many small groups were classified with the largest group consisting of 15 animals. (See results in Table 1).

Table 1. 2020 Post-season antelope composition for Humboldt County

Hunt Unit	Total	Bucks:100 Does: Fawns
031	22	25:100:58
032-035	176	25:100:39
051	38	50:100:40
2020 Totals	236	28:100:41
2019 Totals	1021	25:100:28

Habitat

As of March 1, 2021, the snowpack for these units is at 101%. Snowpack again came late this year with extremely dry conditions prior. The Bureau of Land Management, the Nevada Department of Wildlife and non-governmental organizations have continued to work on habitat improvement on past fire scars within these units. These areas have been drilled, hand planted, treated with herbicide, and aerial seeded. Spring and summer moisture will be needed to sustain favorable range conditions and provide positive results on seedings. With precipitation remaining near the long-term average, conditions should remain stable. Significant precipitation is the limiting factor for habitat recovery within the fire-scarred portions of these units. With the past fires, habitat type conversions have transitioned from shrub to grasses and in turn may have a positive effect on antelope populations.

Population Status and Trend

Over the last several years these units have shown a downward trend in the population. During the 2020 survey, animals were scattered, and all units had a drastic drop in the sample size. Observed fawn and buck ratios increased from last year, however with the small sample sizes this may disproportionally inform elements of herd dynamics in relation to the existing population. Conditions during this survey period were extremely hot and dry with dispersed and small group sizes. The Horns Shorter than Ears hunts have been successful in keeping these populations from increasing and staying within the habitat capabilities, however a reduction of doe harvest is recommended due to the decrease in population estimates. Unit 031 had a reduction in tag numbers from the 2019 season but has maintained the same success rates as the previous year. Units 032-034 have experienced an increase in success from last year with a slight decrease in the any legal weapon class. Unit 035 also decreased in the number of tags from 2019 and had slightly better success as well. Units 031, 032, and 034 were all below the statewide average success in the Horns Shorter than Ears hunt. Significant moisture is necessary to maintain the current

population and distribution of antelope throughout Humboldt County due to the amount of free water available.

Unit 033: Sheldon
Report by: Jon Ewanyk and Chris Hampson

Survey Data

The survey in Unit 033 classified a total of 617 antelope with a ratio of 28 bucks:100 does:32 fawns in 2020. In 2019, helicopter surveys were hampered by poor weather conditions. A sample of 236 antelope was classified with a ratio of 28 bucks:100 does:24 fawns during the abbreviated helicopter survey.

Fawn to doe ratios were higher in this unit than in the previous years, which were below maintenance levels. The 32 fawns:100 does ratio from the Sheldon survey was slightly higher than the 22 fawns:100 does ratio observed this year in Unit 011, located just to the west of the Sheldon.

This year's buck to doe ratio on the Sheldon was similar to 2019 survey results. The cold nighttime temperatures that occurred in September 2020 may have forced antelope to move off 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

Some late winter storms in March 2021 helped to increase precipitation levels, which were still well below average. As of mid-April 2021, precipitation totals were between 65% and 70% of average conditions for the Sheldon. With precipitation totals below average for the past 2 years, there is potential for a negative impact on habitat conditions and water availability in this unit.

For the past few years, US Fish and Wildlife Service personnel have been removing juniper which are invading important brush communities on 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 antelope and other wildlife need for survival.

Population Status and Trend

Lower recruitment rates over the past few years have resulted in a slight downward population trend for the Sheldon antelope herd; However, this year's recruitment levels appear to be trending upward. Maintenance level or stable recruitment values are believed range between 32-35 fawns:100 does for most antelope populations in Nevada.

Hunter success rates have remained consistent over the past few years. Success rates vary between the early and late season hunts on the Sheldon perhaps because of changes in herd distribution. 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.

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

Hunt Results

The Wildlife Commission approved a new Horns Longer than Ears Muzzleloader hunt for the 2021 hunting season open to residents only.

Survey Data

Ground composition surveys occurred over a 5-day period in late September 2020. A total of 301 antelope was classified as 35 bucks:100 does:19 fawns. Fawn ratios have been declining for the last 4 years. The 5-year mean ratios are 36 bucks:100 does:36 fawns, while the long-term averages are 39 bucks:100 does:42 fawns.

Habitat

Anticipated construction of a big game guzzler in the Kamma Mountains near Wildrose Spring did not occur in 2020 due to the Covid-19 pandemic and has been rescheduled for 2021. Feral horse and burro numbers within the unit group have been substantially over Bureau of Land Management's (BLM) Appropriate Management Levels (AML) for many years. Units 041, 042 consists of 5 BLM Herd Management Areas (HMAs) managed for AML of feral horses and burros, listed as Sahwave, Bluewing, Seven Trough, Lava Beds and Kamma. The remainder of the mountain ranges in Unit 041, 042 are BLM Herd Areas (HAs) managed for zero feral horse and burro use. In summer 2020, BLM conducted gathers within the unit group in the Sahwave HMA consisting of 1,653 feral horses and 220 burros. Additionally, a total of 218 burros were gathered in the Selenite HA. Table 1 reflects the most current BLM feral horse and burro estimates for Units 041, 042.

Table 1 lists total BLM horse and burro population estimates For Herd Management Areas (HMAs) & Herd Areas (HAs) in Units 041, 042. BLM Appropriate Management Levels (AML) are shown for comparison to what BLM's own objectives are. BLM gathers performed in 2020 are reflected in these values.

HMAs & HAs Pershing County	2020 Est. Horse Population	2020 Est. Burro Population	Horse AML low/high	Burro AML low/high
HMAs in Units 041, 042	2,280	1,157	333/417	55/90
HAs in Units 041,042	839	336	0	0
Total estimates Units 041, 042	**3,119**	**1,493**	**333/417**	**55/90**

Population Status and Trend

The 2021 population estimate for this herd is 1,400 animals and represents an 18% decline from the previous year's estimate representing a continued decline since the 2019 count of 2,000 antelope. Plausible reasons for this downward trend may be attributed to fawn ratios that have been declining over the last 4 years, and continued high numbers of feral horses and burros, which leads to increased competition on water sources. Also, high numbers of burros and feral horses around limited water sources 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, so possible increases in mountain lion predation may also be occurring. Past survey and field trip data, as well as sportsmen observations, indicate a decline in antelope sightings in all areas of Unit 041, 042.

Units 043 - 046: Eastern Pershing and Southern Humboldt Counties

Report by: Kyle Neill

Hunt Results

The Wildlife Commission approved a new Any Legal Weapon hunt for Horns Shorter than Ears, for residents only. Additionally, a new muzzleloader hunt for Horns Longer than Ears open to residents and non-residents was approved for the 2021 season.

Survey Data

Ground composition surveys were completed over a 4-day duration in mid to late February 2021. Weather delayed survey efforts and poor road conditions prohibited surveys in much of Unit 045. Biologists

classified 621 antelope resulting in the ratio of 42 bucks:100 does:36 fawns. The long-term averages are 47 bucks:100 does:38 fawns in this unit group. Management objectives for the 2020 hunting season, with approved quotas, appeared to be successful in lowering the buck ratio for this unit group.

Habitat

Units 043-046 habitat has high potential to continue herd expansion and population growth. Abundant water sources and ample forage exists in all units within this management area.

Population Status and Trend

The 2021 population estimate of 1,400 antelope is an approximate 18% increase from last year. Rapid growth of this herd over the last few years is thought to be due to immigration from Management Area's 15 and 18. Evidence of growth is demonstrated by increasing Any Legal Weapon hunter success rates, increased field observations and high survey samples. A Horns Shorter than Ears hunt was approved by the Wildlife Commission to manage this increasing herd and to provide additional hunting opportunity.

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 2020. One thousand and thirty-four antelope were observed yielding ratios of 36 bucks:100 does:60 fawns. The observed fawn ratio is 14 fawns:100 does higher than the previous 10-year average and the buck ratio is 5 bucks:100 does below.

Habitat

The 2019-2020 winter was mild. Below normal snowpack and warm temperatures did not fully recharge plant communities throughout much of the unit group following the 2019 hot, dry summer and fall. These dry conditions continued through 2020, followed by another mild winter. Higher elevation antelope summer ranges in the northern portions of the unit group, which received more snow, remained in more favorable condition when compared to the southern extent of the range. Fortunately, in 2019 and 2020 no major wildfires impacted habitats in the unit group. Since 2017, large fires have occurred across both summer and winter ranges important to migratory sub-herds of this population. In 2018, the 233,500-acre South Sugarloaf Fire burned the core of available summer range for antelope. Only small portions of this fire received restoration, and while the higher elevations are responding favorably with native and preferred plant communities, the lower elevations are being negatively impacted by invasive species. Habitat restoration efforts on past fires elsewhere in the unit group, primarily on winter range, are providing antelope with necessary cover and forage that would otherwise could be lacking. These habitat restoration efforts remain essential to the long-term viability of this population as well as the health of individual animals and range conditions.

Population Status and Trend

After a second consecutive mild winter, this antelope population experienced a year of comparatively high fawn recruitment, despite dry range conditions. The late winter and long wet spring in 2019 were hard on overwintering animals, but those same moist conditions, which lasted into early summer, produced favorable range conditions. The South Sugarloaf Fire converted shrub dominated communities to grasslands which provided an abundance of forage preferred by antelope. Plant communities not affected by fire also benefitted from the late spring moisture, which in turn was favorable for other sub-herds. By going into a mild winter in 2019-2020 in very good body condition, antelope experienced low over-winter mortality. Females likely remained in good condition into the spring parturition period in

2020; this likely explains the well above average fawn ratio. Antelope seem to have carried that body condition forward through this past dry summer, and once again probably entered the mild winter in 2020-2021 in comparatively good shape. As a result, overwinter mortality is expected to be low again.

The 2021 modeled buck ratio is slightly below management objective, which is due to the well below average fawn recruitment in 2019. With 2 consecutive years of above average fawn recruitment following 2019, the buck ration is expected to be back at objective in 2021. This drop in recruitment was experienced throughout the eastern region, and at a much greater magnitude for many other herds. To maintain this population within carrying capacity, the Nevada Department of Wildlife uses aggressive female harvest in combination with translocations and emergency hunts. As habitat restoration efforts come to fruition and the habitat carrying capacity increases, populations will have the potential to grow; however, with drought conditions and the current fire regime, it is important to control population growth. Successful rehabilitation of habitat and sustainable rangeland practices will determine the long-term outlook of this herd. Under the current management strategy, the population estimate has remained consistent for the last 3 years.

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 in this unit group was 27% in 2020. This represents a steady decline over the 10-year average. Please see the appendix for more detailed harvest results.

Survey Data

A ground survey was conducted in December 2020 resulting in the classification of 433 antelope yielding age and sex ratios of 23 bucks:100 does:26 fawns. The observed fawn ratio tied the record for the lowest since 2012 and the observed buck ratio was the lowest on record. The low fawn ratio is likely attributed to drought conditions and a lack of green up last spring. The low buck ratio is reflective of lower-than-average fawn recruitment for several years.

Habitat

Drought conditions persisted across much of this unit group in 2020 and range conditions were reflective of the high competition for limited resources by all classes of animals using the landscape.

Much of the unit group has been affected by fires. Seedings implemented post fire are benefiting antelope, as are mountain brush 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. About 1,100 horses were gathered off the Diamond Complex last year, but it is unknown if the herd management area is at or near the appropriate management level of 60 at this time.

Mining exploration is taking place at an accelerated rate throughout the Piñon Range. Opportunities to monitor antelope that summer on the Piñon Range have been pursued to gain a better understanding of movement corridors and habitat selection. Biologists hope to capture 15 adult doe antelope to be fitted with GPS collars this fall to monitor such movements.

Population Status and Trend

The population estimate is below that of previous years, primarily due to 3 years of 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, one of the largest fires 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 cooperation with the Nevada Department of Wildlife and private landowners. This includes over 10,000 acres treated with pre-emergent herbicide to eliminate invasive grasses before sprouting occurs, which allows for more successful post treatment seeding. To date, well over 100,000 acres have been seeded in Unit 066 with appropriate seed mixes benefitting both the landscape and wildlife. On top of landscape scale wildland rehabilitation, fuel breaks have been created within the Owyhee Desert to dramatically increase the effectiveness of wildland fire management. These fuel breaks are "strips" that run perpendicular to prevailing winds in which fine fuels such as plants perpetuate hot and fast fires are removed. They are then seeded with plant varieties that generally have a higher water content throughout the dry season, this can slow or potentially stop a fire from progressing further across the landscape, ideally preserving remaining critical intact habitats while protecting past rehabilitation efforts. These fuel breaks also benefit wildlife by providing desirable forage communities.

Below-average snowpack and total precipitation in the region in both 2019 and 2020 will likely have an undesirable effect on range productivity. While some portions of the desert have not yet recovered, field visits and aerial observations in other areas suggest some past restoration efforts and fuel breaks have been relatively successful, despite the drier conditions. There were no major fires during 2019 or 2020 in Unit 066, nevertheless the cumulative impacts of previous fires and current drought conditions 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.

With winter and habitat conditions in Unit 066 similar to that of surrounding units, it is reasonable to expect that fawn recruitment in 2019 was also lower than average. As a result of the reduced fawn recruitment in 2019, biologists expect the ratio of bucks 2-years-old and older to drop in 2021. Additionally, the effect of dry conditions in terms of forage quality and availability typically have a negative effect on horn growth for antelope. These 2 factors in combination will likely contribute to a lower than usual percentage of 15-inch horns or greater harvested in the short term and quota recommendations will reflect such.

Units 067, 068: Western Elko and Northern Lander and Eureka Counties
Report by: Travis Allen

Survey Data

Antelope surveys in Units 067-068 were conducted in combination with aerial spring deer surveys, and followed up in additional areas from the ground, during a one-week period in early March 2021. A sample of 695 antelope was observed yielding observed ratios of 33 bucks:100 does:40 fawns. The observed fawn to doe ratio is 3 fawns:100 does above the 10-year average. The observed buck ratio is similar to that of last year but is 5 bucks:100 does below the 10-year average.

Habitat

Consistent with the rest of the region, 2 consecutive mild winters and dry summers have likely had negative effects on the landscape; however, the lack of heavy snowpack did not concentrate wildlife on critical intact, or rehabilitated, portions of the winter range. The lack of snow makes significantly more habitat available and distributes antelope in smaller groups across winter and transition ranges. This allows rest for critical portions of the range needed to support thousands of animals during heavier winters. This will have a positive effect on the overall success of habitat restoration efforts and will be a long-term benefit for wildlife. Much of the winter and transition range for antelope, and deer, in the unit group has been significantly affected by wildfire. Aggressive restoration efforts have shown recent and continued success. With the lack of major wildfires in 2019 and 2020, focus can be maintained on rehabilitation within the Hot Pot, Rooster's Comb and Sheep Creek Fire boundaries along with creating additional fuel breaks to protect intact communities and previous restoration investments. With the increased frequency and severity of fires, current drought conditions, and threat of invasive plants ever present in the area, the recovery and protection efforts of vital sagebrush communities is particularly challenging to land managing agencies. Continued rehabilitation efforts, and appropriate management of this vegetative resource, including proper timing of livestock use, should be implemented to ensure adequate forage for wildlife during the critical winter months.

Population Status and Trend

The current population estimate for Units 067-068 remains relatively unchanged from 2020. Active harvest management and translocation efforts have maintained this population within the carrying capacity of compromised winter ranges. It is imperative to maintain this herd within this capacity to prevent catastrophic winter die-offs, to alleviate excessive competition with mule deer, with whom winter range is shared, and to minimize human-wildlife conflicts along the Interstate 80 corridor. Consistent with the rest of the region, the ratio of bucks 2-years-old and older saw a noticeable decrease in 2021 due to poor recruitment resulting from the harsh winter of 2019. The magnitude of this decrease is not as significant as in neighboring herds and remains within management objectives. Male and female harvest levels in 2020 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 2020 resulted in the classification of 283 antelope. The observed sex and age ratios were 23 bucks:100 does:45 fawns. The observed buck ratio was lower than the 2019 ratio of 33 bucks:100 does, and the fawn ratio was higher than the 2019 observed ratio of 31 fawns:100 does. Surveys in this unit group are typically conducted between the archery and Any Legal Weapon seasons due to the migration of antelope out of the northern end of Unit 072 and into Idaho during and after the Any Legal Weapon season.

Habitat

This unit group has been affected by wildfire regularly throughout the last 20 years, with about 700,000 total acres burned. Approximately half of the acres are crucial winter range in Idaho that the northern portion of population relies on and the other half is important summer range spread throughout the unit group. 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 shrub 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, 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 slightly above average this year in northeast Elko County. The above-normal snowpack followed by a wet spring resulted in 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

During 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 during summer and fall 2019, it is likely these were antelope that had migrated south from there. They were taken out of the model and this reduced the overall population.

The antelope population in this unit group is benefitting from the natural recovery of perennial grasses and forbs, as well as extensive seeding efforts in both Nevada and Idaho, in previously burned areas. Because of tremendous forage conditions during the summer followed by back-to-back mild winters, the overwinter survival of antelope is expected to be above average, and similar to last year. This is also contributing to increasing fawn ratios observed on survey and as a result an increase in the population.

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

Report by: Kari Huebner

Survey Data

Ground surveys conducted in September 2020 resulted in the classification of 305 antelope. The observed sex and age ratios were 61 bucks:100 does:36 fawns. The observed buck ratio was higher than the 2019 ratio of 45 bucks:100 does, and the observed fawn ratio was also higher than the 2019 ratio of 15 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 in 2018 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, 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 in this unit group were varied this year. There was high spring moisture in northeast Nevada, but conditions through the summer and fall were hot and dry contributing to poor forage quality. Mild conditions during the past 2 winters should contribute to increased fawn survival and allow this herd to increase.

Population Status and Trend

This antelope herd currently appears stable. Fawn production continues to be lower than in surrounding units, which is likely a result of much of the unit group, for example 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 497 antelope was classified from the ground in early 2021. The sample yielded sex and age ratios of 26 bucks:100 does:13 fawns. The observed fawn ratio was the lowest on record. The low fawn ratio is likely attributed to drought conditions and a lack of green up last spring in addition to competition with feral horses for limited resources.

Habitat

Drought conditions persisted across much of this unit group in 2020 and range conditions were reflective of the high competition for limited resources by all classes of animals using the landscape. In particular, Winterfat resources throughout much of Steptoe Valley in Unit 121 appeared to have had high utilization by cattle last winter.

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 horses in this unit group at or below appropriate management levels (AML). Currently, horse numbers far exceed AML.

Population Status and Trend

The early 2021 antelope survey resulted in the lowest observed fawn ratio on record for the second year in a row. 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 should be explored in future years to improve antelope production and recruitment values.

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 January 2021 during which 347 individuals were classified yielding sex and age ratios of 46 bucks:100 does:22 fawns. The observed fawn ratio was significantly lower than the previous 10-year mean of 31 fawns:100 does.

Habitat

The 2020-2021 winter has been mild in temperature and snowpack. As of March 1, 2021, the water basins within this unit group range between 75%-85% of average precipitation for water year to date (https://www.wcc.nrcs.usda.gov/). The below average winter, coupled with the preceding dry summer has led US Drought Monitor as of March 25, 2021 to classify the entirety of this unit group as exhibiting severe to exceptional drought conditions (https://droughtmonitor.unl.edu/). In the absence of exceptional spring and summer precipitation, summer range conditions as well as the productivity potential of this antelope herd are positioned to be in a compromised state.

During summer 2015, the Bureau of Land Management's Elko District Office signed the Vegetation Treatment Decision for the Ruby No. 6 Allotment. This document authorized up to 3,900 acres of sagebrush rehabilitation treatments within the Ruby No. 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 was planned for fall 2020, but due to unforeseen complications it was delayed until the coming fall. 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 hunting restrictions at the Ruby Lake National Wildlife Refuge. Preliminary conversations have taken place to initiate limited hunting on the refuge, but the recent Covid-19 pandemic-related distancing restrictions have put the necessary planning actions on hold.

The buck ratio has gradually been lowered over the past 5 seasons through above-average harvest rates and reduced recruitment rates. The lower buck ratio coupled with the third year in a row of below-average fawn recruitment will translate into lower quotas and a continued population contraction.

Units 111 – 114: Eastern White Pine County

Report by: Kody Menghini

Survey Data

A post-season ground survey was conducted from January to February 2021. A total of 823 antelope was classified, resulting in observed sex and age ratios of 28 bucks:100 does:20 fawns. In comparison, observed ratios of 34 bucks:100 does:14 fawns were obtained during the 2019-2020 survey. The observed fawn ratio of 20 fawns:100 does is below the 5-year mean of 27 fawns:100 does. This is the third consecutive year of below-average fawn recruitment in this unit group.

Habitat

National Weather Service precipitation data measured at the Ely Airport for the 2020 calendar year was 50% of normal. Spring 2019 was the wettest recorded in Ely, but dry conditions have persisted since May 2019. National Weather Service precipitation data measured at the Ely Airport from June 2019 to February 2021 was 57% of normal. Habitat quality has continued to deteriorate due to a 21-month period of below-normal precipitation. Substantial fall green-up has not been observed since 2015, prior to winter to benefit antelope. Habitat conditions are expected to continue to deteriorate in 2021 unless precipitation patterns improve.

In August 2020, the Flat Fire burned 2,616 acres in north Steptoe Valley. A significant portion of this fire burned over areas that had previously been masticated and reseeded by the Bureau of Land Management. The seedings were very productive and antelope use had been increasing prior to the fire. This fire will create a short-term loss for antelope.

Feral horse populations continue to increase in this unit group. Future habitat improvement projects and water development construction will help decrease competition between antelope and feral horses, though at current levels, feral horses are expected to continue to negatively impact native vegetation and ultimately reduce the carrying capacity of antelope habitat in this unit group.

Population Status and Trend

The lowest observed fawn ratios on record were observed in 2018 and 2019. The current years' fawn ratio is well below average, resulting in continued population decline. The effects of the last 3 years' poor recruitment rates will continue to manifest in future years with reduced age cohorts.

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

Report by: Daniel Sallee

Survey Data

No formal surveys were conducted in 2020 for this unit group. Incidental sightings, coupled with surveys from adjacent units indicate fawn to doe ratios were lower than average, likely due to severe drought conditions experienced over the past year. The most recent ground survey conducted in 2019 yielded a sample size of 113 animals composed of 33 bucks, 57 does, and 23 fawns.

Habitat

The area experienced severe drought conditions in 2020. Annual rainfall was 38% of the long-term average, most of which fell during late winter and early spring. No precipitation was received during the hottest period of the year of July through October 2020. Severe drought conditions limit available forage and reduce habitat quality. Continued pinyon and juniper encroachment into lower elevation areas reduces resource availability for antelope. Multiple pinyon and juniper removal projects have been conducted in recent years for the benefit of sage-grouse, which also results in habitat improvements for antelope. Nearly 4,000 additional acres of pinion and juniper were removed in 2020 that will benefit antelope, providing improved habitat quality in future years.

In 2019, the Bureau of Land Management (BLM) removed over 1,700 excess horses from the herd complex within Unit 231. In addition, BLM removed over 1,000 excess horses in February 2021 and treated an additional 50 mares with fertility control. Reduction of feral horse population and reduced fertility will reduce impacts to rangelands by limiting excess utilization of habitat and water resources.

Population Status and Trend

This antelope population has shown low recruitment over the past few years. Ongoing drought conditions are one factor contributing to low recruitment. Habitat improvement and water development projects, in addition to removal of feral horses, allow this population to remain relatively stable despite low recruitment. Predator removal projects implemented between 2016 and 2019 may have increased recruitment during this period. This year, extreme drought conditions led to low recruitment and caused a slight population reduction.

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

Report by: Clint Garrett

Survey Data

The 2020 post-season antelope ground survey was conducted in September and October 2020. Four days were spent classifying 382 antelope, yielding sex and age ratios of 18 bucks:100 does:9 fawns. The 2020 observed buck and fawn ratios are below those obtained during the 4-day 2019 survey when a sample of 407 antelope yielded sex and age ratios of 22 bucks:100 does:17 fawns. Surveys were conducted in Antelope Valley, Currant, Fish Creek Valley and Jakes Valley. The observed fawn ratio is well below the previous 3-year average of 24 and represents one of the lowest on record. 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 and juniper woodland, sagebrush valleys, and basins mixed with some cool season grasses and saltbush-greasewood vegetation. As of March 2021, data from the Western Regional Climate Center's Eureka site, at the northern end of the units, shows historically low precipitation for the calendar year. Trace to zero amounts of precipitation were recorded for February, June, July, and September 2020. The US Drought Monitor currently shows most of the units in this group in exceptional drought, except for Unit 145, which is in extreme drought. Soil moisture has been consistently below normal for the last 5 years and is currently at 17% saturation for eastern Nevada according to the NRCS's Nevada Water Supply Outlook Report for March 2021. **In** 2021, continuation of dry conditions may lead to increasingly limited water and forage availability in comparison to previous years.

Feral horses, which are currently above Appropriate Management Levels in the Pancake Herd Management Area in the northern portion of these units, compete with wildlife for forage and water, limiting the carrying capacity for many species. More pinyon and 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

This season's survey saw a noticeable decrease in the observed fawn to doe ratio and fewer total antelope observed when compared to 2018 and 2019. Three consecutive years of low fawn production have caused declines of this population, probably due to ongoing drought in the central part of the state, as well as rising feral horse numbers which has increased competition for limited resources on the rangeland. Please see the appendix for population estimate information.

Units 132-134, 245: Eastern Nye and Western Lincoln Counties
Report by: Clint Garrett

Survey Data

The 2020 post-season antelope ground survey was conducted for this unit group in November 2020. Four days were spent classifying 378 antelope, yielding sex and age ratios of 22 bucks:100 does:14 fawns. The 2020 observed buck and fawn ratios are below those obtained during the 4-day 2019 ground survey when classification of 364 antelope yielded sex and age ratios of 25 bucks:100 does:20 fawns. Surveys were conducted in Railroad Valley, Sand Springs Valley, Coal Valley, Garden Valley, Twin Springs, Lunar Lake, and the Rachel area. The 2020 observed fawn ratio is below the previous 5-year average of 26. 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 and juniper, sagebrush valleys and basins in the northern and central portions turn into Mohave Desert habitats dominated by 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 2021, data from the Western Regional Climate Center's Hiko site, at the southern end of the unit group, shows historically low precipitation for the calendar year. Very little precipitation fell in January, and from late spring through the summer and fall only 0.17" of precipitation was measured at this site. The US Drought Monitor currently shows all the units in this group to be in exceptional drought. Soil moisture for this year is below normal at 17% saturation for Units 132 and 134 in eastern Nevada, and at 10% for Unit 133 in southern Nevada according to the NRCS's Nevada Water Supply Outlook Report for March 2021. In 2021, continuation of dry conditions may lead to increasingly limited water and forage availability in comparison to previous years.

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 small portions of Units 132 and 245, totaling 704,000 acres. Five wilderness areas also occur within this unit group. 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

This season's survey saw a decrease in the observed fawn to doe ratio with slightly more antelope observed when compared to 2018 and 2019. This antelope herd is currently showing a decline due to reduced fawn production, probably due to ongoing drought in the central part of the state and limited forage resources on the rangeland. Please see the appendix for population estimate information.

Units 141, 143, 151 – 156: Lander and Northern Eureka Counties
Report by: Sarah Hale

Survey Data

Post-season ground surveys for antelope were conducted in October 2020 and January-February 2021. 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 710 antelope was classified, yielding age and sex ratios of 66 bucks:100 does:67 fawns. The observed fawn ratio was 2.5x higher than that of 2019 and was noticeably above the previous 5-year average of 41 fawns:100 does.

Habitat

Lander and Eureka counties were in a drought state throughout most of the year, but despite the dry conditions, there were no large-scale wildfires in Areas 14 or 15 in 2020. Since 1999, over 450,000 acres have been burned by wildfire in these areas. Recovery of the landscape has varied, with upper elevations experiencing the return of a mixture of brush, native grasses, and forbs, but lower elevations becoming dominated by exotic annuals such as cheatgrass and mustard. Rehabilitation efforts have taken place in areas identified as crucial wintering habitat for wildlife and have resulted in successful establishment of crested wheatgrass and forage kochia on the landscape. Forage kochia has become an important winter forage species for antelope and should be managed as such.

With successful rehabilitation of burned areas and maturation of reestablished plant communities, antelope habitat has improved across much of Lander and Eureka Counties over the past 20+ years.

Population Status and Trend

The timing and amount of precipitation appears to influence the Area 14 and 15 antelope herd's growth and expansion. The high observed fawn ratio this year was likely a result of the favorable conditions of 2019. Greater-than-average precipitation contributed to favorable range conditions, which allowed antelope to enter the mild winter in 2019-2020 in good body condition and most likely contributed to increased fawn production and recruitment during 2020.

The Area 14-15 antelope herd has steadily increased over time from a population of approximately 100 individuals in the early 1980's to a population nearing 4,000 in 2021. Female harvest has been an effective method for maintaining the population's growth at a sustainable level and should continue to be used.

Units 161 – 162: Northern Nye, Southeastern Lander, and Southwestern Eureka Counties

Report by: Hunter Burkett

Survey Data

Antelope ground surveys were conducted in Units 161 and 162 over 4 days in late September and early October 2020. Survey efforts yielded a sample of 116 antelope, which were classified as 24 bucks, 71 does, and 21 fawns. In comparison, the 2019 survey yielded a sample of 132 antelope which were classified as 34 bucks, 79 does, and 19 fawns. Antelope within these units are known to immigrate and emigrate from adjacent units. These movements are known and are reflected in the population modeling and quota setting process.

Habitat

From January 2020 to January 2021, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 39% of the 30-year average. Spring precipitation in March, April, and May 2020, resulted in 66% of the 2020-21 precipitation total. The single SNOTEL site located in central Nevada measured snowpack levels at approximately 73% of average in February 2020. Precipitation inequities from the northern end of the unit group compared to the southern portion reflect habitat quality. Snowpack in the northern end of the unit group may offer higher quality forage for antelope. If drought conditions persist, habitat conditions will continue to deteriorate. As a result of degraded habitat conditions related to drought, depressed fawn recruitment has been observed during recent surveys. With below-average precipitation, forage quantity and quality will continue to be impacted.

Multiple US Forest Service pinyon and juniper removal projects have been conducted in Little Fish Lake Valley within Unit 162. In 2017, 717 acres of pinyon and juniper were removed near Clear Creek. In 2018, 500 acres near Horse Canyon and approximately 2,400 acres south of Danville Canyon had pinyon and

juniper removed via lop and scatter techniques. During summer 2019, 217 acres of pinyon and 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 pinyon and juniper removal 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

With depressed fawn recruitment in 2020, this population is estimated to be slightly decreasing. Fawn ratios in areas 161-162 do not reflect depressed ratios of adjacent units, primarily due to the use of agricultural lands.

Units 171 – 173: Northwestern Nye and Southern Lander Counties

Report by: Hunter Burkett

Survey Data

Antelope composition surveys were conducted over a 4-day period in Unit group 171-173 in late September and early October 2020. The survey yielded a sample of 306 antelope, which were classified as 50 bucks, 205 does, and 51 fawns. In comparison, the 2019 survey yielded a sample of 111 antelope which were classified as 20 bucks, 73 does, and 18 fawns.

Habitat

According to Community Environmental Monitoring and Planning (CEMP) precipitation data during the January 2020 to January 2021 period, central Nevada received 39% of the 30-year average. Spring precipitation in March, April, and May 2020 resulted in 66% of the total 2020-21 precipitation. The single SNOTEL site located in central Nevada measured snowpack levels at approximately 73% of average in February 2020. Precipitation is typically greater on the northern end of the unit group, compared to the southern portion of the unit group, which causes habitat conditions to deteriorate along a latitudinal gradient. Decreased precipitation and impacts from feral equids have resulted in degraded habitat conditions. Fawn recruitment observed on survey is a byproduct of these impacts. With below-average precipitation for the 2020-21 winter, forage quantity and quality will continue to be impacted. The snowpack in the northern end of the unit group may offer greater forage for antelope in higher elevations.

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

Population Status and Trend

Similar to what is occurring in many other central Nevada management units, an increase in antelope using agricultural land is being seen in Management Area 17. These agricultural areas are providing a reprieve from drought conditions.

This population has large immigration and emigration between adjacent unit groups. The population modeling and quota recommendation process reflects these movements.

Many indications in recent years have pointed to an underestimation of this population. Adjustments to the population model were made this year based on survey sample size and harvest which increased the estimated population size. After these alterations were made, recruitment data predicts a declining trend for this population.

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 2020. There were 212 antelope classified as 46 bucks, 131 does, and 35 fawns yielding sex and age ratios of 35 bucks:100 does:27 fawns.

Habitat

During summer 2018, a pipe rail fence was constructed in Unit 183 around an important antelope water source. Previously, a dilapidated buck and pole fence lay on the ground and provided no protection to the spring source from overuse by feral horses. The spring was developed with a stainless-steel drinker which overflows excess water to horses and livestock 500 feet below. These types of projects protect the integrity of the spring source while giving all animals adequate space.

In December 2020, The Nevada Department of Wildlife seeded 1,400 acres of BLM land on the Draw Fire. The area was previously treated with an herbicide for the control of annual grasses, then select species including forage kochia, 'Snowstorm' kochia, blue flax and sagebrush were broadcast from a helicopter. A subsequent follow up of the seeding site revealed some limited success.

During winter 2020 the Bureau of Land Management conducted a horse removal project on the Desatoya HMA located in Unit 184 where 450 horses were removed. Feral horses within the Desatoya HMA compete heavily for limited forage and water resources and have a negative effect on the habitat and antelope population.

The Crown Peak water development was upgraded in spring 2019, increasing the apron size as well as increasing the storage capacity to 12,000 gallons. This action will provide a much-needed dependable water source for antelope in the Lauderback Hills. Additionally, in 2019 a new water development was installed on the north face of the Cocoon Mountains which has already experienced antelope use on it.

Population Status and Trend

The 2020 observed fawn ratio was significantly lower than previous year's 38 fawns:100 does and shows a decreasing population growth trend. The high productivity experienced in the recent past will provide ample opportunity for future harvest. Hunter success for the general rifle hunt was 95% during the 2020 season and suggests a healthy increasing herd.

Units 202, 204: Lyon and Mineral Counties

Report by: Jason Salisbury

Survey

The most recent survey occurred in early February 2021 and resulted in the classification of 74 antelope. The resulting sex and age ratios for the sample were 44 bucks:100 does:28 fawns.

Habitat

The Baldwin Canyon guzzler projects will likely be replaced in 2021. The 2 developments will be complete rebuilds and will each provide 10,000 gallons of water to the antelope herd. Previous barbwire fence designs have excluded antelope from using these water sources.

Four thousand acres of pinyon and juniper were removed along the western slope of the Wassuk Mountains in 2019 that will improve habitat conditions for antelope. Continuing projects like this will increase the summer range available to antelope by allowing them to occupy more suitable habitat throughout the year.

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 appears to be recovering well and should provide more suitable areas for the antelope to occupy.

Population Status and Trend

The 2020 fawn ratio suggests a static to decreasing population trend. Consecutive years of low fawn production have reduced the herd to slightly above 100 animals. Hunter success for the general rifle hunt was 44% with 0% of the bucks being 15 inch or greater, suggesting difficult hunting on this interstate herd.

Units 203, 291: Lyon, Douglas Counties

Report by: Jason Salisbury

Survey Data

The latest survey occurred October 2020 and resulted in 49 antelope being classified. The resulting sex and age ratios for the sample were 78 bucks:100 does:35 fawns.

Habitat

Feral horse populations continue to plague this unit group. A gather operation in 2019 resulted in 354 horses being removed from a target goal of 500 horses. Feral horses within the Pine Nut HMA compete heavily for forage and water resulting negative impacts on habitat and the antelope population.

Pinyon and juniper removal within the Pine Nut Mountains has enhanced and protect important sage-grouse habitat while improving travel corridors and foraging opportunities for antelope. Future projects that target the removal of trees will continue to enhance habitat for this antelope herd.

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

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 33% of the bucks being 15-inch or greater.

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 2020. The survey yielded a sample of 93 antelope, which were classified as 15 bucks, 63 does, and 15 fawns.

Habitat

Small subgroups of antelope occupy a large geographic area in and around limited water sources. Interspecific competition exists between horses and antelope where horses deplete forage quantity as well as quality. Water developments within this unit provide the needed water availability and resources that many perennial water sources do not provide.

There are 7 new water developments that have been built in the Candalaria Hills, Miller Mountain, Garfield Hills, and Eastside Mine area. These new water sources will be vital to establishing new and expanding populations of antelope in a very water-limited resource area.

Population Status and Trend

The low fawn ratio is undoubtedly indictive of the current drought cycle. The hope is for improving conditions such as increased moisture receipts for spring and summer 2021. This population of antelope is currently showing a declining population trend. Hunter success for the general rifle hunt was 93% with 31% of the bucks being 15 inch or greater.

Units 211 – 213: Esmeralda County

Report by: Hunter Burkett

Survey Data

No post-season antelope composition survey was conducted in Units 211-213 in 2020. In comparison, the most recent fall survey conducted in 2019 yielded a sample of 57 antelope, which were classified as 9 bucks, 38 does, and 10 fawns.

Habitat

Area 21 has limited habitat availability for antelope. Most of the area resides in a transitional habitat from the Great Basin to the Mojave Desert. During periods of favorable climatic conditions, antelope distribution tends to expand in Area 21, while during dry periods, these areas contract. Drought years within the last decade, coupled with competition from feral equids in many areas, continue to effect habitat conditions throughout Area 21.

Central Nevada received 39% of the 30-year average of precipitation based off the data collected from the Community Environmental Monitoring and Planning (CEMP). Spring precipitation for March through May, resulted in 66% of the total 2020-2021 precipitation. Due to drought, range conditions are predicted to become less palatable and nutritious to wildlife and antelope.

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 have 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 the Monte Cristo Range in northern Esmeralda County, while the other typically inhabits the region between the towns of Goldfield and Silver Peak, Nevada. Antelope are distributed in smaller numbers throughout other areas of the county.

Due to depressed fawn recruitment in 2019, and low recruitment numbers in adjacent units in 2020, this population is considered stable or slightly decreasing.

Units 221 – 223, 241: Lincoln and Southern White Pine Counties
Report by: Daniel Sallee

Survey Data

No formal surveys were conducted in 2020 for this unit group. Surveys from adjacent units indicate fawn to doe ratios were lower than historic averages. In addition, incidental sightings of antelope in Units 221-223, 241 indicate fawn to doe ratios were below average. The last ground survey was conducted in 2019 and yielded a sample size of 92 animals composed of 25 bucks, 46 does, and 21 fawns.

Habitat

Habitat conditions were poor during 2020 due to severe drought conditions. Annual precipitation was 38% of the long-term average. No precipitation was received during July-October when temperatures were highest. Forage was limited and water resources were depleted in many areas due to drought conditions. The Bureau of Land Management (BLM) removed 256 feral horses from the Silver King herd management area and treated an additional 25 mares with fertility control. Removal of feral horses will reduce pressure on forage and water resources. Therefore, improving habitat for antelope in Units 221-223 in the future. Pinyon and juniper encroachment into lower elevations continues to reduce habitat quality and quantity for antelope. Multiple pinyon and juniper removal projects have been completed in south Steptoe Valley and northern portions of Cave Valley, which will improve habitat conditions for antelope.

Population Status and Trend

The antelope population in Units 221-223, 241 underwent a modest decrease in population size this year. The decrease was induced by poor recruitment of fawns due to severe drought conditions. Habitat conditions deteriorated due to minimal precipitation throughout the year. Removal of feral horses from the area may offset pressures on forage resources and allow for improved habitat conditions in the future.

Unit 251: Central Nye County
Report by: Hunter Burkett

Survey Data

A post-season antelope survey was conducted in Unit 251 over a 2-day period in September 2020. The survey yielded a sample of 255 antelope, which were classified as 71 bucks, 152 does, and 32 fawns. In comparison, the 2019 survey yielded a sample of 280 antelope which were classified as 46 bucks, 169 does, and 65 fawns.

Habitat

Antelope habitats in Unit 251 have been affected by competition with feral equids and regularly occurring drought periods. Natural water sources are over-utilized by feral species. These natural water sources are vital for antelope during long periods of drought currently being experienced. Feral equid 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.

From January 2020 to January 2021, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 39% of the 30-year average. Spring precipitation in March, April, and May 2020 resulted in 66% of the total 2020-21 precipitation. The single SNOTEL site located in central Nevada measured snowpack levels at approximately 73% of average in February 2020. Habitat conditions will continue to deteriorate without adequate moisture. As a result of degraded habitat conditions, there is a continued depressed fawn recruitment observed on survey. With below-average precipitation, forage quantity and quality will continue to be impacted.

Population Status and Trend

The Unit 251 antelope population is currently relatively stable to slightly decreasing due to low fawn recruitment. These antelope use agricultural fields during dry periods. This has helped ease the decrease in fawn-to-doe ratios that are seen in adjacent units. The appeal of agricultural lands is drawing more animals to the area from the Nevada Test and Training Range. These animals are, at times, not available for harvest due to access restrictions. These movements are considered in the population modeling and quota recommendation process.

ROCKY MOUNTAIN ELK

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

Survey Data

Post-season helicopter surveys were conducted in March 2021 in conjunction with mule deer flights. During these flights 40 elk were classified yielding a ratio of 14 bulls:100 cows:76 claves. Areas surveyed included the Osgood Mountains, Hot Springs Range, the Fairbanks Range, and the Santa Rosa Range. The bulk of elk in the unit are typically observed in these mountain ranges, however, only one group consisting of 3 bulls was located in the Fairbanks Range. Total elk observed in 2021 is consistent with the 5-year average. Cumulative bull ratios have dropped significantly over the last 5 years, while calf ratios have remained relatively constant. With the small sample sizes encountered in Unit 051, ratios should be interpreted with caution because they can result in inaccurate estimates of the sex and age composition of the elk herd.

Habitat

This unit is slowly recovering after the major destruction of winter range caused by the Martin Fire in 2018. With substantial portions of transitional areas being burned, major elk movements have not been observed within the unit. The summer range continues to be intact and in excellent condition and should remain productive if more spring and summer precipitation is received. Elk are beginning to use wintering areas receiving extensive rehabilitation work. At this time, no major movements have been observed between Unit 051and neighboring areas in Management Area 6. Increased use by elk is expected as the habitat recovers, and habitat improvements become established.

Population Status and Trend

The population estimate over the last 3 years has remained stable. Winter conditions were slightly better than 2019 with improved snowpack above 5,000-foot elevation. Elk appear to be using elevational transitions throughout the course of the year, summering in high elevations and moving to lower elevations during the winter. Post-fire rehabilitation efforts continue in areas affected by the Martin Fire, which will help support this population in the future. Most of these efforts take place on winter range. The objective is to maintain this herd below 200 animals. Currently, no measurable growth has been detected in this population.

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

Hunt Results

There were two recent changes to hunt seasons within the unit group. The late antlerless elk hunt was shortened by 4 days to January 1. This season abbreviation aligns with the goals and dates of the shed antler season closure to give wildlife rest during winter months. The second change in the unit group was the addition of a nonresident antlerless archery season. Antlered elk harvest success was nearly 60% for both any legal weapon seasons. Antlerless harvest was similar to 2019, with a slight decrease in late season success. Overall spike hunt success was consistent with 2019; however, success during the late season in 2020 was 40% higher than success during the early season.

Survey Data

Two thousand two hundred and forty-three elk were classified during an aerial survey in early February 2021. The observed sex and age ratios were 30 bulls:100 cows:39 calves. The observed calf ratio was 6

points below the previous 10-year average and the bull ratio was 7 points below the previous 10-year average. Elk are often concentrated near the Bruneau River drainage during their seasonal migration but had not moved across the Nevada border at the time surveys were conducted. The lack of elk in this area decreased the likelihood of observing bulls on survey along the migration route and likely contributed to the low observed bull ratio. Additionally, the sample of elk near Merritt Mountain migrating north onto the JP Desert also lacked bull groups and it is again likely that bulls wintered closer to summer range at higher elevations, which could not be surveyed due to weather and time constraints.

Habitat

In contrast to most years, the lack of snow in Nevada during the 2020-2021 winter did not force elk northward onto traditional winter ranges in Idaho. While many north facing slopes had 100% snow cover, elk had access to snow-free south facing slopes much closer to summer range throughout winter. Based on radio telemetry data, collected through the end of March, only 1 radio collared elk spent time in Idaho. In 2018, two large fires burned north of the Nevada border within the winter range of the herd. The Cat and Bruneau Fires combined for a total of 88,300 acres. Much of the land administered by the Bureau of Land Management was rehabbed and seedings appear to be responding well. Conditions on summer and winter range in Nevada were drier than desired in 2020-2021, with 2020 being the second consecutive drought year. In Nevada, elk seem to be more susceptible to impacts from severe drought than harsh winters. If the current trend of dry conditions continues, elk populations may be negatively impacted.

Population Status and Trend

Elk movement dynamics in this population are complex. While the unit group 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 portion of elk wintering in the Bruneau River drainage and on the Diamond A Desert, also summer in Units 072, 073, and 075. Due to the temporal and spatial distribution across multiple administrative boundaries, the published population estimate of the Units 061, 071 elk herd represents only a portion of the total combined estimate of the larger population. Ongoing collaboration among Idaho Department of Fish and Game, Nevada Department of Wildlife, and the Duck Valley Indian Reservation continues to improve both the understanding of elk distribution and elk management among Tribal and state agencies. The population continues to grow slowly. The current management objective, based on the 2017 resource modeling report, is to maintain 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

Hunt Results

The late season antlerless hunt in Units 062, 064, 066-068 has been discontinued, as this tool is no longer necessary to meet management objectives for this herd. Additionally, the 3-way season structure for spike hunts, that is early, mid, and late seasons, has been replaced by an early and late split season. A nonresident antlerless archery season was added for the 2021-2022 hunting season.

Survey Data

Aerial surveys were conducted in January 2021 resulting in the classification of 492 elk, yielding ratios of 26 bulls:100 cows:39 calves. Sample size increased over that obtained in 2020 and can be attributed to the mixing of Idaho and Nevada elk herds on winter range near the border. A combination of radio collar data and coordination with Idaho Department of Fish and Game has increased the understanding

of interstate movements by elk. The elk population in Units 062, 064, 066-068 is modeled to represent elk residing primarily in Nevada, and that are available for harvest by Nevada hunters.

Habitat

During 2018, the Martin and South Sugarloaf Fires burned a combined 669,000 acres. These fires affected large portions of seasonal habitats used by elk, resulting in a patchwork of previous burns and suitable habitat throughout the unit group. In the short-term, the lack of cover on summer range following the South Sugarloaf Fire will negatively affect suitability of elk habitat. Additionally, range conditions in the region have been affected by 2 consecutive years of drought. Elk in Nevada often respond more negatively to drought than to harsh winter conditions. We are concerned that if drought conditions continue, detrimental effects could be experienced by this population. In contrast, fire can provide long-term improvements for elk habitat. The flush of perennial grasses and forbs following fires on important summer range habitats are beneficial to grazing species such as elk, however this herd was not limited by summer range prior to the recent fires. The benefits elk experience from habitat conversion do not outweigh the negative effects these fires have had on deer, which rely heavily on brush communities lost in the fire. While perennial grasses may recover, it is likely that conversion to less desirable annual invasive grasses will occur across lower elevations and warmer south facing slopes. Very little habitat restoration occurred on summer ranges managed by the US Forest Service. Consequently, a successful natural recovery will rely on the native seed bank within the soil and adequate seasonal precipitation.

Population Status and Trend

The population in this unit group is comprised of two sub-herds with differing migration strategies during winter. Generally, one sub-herd migrates west along the southern border of the Owyhee Desert while the other migrates northwest into the YP Desert. These elk have summer ranges that overlap in the Bull Run Mountains and North Independence Range. While maintaining this herd near the currently mandated population objective of 500 adults, fewer elk occur within the unit group when compared to historical trends, and densities 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 on private and tribal lands. While it will be challenging, harvest strategies are being explored which would focus more hunting pressure on the northern, interstate sub-herd, allowing the southern sub-herd to increase. Currently the modeled population estimate is about 100 individuals below population objective and the herd is being managed for slow growth towards objective. While small groups of elk can be found throughout the unit group, many previously used southern ranges are largely unoccupied.

Unit 065: Piñon Range, Cedar Ridge Area; Southwestern Elko and Eastern Eureka Counties

Report by: Matthew Jeffress

Survey Data

No elk were observed in this unit during the 2020 field season. Two radio collars deployed on cow elk were functional in early spring 2020. One elk perished from the same mysterious ailment that has affected survival in this unit for several years, while the other collar dropped as programmed.

Both cow hunters were unsuccessful. A single bull hunter was successful but noted few elk encountered, that is less than 10 bulls and 10 cows, and reported 13 days of scouting and hunting to locate a mature bull for harvest.

Habitat

About 6,000 acres of mixed pinyon and juniper woodlands burned on the northeast side of Cedar Ridge during summer 2020. The area affected by the Cedar Fire has been used by the Unit 065 elk herd regularly

for the past decade. The Bureau of Land Management and the Nevada Department of Wildlife seeded much of the burn scar with desirable grasses, shrubs, and subshrubs this past winter. If adequate moisture allows the seeded species to establish, the rehab efforts will greatly benefit elk.

Mineral 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

The mystery ailment affecting elk north of Interstate-80 in Units 062 and 067 is also occurring in Unit 065 each spring and early summer. In May 2020, 1 of 2 collared cow elk perished on the northeast side of Cedar Ridge. A field necropsy was conducted and revealed no obvious sign of death, that is no trauma, predation, or poaching. For the past 6 years, the Nevada Department of Wildlife has maintained collars on cow elk in Unit 065 and has documented mortalities each spring. Along with documented mortalities among female elk, a bull elk perished from the same mystery ailment in June 2020. NDOW law enforcement were requested to investigate a potential poaching case but determined the bull succumbed to the same mystery ailment.

In addition to substantial mortality described above, elk are known to move between Units 065 and 102. All of Unit 102 is designated as an elk restricted zone and, therefore, harvest is managed to minimize the number of elk in that unit. Depredation hunts in Unit 102 run from August 1st - January 1st. We believe some elk moving between Cedar Ridge and the Ruby Mountains are harvested each year as part of the depredation hunt, further limiting the growth potential of the elk herd in Unit 065.

As a result of the above listed factors and potentially others not fully understood at this time, the Unit 065 elk herd has dwindled to a fraction of historical highs. Beginning in 2021, the Nevada Department of Wildlife has closed Unit 065 to elk hunting for the foreseeable future.

Units 072, 073, 074, 075: Jarbidge and Snake Mountains; Northern Elko County

Report by: Kari Huebner

Survey Data

Surveys conducted in February 2020 resulted in the classification of 627 elk with observed sex and age ratios of 66 bulls:100 cows:61 calves. The observed bull ratio was considerably lower than the 2020 bull ratio of 118 bulls:100 cows and the observed calf ratio was higher than the 2020 ratio of 36 calves:100 cows.

Habitat

Although the previous two winters were mild in many parts of Elko County, the Jarbidge and Snake Mountains received near normal snowpack. These moisture receipts should provide an abundance of forbs and grasses in the spring and early summer. The drought-stricken sagebrush should benefit from the deep soil moisture, as well.

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 aspen productivity in sampled stands. A similar pattern was documented in stands of mountain mahogany. Aspen and mountain mahogany stands in areas affected by wildfire 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 is 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 073and 100 elk (±10%) in Unit 075. Cumulatively, the population objective for elk in Units 072, 073, 074, 075 is 1,520 adult elk. The herd is currently below population objective and tag quotas are expected to allow growth of this elk population.

In recent years, data from elk fitted with radio collars have been used to differentiate elk from the Jarbidge and Bruneau herds sharing a wintering area on the Diamond A Desert. Additional radio telemetry data from winter range on the Inside Desert have indicated some elk reside solely in Idaho. Movement data is incorporated into the population model to more accurately estimate time spent in Units 072, 073, 074. Results indicate about 550 elk from this metapopulation reside either outside of Nevada or in surrounding unit groups and are not included in the population estimate for Units 072, 073, 074, and 075.

Due to the large amount of private land in Unit 075, comprising about 50% of the total area, the 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 frequent elk movements between Unit 075 and surrounding units, we model Units 072,073,074 and Unit 075 as a single, large population. We believe it is important, however, to continue to manage harvest in Unit 075 independently to maintain the population at the objective of 100 adult elk (±10%). To accomplish this management goal, 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 were not conducted in this unit group during the 2020-2021 survey period.

Habitat

Nearly 240,000 acres burned in this unit group during summer 2007. Since 2007, wildfire has been a regular occurrence on the landscape, affecting several thousand additional acres. 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 and 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 is approved as proposed, the revised 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 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. Fifteen landowners qualified for 39 elk incentive tags by allowing elk use

on their private rangeland during 2020. This is down from 45 incentive tags issued in 2019. The reduction in elk incentive tags issued in this unit group does not directly reflect the amount of time elk spend on private lands. Instead, it is reflective of fewer elk in the unit group and the resulting decrease of antlered elk tags.

Since 2017, radio collars have been deployed on elk wintering near Deadline Ridge in Unit 081. Movement data indicate these migratory elk spend summers in Idaho and are not available to Nevada hunters during the August through October antlerless elk seasons. Ongoing analysis and understanding of movements help to estimate 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 2021.

Unit 078, 105 – 107, 109: Spruce Mountain; Elko County

Report by: Scott Roberts

Hunt Results

A record number of tags were issued for this unit group during the 2020 hunting season, but the total harvest of 61 elk was a 14% drop from the 2019 season. Please see the appendix for more detailed harvest results.

Survey Data

An aerial survey was conducted in January 2021, where 478 elk were classified, yielded sex and age ratios of 49 bulls:100 cows:42 calves. The calf ratio is slightly higher than the previous 10-year average of 40 calves:100 cows.

Habitat

Populations of feral horses, well above Appropriate Management Levels (AML), continue to affect rangeland health and diversity. The relative aridness of this unit group makes the limited perennial springs and fragile riparian vegetation very susceptible to overuse by horses. This unit group covers all or part of 4 Herd Management Areas (HMA), and according to 2020 population estimates published by the Bureau of Land Management (BLM), these 4 HMAs ranged from 368%-2,132% of AML (www.blm.gov/programs/wild-horse-and-burro/).

Work on the Spruce Mountain Restoration Project continues with about 9,300 acres of habitat treatments completed since 2013. These treatments have been a combination of hand-thinning, mastication, and chaining of pinyon and juniper woodlands, weed abatement, and seeding. Up to 700 additional acres near Spruce Mountain are scheduled to be treated within the next 3 years. The 2020-2021 work season saw 1,100 acres seeded with a mix of grasses and shrubs, and then mechanically treated with masticators. The project was completed by a partnership with the Nevada Department of Wildlife and the BLM's Elko District office. These restoration activities have the potential to benefit elk, deer, sage-grouse, and many other wildlife species.

Population Status and Trend

In February 2021, a monitoring effort was initiated with 8 radio collars deployed on adult cow elk within this unit group. Monitoring objectives of the project include delineating seasonal use of the elk herd, documenting private land use, and informing future hunt strategies to manage this herd at its designated population objective. A secondary objective is to document elk use within areas of recent rehabilitation

treatments and compare current use to movement data gathered prior to the Spruce Mountain Restoration Project.

The current population estimate is higher than the previous year, which is a direct result of the decreased harvest success and above average recruitment. Elk use in this unit group is increasing on private property, specifically the Big Springs Ranch in Unit 078 and private properties in Unit 107. Management of this elk herd at population objective is becoming increasingly difficult as more elk seek refuge on private land during the hunting season. The 2021 hunting season will be the first to offer a late season antlerless hunt in this unit group and will attempt to target elk that typically leave private land sanctuaries during the winter months.

Unit 091: Pilot Range; Eastern Elko County

Report by: Kari Huebner

Survey Data

Surveys were not conducted in 2020.

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.

The Natural Resources Conservation Services facilitated the removal of several thousand acres of juniper occurring on private land on the west side of Pilot Mountain. Native grasses should respond favorably to the increase in space, sunlight, and water. Elk are expected to benefit from the increase in forage quality and quantity.

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.

An archery season was approved for antlered elk in Unit 091 beginning for the 2021 hunting season. Antlered elk tags will be allocated between the archery and the any legal weapon hunts. For the first time, two elk incentive tags will be allocated in the unit. An early and late antlerless season will again be offered during the 2021 hunting season.

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, 736 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 2020 hunting season, antlered quotas remained at 100 tags split between 2 seasons with a cumulative hunt success rate of 42%. Though this hunt is a strategic management action, it still resulted in 55% of the harvested bulls being 6 points and 34% of the total bulls had main beams of 50" or better. The antlerless quota was 150 tags for the single 6-month season, which had an 8% hunt success rate.

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 annual post-season composition survey for elk in Management Area 11 was combined with spring deer surveys in February and March 2021. A sample of 1,478 elk was collected yielding sex and age ratios of 49 bulls:100 cows:39 calves. Sex and age ratios have averaged 33 bulls:100 cows:36 calves over the previous 5 years.

Habitat

National Weather Service precipitation data measured at the Ely Airport for the 2020 calendar year was 50% of normal. Spring 2019 was the wettest recorded in Ely, but dry conditions have persisted since June 2019. National Weather Service precipitation data measured at the Ely Airport from June 2019 to February 2021 was 57% of normal. The Berry Creek SNOTEL site recorded 82% of the long-term average snowpack during the 2020-2021 winter (accessed March 29, 2021, www.nrcs.usda.gov). At the time of this writing, spring conditions have continued to be warm and dry. If precipitation patterns do not improve, prolonged drought will continue to deteriorate habitat conditions.

The long-term habitat potential for elk is slowly declining due to the encroachment of pinyon and juniper trees into mountain brush and grassland habitats. In some areas, feral horse numbers well above Appropriate Management Levels are further degrading shared rangeland. Limited construction of subdivisions and sale of private parcels in quality habitat is also occurring. Nevertheless, elk are benefiting from thousands of acres of pinyon and 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 water developments and the rebuild of existing water developments in this unit group. One new water development was constructed in fall 2018 in Unit 112 in the Antelope Range. These developments will provide reliable water sources and reduce competition with feral horses for many species of wildlife.

Population Status and Trend

Historically, there was a great deal of elk movement between Area 11 and Area 22, but that movement 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 is now modeled separately. Bull quotas have been split since 2012. This change will allow the Nevada Department of Wildlife to carry out management actions more specific to each area.

In February 2021, 13 radio collars were deployed on elk in Area 11. Five cows and 3 bulls were radio collared in Unit 113 to better understand elk use and movements among Nevada, Utah, and the Goshute Indian Reservation. In Unit 111, 5 cow elk were collared in Duck Creek Basin to better understand elk use and movements around urban development, potential energy developments, and habitat improvement projects.

Area 11 experienced above-average calf recruitment in 2021, but current harvest prescriptions are expected to decrease this population towards population objective. The current population estimate is showing a slight decrease.

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

The absence of seasonal precipitation in summer and fall 2020 resulted in abnormally dry rangeland conditions. When these conditions occur, elk in this unit group are attracted to irrigated cropland to meet their nutritional and hydration demands. Unfortunately, this often leads to conflict on private lands. In addition to planned hunting seasons for elk, a private land antlerless elk hunt was initiated in December 2020 to address increased elk use of private property on the border of Units 109 and 121. The minor issue was resolved with the allocation of 1 tag to a successful hunter. Further, depredation concerns on private property in the Steptoe Valley portion of Unit 121 resulted in the implementation of 2 emergency depredation hunts, each spanning 2-weeks in December 2020 and January 2021. Fifteen tags were allocated between the 2 hunts, with an overall success rate of 27%. Please see the appendix for more detailed harvest results.

Survey Data

An aerial survey was conducted in January 2021, where 461 elk were classified yielding sex and age ratios of 34 bulls:100 cows:43 calves. The calf ratio is slightly higher than the previous 10-year average of 41 calves:100 cows.

Habitat

Pinyon and 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 and

juniper trees in sagebrush communities in Unit 121. During the 2020-2021 work season, the Ely District of the Bureau of Land Management seeded 450 acres with a mix of native shrubs and grasses and masticated approximately 120 of those same acres. The remaining acreage will be treated in late 2021. The Nevada Department of Wildlife also partnered with the Rocky Mountain Elk Foundation to contract hand-thinning maintenance of 1,093 acres in the 9-Mile Chaining treatment area.

Snowpack recorded at SNOTEL sites in water basins located within and adjacent to this unit group ranged from 81-95% of the long-term average, with water year-to-date precipitation totals at 79-82% of average as of April 1, 2021 (www.nrcs.usda.gov). Due to the below average winter, summer range conditions will be dependent on adequate spring and summer rains.

Population Status and Trend

This year's population estimate is slightly lower than the previous estimate and is a direct result of elevated harvest during the 2020 hunting season. The Nevada Department of Wildlife is committed to maintaining this elk herd within the population objective set in the Wells Resource Area and White Pine County Elk Plans. As a result, an aggressive approach to cow harvest will continue to limit any population growth. For the 2021 hunting season, a spike only bull hunt has been adopted to aid in managing the bull ratio while maintaining the quality of the antlered bull hunts.

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 February 2021. During this survey, 138 elk were classified yielding ratios of 42 bulls:100 cows:28 calves. In comparison, the survey sample collected in 2020 totaled 130 elk with observed ratios of 60 bulls:100 cows:21 calves. The previous 5-year average observed calf ratio is 39 calves:100 cows.

Weather and Habitat

According to the Nevada Water Supply Outlook Report published in March 2021 by the Natural Resources Conservation Services (NRCS), lower elevations for the Ely area have received below-normal precipitation and temperatures are slightly warmer than normal. The White River watershed snowpack analysis has dropped from 59% to 55% of median for 2021 and soil moisture dropped from 26% to 10% saturation. Current conditions and soil moisture levels were below normal and most of this unit group is currently in an exceptional drought. Unless weather conditions change, grasses and forbs will be less prevalent on the landscape.

On-going removal of pinyon and 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 in the Pancake Herd Management Area are degrading habitat in the western portion of Unit 131. Mineral exploration is ongoing in the Green Springs area of Unit 131 and, if developed, will be detrimental to sage-grouse, mule deer, and elk, as well as many other species of wildlife.

Population Status and Trend

The current population estimate shows a decline due to below-average calf recruitment observed the last 3 years. 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 below 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, and dispersed movement patterns, elk hunting conditions are difficult. Since 2012 there have been 56 bulls and 38 cows harvested. In 2019, the Nevada Department of Wildlife changed the season structure and quotas to offer 6 hunts with a combined quota of 30 tags. Overall harvest success during the 2020 season was 23% compared to 13% in 2019. 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. There have been no incidental observations of elk in the last 3 years.

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: Hunter Burkett

Survey Data

Due to inclement weather and scheduling conflicts, no aerial surveys were conducted for elk in 2021. The most recent aerial composition survey for elk was conducted in Unit 162 in February 2020. The survey yielded a sample size of 424 elk comprising 93 bulls, 260 cows, and 71 calves.

Habitat

According to data published by the Community Environmental Monitoring Program (CEMP; https://cemp.dri.edu), precipitation received in central Nevada during 2020 was 39% of the 30-year average. Spring precipitation in March, April, and May resulted in 66% of the 2020-2021 total. A SNOTEL site located in Big Creek in central Nevada measured snowpack levels at approximately 73% of average in February 2021 (www.nrcs.usda.gov). Increased snowpack in the northern end of the unit group may offer greater forage for elk at higher elevations; however, precipitation inequities in the southern end will reduce forage quality and quantity in portions of the unit group. Reduced forage production, along with competition from feral equids, will further degrade habitat conditions.

Multiple pinyon and juniper removal projects coordinated by the US Forest Service have been completed in Little Fish Lake Valley of Unit 162. In 2017, 717 acres of pinyon and juniper were removed near Clear

Creek. In 2018, pinyon and juniper were removed on 500 acres near Horse Canyon and about 2,400 acres were cleared south of Danville Canyon via lop and scatter techniques. During summer 2019, 217 acres of pinyon and 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 productive habitat to elk during portions of the year.

Population Status and Trend

In January 2004, the Nevada Board of Wildlife Commissioners approved the revised Central Nevada Elk Plan. The plan included updated elk population objectives, which allowed for modest increases in elk numbers in Area 16. More than 15 years later, the Area 16 elk population reached the population objective of 850 adult elk. To decrease and stabilize the population, the Nevada Department of Wildlife increased elk tags, primarily targeting antlerless elk. The population estimate in 2021 is approximately 750 adult elk. Drought, along with feral equid competition, imposes threats to the adult fitness of this herd, which is reflected in recruitment rates. Due to these pressures and current harvest strategies, this herd is estimated to be slightly decreasing.

Units 171 – 173: North-Western Nye and Southern Lander Counties

Report by: Hunter Burkett

Survey Data

No formal surveys were conducted in 2021. This survey typically yields a sample size of 40-50 animals.

Habitat

Central Nevada received 39% of the 30-year average of precipitation during 2020 according to the Community Environmental Monitoring Program (CEMP; https://cemp.dri.edu). Spring precipitation in March, April, and May resulted in 66% of 2020-2021 precipitation totals. A SNOTEL site located in Big Creek in central Nevada measured snowpack levels at approximately 73% of average in February 2021 (www.nrcs.usda.gov). With below-average precipitation for the 2020-2021 winter, forage quantity and quality will continue to be impacted. The snowpack in the northern end of the unit group may offer greater forage for elk at higher elevations. Unless additional precipitation arrives in the spring, poor habitat conditions will persist and likely be reflected in lower cow to calf ratios.

Population Status and Trend

Small groups of elk have been observed in Area 17 throughout the years. These elk were thought to be transient elk from Area 16 and not permanent residents. By the early 2000s, reports became more frequent, and a small resident herd had permanently established itself in the southern portion of Units 172 and 173.

In 2007, several cow elk were fitted with radio collars in Units 172 and 173 to aid in understanding of seasonal use patterns and to more accurately estimate herd size. Telemetry data collected from elk fit with radio collars indicated 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 winter and spring. These movements have remained consistent.

The Area 17 elk herd is estimated to be unchanged from previous population estimates.

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 February 2021. Time expended on survey was reduced to 1-day due to weather and other regional priorities. A sample of 578 elk was obtained yielding sex and age ratios of 57 bulls:100 cows:43 calves. Sex and age ratios have averaged 46 bulls:100 cows:35 calves over the previous 5 years.

Habitat

National Weather Service precipitation data measured at the Ely Airport for the 2020 calendar year was 50% of normal. Spring 2019 was the wettest recorded in Ely, but dry conditions have persisted since June 2019. National Weather Service precipitation data measured at the Ely Airport from June 2019 to February 2021 was 57% of normal. The Ward Mountain SNOTEL site recorded 61% of the long-term average snowpack during the 2020-2021 winter (accessed March 29, 2021, www.nrcs.usda.gov). At the time of this writing, spring conditions have continued to be warm and dry. If precipitation patterns do not improve, prolonged drought will continue to deteriorate habitat conditions.

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 (BLM) 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, Lake, and Jakes Valley in 2019 and 2020. Future habitat projects are planned in Steptoe Valley, Jakes Valley, and Cave Valley on Bureau of Land Management and US Forest Service lands. The BLM's Ely District signed a NEPA document in fall 2018 approving both the construction of new water developments and the rebuild of existing water developments in this unit group.

In March 2021, the 4,434-acre Big Rocks Fire burned in Unit 223. Much of the fire burned in an existing burn scar that had high elk use. The loss of vegetation from this fire coupled with ongoing drought conditions will likely result in negative impacts to elk in Unit 223.

Population Status and Trend

In the past, there was a great deal of elk movement between Area 11 and Area 22, but that movement 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 is now modeled separately. Bull quotas have been split since 2012. This change should allow the Nevada Department of Wildlife to carry out management actions more specific to each area.

The current population estimate is showing an increase due to above-average calf recruitment and low success during antlerless elk hunts in 2020.

Unit 231: Wilson Creek Range; Lincoln County

Report by: Daniel Sallee

Survey Data

No formal surveys were conducted during the 2020-2021 reporting period. A large group of elk was encountered during spring deer surveys. The group consisted of 7 bulls, 43 cows, and 11 calves. Given the small sample size, inferences related to sex composition and productivity of the elk herd in Unit 231

are not possible. The last formal survey conducted in Unit 231 took place during January 2020 and resulted in the classification of 158 elk consisting of 38 bulls, 86 cows, and 34 calves. Elk encountered during the 2020 survey were found in White Rock, Wilson, and Fortification mountain ranges with the highest concentration in lower elevations between Wilson and the White Rock mountains.

Habitat

Severe drought conditions persisted in Unit 231 during the latter half of 2020. Precipitation receipts were 38% of the long-term average. Habitat productivity and water resources were depleted relative to previous years due to prolonged drought. Feral horses occur throughout the unit and compete with elk for forage and water. In early 2020, the Bureau of Land Management (BLM) removed over 1,700 excess horses from the herd complex within Unit 231. In February 2021, the BLM removed another 1,000 excess horses. An additional 50 mares were captured, treated with fertility control, and released back onto the range to reduce population growth in the coming year. Removal of feral horses should allow for habitat and rangelands to recover and reduce pressure on limited water sources. Invasion of pinyon and juniper continues to reduce both quality and quantity of elk habitat.

Multiple pinyon and juniper removal projects have been conducted to facilitate expansion of elk habitat. Further, many older burns are still providing much of the habitat for elk in the unit. The Miller Fire burned 4,761 acres in 2020. The burn occurred in an area dominated by pinyon and juniper. Re-seeding efforts were conducted to promote regeneration of preferred forage species. Recent installation and upgrades of water developments by the Nevada Department of Wildlife and local sportsmen are allowing elk to disperse across the landscape. Two water developments were rebuilt in mid-2018 to eliminate components prone to failure and to add storage capacity. Upgrades to these water developments will provide a more reliable water source for elk and other wildlife.

Population Status and Trend

One hundred and sixty-seven adult elk were harvested from Unit 231 during the 2020 season including 90 cows and 77 bulls, which increased slightly from the 2019 harvest. Harvest has been high in Unit 231 due to efforts to maintain the herd at management objective as agreed in the Lincoln County Elk Management Plan. Elk move freely among Unit 231, Area 22, and Utah. Recent location data from elk fit with GPS radio collars indicates elk in this unit spend a portion of the year in Utah, which may explain sustained high harvest despite limited decrease in the modeled population. Many elk in Unit 231 are attracted to irrigated pasture and agricultural fields on private property and are managed through the Nevada Department of Wildlife's elk damage or elk incentive programs.

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

Report by: Daniel Sallee

Survey Data

The last aerial survey conducted in this area was during February 2020, when 19 elk were observed during a 3-hours of flight. Classification of elk during this survey included 3 bulls, 12 cows, and 4 calves. The survey took place along the Utah-Nevada border and throughout the Clover Mountains. Minimal snow cover and unseasonably warm conditions made it difficult to locate elk. Elk have also been observed in Unit 241 in the Delmar Mountains, as well as the South Pahroc Range. Camera surveillance on water sources and ground surveys have been used to provide elk observation data in this low-density hunt unit.

Habitat

Forage resources and water distribution was reduced relative to prdonevious years due to severe drought conditions. The area received 38% of the average annual precipitation and no rainfall was received for 6 consecutive months (May through October 2020). Feral horse numbers are high in both Unit 241 and Unit

242, where the Appropriate Management Level is zero. The Bureau of Land Management and the Nevada Department of Wildlife have completed multiple habitat improvement projects targeting pinyon and juniper encroachment. Recently burned areas appear to be recovering relatively well due to restoration efforts. The Stewart Canyon Fire burned 12,718 acres in 2020 in areas that support some elk use. Re-seeding efforts have been conducted to promote restoration of preferred forage species for elk and other wildlife.

Population Status and Trend

A population model has not been developed for elk in Area 24 due to the transient behavior of the elk population and low densities. Elk are often observed moving across the Nevada-Utah border as well as movements observed between Units 231 and 242. Hunter harvest data indicates that 6 cows and 5 bulls were harvested in Area 24 in 2020. Incidental sightings and reports from hunters indicate that at least 150 elk inhabit the area.

Unit 251: Kawich Range; Nye County

Report by: Hunter Burkett

An increasing number of elk sightings continue to occur in Unit 251. The revised 2004 Central Nevada Elk Plan designated this unit as a non-establishment area for elk. In February 2018, a formal aerial survey was conducted. Although no elk were observed, elk tracks were seen in the snow at upper elevations. Due to low densities of elk, no formal surveys have occurred during the past 3 years. Trail camera data, along with ancillary sightings, indicate that elk occur in Unit 251 year-round. To comply with the Central Nevada Elk Plan, an elk hunt was established in 2017. The Kawich Range is mainly comprised of pinyon and juniper woodlands at low-to-mid-elevations and open mountain sagebrush and mahogany communities at higher elevations. High pinyon and juniper densities make it difficult for hunters to find elk. To date, elk densities in the Kawich Range remain low, however, hunters continue to report elk sightings in Unit 251. Based off these ancillary observations, it is estimated that 20-30 bulls and 30-40 cows and calves reside in this unit. Three bulls were harvested during the 2020 season. One bull was harvested each year in 2018 and 2019.

Unit 262: Spring Mountains; Clark and Southern Nye Counties

Report by: Patrick Cummings

Survey Data

In February 2021, an aerial survey conducted over the Spring Mountains yielded a sample of 18 elk. The sample comprised 1 bull, 16 cows and 1 calf. The few elk encountered within 6.5 miles of Cold Creek were in and below the sagebrush and pinyon and juniper ecotone. Further south, a lone bull and a lone cow were observed in the Lovell Canyon area. Aerial survey samples in 2020 and 2021 were small and well below expectation. In the last 6 aerial surveys since 2015, the number of elk encountered ranged from 16 in 2020 to 163 in 2015. Thus, the distribution of elk in recent winter months in the Spring Mountains is not well understood.

Habitat

On the McFarland burn scar, severely degraded vegetative conditions were noted in 18 aerial surveys conducted between 2002 and 2021 and are likely an important factor in the apparent absence of elk. Degraded habitat is largely the result of feral horses and aggravated by the effects of periodic drought. In recent years, the US Forest Service disengaged from a process to produce a comprehensive feral horse herd management plan. As of early 2021, there is no indication the US Forest Service plans to re-engage in production of a comprehensive herd management plan.

In May 2018, in the absence of a comprehensive herd management plan, Bureau of Land Management (BLM) and US Forest Service officials conducted 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, BLM removed 234 horses and euthanized 28. The Appropriate Management Levels (AML) 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-foot elevation gradient. In recent years, recreational use of off-highway vehicles in the Cold Creek area and on the McFarland burn scar has increased substantially, which likely influences elk distribution in the area.

Population Status and Trend

The aerial elk surveys completed in 2020 and 2021 resulted in few encounters. Failure to detect elk during the recent surveys was the most likely explanation for the small samples. The population estimate for elk inhabiting the Spring Mountains reflects a minor contraction relative to the estimate reported last year. The minor population contraction was deemed appropriate due to unfavorable environmental conditions caused by protracted drought.

The elk habitat throughout most of Unit 262 is suboptimal. Elk have existed on a relatively low nutritional plane limiting calf recruitment. Previously, the McFarland burn afforded quality early seral forage. In the future, meaningful efforts to improve elk habitat must involve attainment of horse and burro numbers within established AMLs and completion of habitat improvements. Elk habitat in the Spring Mountains can be enhanced by seeding recently burned areas, increasing water availability, and reclamation of unauthorized roads and trails.

DESERT BIGHORN SHEEP

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

Hunt Results

Five the of 6 early season tagholders were successful and all harvested their rams in Unit 045. Only 3 rams have been harvested in Unit 153 since being added to Unit 045 in 2013. Three out of 4 tag holders in the late season elected to return their tags due to die-off concerns.

Survey Data

No survey was performed in Unit 153 during the reporting period. Ground surveys in Unit 045 were accomplished during the first week of September 2020. Areas surveyed included Pollard Canyon, Jim Creek, Cottonwood Canyon south to the Indian Caves and Mount Tobin north to Wood Canyon. A total of 76 bighorns was classified providing a ratio of 41 rams:100 ewes:32 lambs. The 2020 lamb ratio is the lowest recruitment rate ever observed in this population.

Population Estimate and Trend

In early August 2020, tag holders reported observing coughing bighorns suggesting a disease spillover event had occurred. Upon conducting follow-up investigations biologists found a mountain lion killed ewe in Miller Basin. This ewe tested positive for the pathogen *Mycoplasma ovipneumoniae (Movi*), the primary trigger pathogen associated with pneumonia disease events in bighorn sheep. The strain of the *Movi* DNA was confirmed to be an exact match to the Fairview strain that had struck the Stillwater Range in Unit 182 in fall and winter 2019-2020. Transmission from Unit 182 to Unit 045 more than likely occurred from the Indian Caves area into the south Tobin Range and through the rest of the Tobin Range. In late January 2021, 4 ewes were captured, sampled, and fitted with GPS collars. These ewes were negative for active *Movi* infection, but all had a positive titer to *Movi* showing they were recently exposed to it and fought off the infection. Unfortunately, one of the collared ewes was killed a month later by a mountain lion. An initial estimate of adult losses from the die-off is approximately 55% of the population and will likely have impacts on future lamb survival. Future surveys and field observations will aid to better understand the magnitude of this die-off. The Unit 045 Tobin Range herd 2021 population estimate is 120 animals.

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 with minimal recruitment. Moreover, collar data from rams captured in Unit 153 during the last 2 years has shown ram dispersal into adjacent Unit 183 south of the Home Station Gap Road to the Augusta Mountains. Collar data suggests these rams utilize Mount Mosses area and Jersey Canyon during the spring and summer and Unit 183 Augusta Mountains during fall and winter months.

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

There was no survey in 2020, however in 2019 there was a total of 59 desert bighorn sheep observed on survey with sex and age ratios of 22 rams:100 ewes:38 lambs. The previous 5-year average sex and age ratios are 28 rams:100 ewes:23 lambs.

Weather and Habitat

As of March 2021, the valley summary report shows lower elevations for the Ely area at slightly below normal precipitation and warmer temperatures with the Eureka area receiving normal precipitation and cooler temperatures (March 2021, Nevada Water Supply Outlook Report, NRCS). The White River watershed snowpack analysis has dropped from 59% to 55% of median for 2021 and soil moisture for the Spring Mountains and Southern Nevada dropped from 26% to 10% saturation for the area (March 2021, Nevada Water Supply Outlook Report, NRCS). Habitat conditions continue to worsen, and conditions have been reclassified from Class 1 drought to exceptional drought for 2021. (March 2021, Nevada Water Supply Outlook Report, NRCS). Unless weather conditions change, grasses and forbs are expected to be less prevalent on the landscape.

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 throughout the 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. There are five wilderness areas in Unit 131. 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 surrounding Big Round Valley.

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 (Movi)*. 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 fluctuating population. The 2019 survey showed an increase in lamb survival for both units and suggests some relief from the 2012 *Movi* event, however, this year's anecdotal observations and harvest data suggest a significant decline to the Unit 131 segment of this population. The population was once estimated at a high of 180 desert bighorn sheep in 2011-2012 and for 2021 the current population model shows a declining population with an estimate of about 60 adult desert bighorn sheep.

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

Report by: Clint Garrett

Survey Data

There was no survey in September 2020, however in 2019 there was a total of 103 desert bighorn sheep observed on survey with sex and age ratios of 43 rams:100 ewes:34 lambs. The previous 5-year average sex and age ratios are 52 rams:100 ewes:43 lambs. The 2019 survey obtained the highest survey sample to date.

Weather and Habitat

As of March 2021, the valley summary report shows lower elevations for the Ely and Tonopah areas at below normal precipitation and warmer temperatures. (March 2021, Nevada Water Supply Outlook Report, NRCS). The White River watershed snowpack analysis has dropped from 59% to 55% of median for 2021 and soil moisture for the Spring Mountains and Southern Nevada dropped from 26% to 10% saturation for the area (March 2021, Nevada Water Supply Outlook Report, NRCS). Habitat conditions continue to worsen, and conditions have been reclassified from Class 1 drought to exceptional drought for 2021. (March 2021, Nevada Water Supply Outlook Report, NRCS). As of March 2021, the Western Regional

Climate Center's Hiko site, the closest to the southern end of the unit, shows an historic low for the 2020 precipitation year. Unless weather conditions change, grasses and forbs are expected to be less prevalent on the landscape.

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 water development 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 (Movi)*. 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, during 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 suggested by genetic sampling. Disease testing was also conducted in January 2014 with *Movi* not detected in the 4 adults sampled.

The 2021 population estimate is about 130 adult desert bighorn sheep, which is above the previous 5-year average of 110. Currently, data and population modeling indicate this population is stable.

Unit 134: Pancake Range; Nye County

Report by: Hunter Burkett

Survey Data

No formal surveys were conducted in 2020. The last aerial survey conducted in 2019 for Units 134 and 251 yielded a sample size of 101 bighorn sheep classified as 19 rams, 67 ewes, and 15 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

According to Community Environmental Monitoring and Planning (CEMP) precipitation data from January 2020 to January 2021, central Nevada received 39% of the 30-year average. Spring precipitation for March through May 2020 resulted in 66% of the 2020-2021 precipitation total. The singular SNOTEL site located in central Nevada measured snowpack levels at approximately 73% of average in February 2020. With reduced precipitation in the 2020-2021 season, forage conditions will likely be poor.

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, bighorn sheep densities in these areas are extremely low. The 2019 hunting season was the first year that Unit 251 was added to Unit 134 bighorn season and 3 rams were harvested south of Echo reservoir in Unit 251. During the 2020 season, 4 out of the 5 rams were harvested in Unit 251.

Unit 161: Toquima Range; Northern Nye County

Report by: Hunter Burkett

Survey Data

No formal surveys were conducted in 2020. In comparison, the 2019 aerial survey for Unit 161 yielded a sample size of 464 bighorn sheep classified as 115 rams, 258 ewes, and 91 lambs. The survey area where bighorn sheep are encountered encompasses Mount Jefferson exclusively during this time frame.

Population Status and Trend

The core Unit 161 herd inhabits the area on and around Mount Jefferson in the Alta Toquima Wilderness during summer and fall. Most of these animals move to lower elevations in the surrounding area during the winter and spring months. A smaller herd was established several years ago further north in the Northumberland area.

The presence of *Mycoplasma ovipneumoniae (Movi)* and pneumonia events in several central Nevada bighorn sheep populations has raised concerns that Unit 161 bighorn sheep population is at risk of suffering the same fate. Beginning in 2017 the Nevada Department of Wildlife, in conjunction with the US Forest Service, began the process of developing all appropriate National Environmental Policy Act (NEPA) documents including the Minimum Requirements Decision Guide (MRDG) to capture, collar, and test bighorn sheep in the Alta Toquima Wilderness. Test results showed 26 nasal swab samples negative and 1 indeterminant for *Movi* by Polymerase Chain Reaction and 5 of 27 (19%) positive for Movi antibodies confirming previous exposure. These lab results suggest that there is potentially a chronic shedder in the herd still shedding the disease. Despite the exposure to *Movi*, recent years' aerial survey data indicates moderate 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 bighorn sheep move throughout the entire Toquima range at lower elevations.

This population continues to grow and expand. Hedging and overutilization of key forage plants has been observed on Mount Jefferson. This population is pressing the limits of the available habitat. With the recent exposure to *Movi*, this herd is currently not suitable for translocation. A ewe hunt has been approved by the Nevada Board of Wildlife Commissioners. This hunt will serve as a tool to regulate this population below the vegetative carrying capacity.

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

Report by: Hunter Burkett

Survey Data

An aerial survey was conducted in September 2020. The survey yielded a sample size of 169 bighorn sheep which were classified as 43 rams, 102 ewes, and 24 lambs. In comparison, the survey in 2018 yielded a sample size of 173 bighorn sheep which were classified as 49 rams, 97 ewes, and 27 lambs. The survey covered the southern portion of Unit 162, Warm Springs, Morey Peak, and Hot Creek Canyon.

Population Status and Trend

A small number of 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 with increasing utilization.

There is some concern that the pathogen that resulted in an epizootic pneumonia outbreak in adjacent Unit 134 in 2011 could spread 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 Unit 163 bighorn sheep population is stable. A population model for Unit 162 has yet to be developed, but data indicates the population remains stable to increasing.

Unit 173N and 173S: Toiyabe Range, San Antonio Mountains; Northern Nye County

Report by: Hunter Burkett

Survey Data

An aerial survey was conducted in September 2020 in the San Antonio Mountains. The survey yielded a sample size of 17 rams, 28 ewes, and 6 lambs. In comparison, the 2019 survey yielded a sample size of 45 bighorn 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.

Habitat

The largest portions of the Unit 173N bighorn sheep population occurs 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 bighorn sheep utilizing the lush meadow habitat in Peavine Canyon, contrary to historical distribution. The majority of the Unit 173S population resides in the northern 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 2021.

Population Status and Trend

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

Although most of the Unit 173 bighorn sheep population inhabits the southern reaches of the Toiyabe Range, a growing number of animals also inhabit the San Antonio Mountains just north of the town of Tonopah. Due to this expansion based on ancillary data and harvest, the Toiyabe's and San Antonio's were separated into 2 distinct hunt units. Occasional reports of bighorn sheep in the Bunker Hill-Big Creek area just south of Highway 50 have been documented. 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 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. Lab results from the capture included: Polymerase Chain Reaction test for active *Mycoplasma ovipneumoniae (Movi)* infection was negative for all 15 samples; 2 of 15 blood samples (13%) were positive for antibodies to *Movi* indicating past exposure to *Movi*. 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. The 173N hunt continues to be challenging for hunters. The precipitous terrain and tree cover that the bighorn sheep reside in makes this a difficult hunt. The hunt season has been extended to give hunters the ability to access these bighorn sheep both during the early fall and through the end of the year. With slightly depressed lamb ratios observed on survey, this population is estimated to be marginally decreasing.

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 September 2020 yielding a sample of 430 individuals. The observed sex and age ratios were 52 rams:100 ewes:18 lambs.

Habitat

In 2020, habitat conditions overall were fair during the spring, but severe drought continued from late summer into early fall. In 2017, the Fairview Fire occurred consumed 27,000 acres of habitat on Fairview and Slate Mountains. Some of the fire occurred in the old fire scar but a large portion of it burned native habitat on Slate Mountain. The Nevada Department of Wildlife was able to seed about 3,500 acres of the most critical habitat for bighorn sheep with forage kochia and 'Snowstorm' kochia. These non-native plants will provide high crude protein to the bighorn herd and can withstand heavy grazing and are fire resistant. To date, the most successful seedling establishment occurred in the north facing slopes that was previously a pinyon and juniper woodland.

The Bravo 17 Naval Ranges initial request for land withdrawal to expand their bombing range to north and southeast of the current Bravo-17 impact area was denied, it is likely that similar land withdrawal proposals will be made in the future. The withdrawal area may potentially encompass the Sand Springs Range, the Monte Cristo Mountains, Fairview Mountain, and Slate Mountain. The Nevada Department of Wildlife is currently working with the US Navy to 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 invested countless hours and money developing this sheep resource. It is important to try and maintain some level of hunting opportunity into the future.

The Nevada Department of Wildlife and Nevada Bighorns Unlimited rebuilt the South Rail fence water development in the spring 2018. To safeguard it from future flash flood events, the water development was tucked away from the main flow of the wash. Large boulders were then placed 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 project. This unit will serve as a backup system which relies on precipitation where the South Rail Fence relies on a natural ground water.

Population Status and Trend

The Unit 181 bighorn sheep herd is showing a slight decline for 2020 with a lower overall lamb production rate. The current population estimate is 600 animals and is a decrease of 50 animals from last year.

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

Report by: Jason Salisbury

Survey Data

An aerial survey was conducted in September 2020 and yielded a sample of 92 sheep which was classified as 24 rams, 56 ewes, and 12 lambs.

Habitat

Encroachment of pinyon and juniper continue to plague the upper elevations of the Stillwater Range. Prescribed and natural occurring fires are needed in most of the northern half of the Stillwater's to allow for more suitable bighorn sheep habitat.

Feral horses continue to displace 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 and encourage bighorn sheep use.

In 2019, a fire ignited on the east side of the Stillwater Range near Wood Canyon. This fire consumed a pinyon and juniper woodland habitat type. This 1,200-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.

Population Status and Trend

The last sheep capture for translocation from the Stillwater's occurred in fall 2019 and were given to Utah for reintroduction into the Mineral Mountains. Also, after fall 2019 capture, the southern end of the Stillwater's experienced a disease event involving *Mycoplasma ovipneumoniae (Movi)*. The pathogen spread throughout the Stillwater's in fall and winter 2019 and eventually spread into the neighboring Tobin Range in 2020. An observed lamb ratio of 21 lambs:100 ewes suggest limited recruitment considering that normal lamb ratios following a disease outbreak can be in the single digits. Drought conditions experienced in 2020 were severe although the Stillwater sheep herd have perennial streams that allow for increased nutrition along the riparian corridors compared to desert sheep populations that are solely dependent on water development sites. The desert bighorn herd in the Stillwater's and the southern end of the East Range are experiencing a declining population trend due to pneumonia.

Unit 183: Clan Alpine Mountains; Churchill County

Report by: Jason Salisbury

Survey Data

In September 2020, a 3-hour aerial survey was conducted in the Clan Alpine Mountains. This survey resulted in the classification of 185 sheep, consisting of 45 rams, 116 ewes, and 24 lambs. These numbers provide a ratio of 39 rams:100 ewes:21 lambs.

Habitat

Two large fires consumed thick stands of pinyon pine on the east face of the Clan Alpine Mountains in summer 2017. The Nevada Department of Wildlife (NDOW) seeded approximately 3,500 acres of the

Tungsten Fire. The Draw Fire was seeded by NDOW and BLM. 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 suggesting that these areas will respond quite well to the new burns. These areas of converted habitat will likely support bighorn sheep into the future.

Feral horses occupying the Clan Alpine Mountains out compete the native bighorn sheep for forage and water and occur routinely on limited water sources. In the future, pipe rail fences need to be erected to protect the water sources which will encourage bighorn sheep use.

Population Status and Trend

This year's lamb ratio will not afford any growth. It has been 2 years since the Clan Alpine disease event. This year's lamb ratio is encouraging to see in a severe drought year. It is believed bighorn lambs may still be negatively impacted by the disease event of 2018 but is hard to determine principal causes of lamb mortality during severe drought years. The next few years will dictate if the lamb recruitment recovers to allow for a positive growth trend.

Unit 184: Desatoya Mountains; Churchill and Lander Counties

Report by: Jason Salisbury

Survey Data

In September 2020, a survey yielded a sample of 127 desert bighorn sheep. The observed sex and age ratios were 48 rams:100 ewes:26 lambs. Bighorn sheep were encountered in the East Gate Hills and the west side of the Desatoya Mountains.

Habitat

Pinyon and juniper encroachment limits bighorn sheep from occupying large expanses of land in Nevada. Natural fires within pinyon and juniper woodlands allow bighorn sheep to occupy areas and increase forage. Over the past 5 years fire has consumed 8,900 acres of mainly pinyon and juniper woodland within Unit 184. This habitat conversion will enable the bighorn herd to thrive in these newly converted, early successional-stage plant communities. Conversely, burned areas will also draw in feral horses which compete with bighorn for forage and water resources.

In 2019, 430 horses were removed from the Desatoya Mountains and will help alleviate some competition with the native ungulates including bighorn sheep. Feral horses need to be kept within Appropriate Management Levels (AML) to allow for successful establishment of native plants and a thriving bighorn herd.

Population Status and Trend

The 2020 lamb ratio of 26 lambs per 100 ewes will not afford any population growth and will continue to experience a declining population growth trend. The current modeled population of bighorn occupying Unit 184 is 160 animals.

Unit 195: Virginia Range; Storey County
Report by: Carl Lackey

Survey Data

An aerial survey was completed in August 2020. The survey yielded a sample of 109 desert bighorn sheep with a ratio of 63 rams:100 ewes:13 lambs. Sheep are frequenting the greater Clark Mountain area, the cliffs east of Derby Dam and throughout the Eagle-Picher Mine.

Habitat

Habitat conditions in this unit are marginal to poor, due to the exceedingly high feral horse population in the Virginia Range, estimated at over 3,000 by the Nevada Department of Agriculture which has management responsibilities for this horse population. To put this feral horse population in perspective on this relatively small mountain range, the biomass of these 3,000+ horses would equal the biomass of 18,000 bighorn sheep. Roughly 1,000 of these are in the vicinity of USA Parkway, occupying the same habitat as the bighorn. Management actions to remove many of these feral horses would be necessary for habitat conditions to improve. Winter 2020-2021 was below average for precipitation, exacerbating the poor habitat conditions.

Population Status and Trend

The feral dog issue seems to have been corrected as there have been no sightings or reports since late winter 2020. After doubling in size since the 2011 reintroduction, this bighorn population appears to have stabilized over the last few years, currently estimated at 130. This population is not hunted. Nevada Department of Wildlife is working with private landowners to allow management actions to be completed that would allow desert bighorn sheep to remain in this area and be observed by wildlife enthusiasts.

Unit 202: Wassuk Range; Mineral County
Report by: Jason Salisbury

Survey Data

In September 2020, an aerial survey conducted in the Wassuk Range yielded a sample of 65 desert bighorn sheep. The sample provided a sex and age ratio of 43 rams:100 ewes:20 lambs.

Habitat

Fires are an important management tool that are needed in Type 2 and 3 pinyon and juniper woodland canopy densities that limit bighorn occupation. Portions of this unit such as Cat Canyon have adequate sheep habitat at the lower and mid elevations but would benefit from fires to open habitat for sheep use.

A water development was built north of Cottonwood Canyon on the Army Depot property 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

Bighorn sheep spend a significant amount of time in the town of Walker Lake during the summer months. This increased use has resulted in the death of many bighorn when they attempt to cross the highway and are subsequently hit. Bighorns get accustomed to the feed and feel comfortable about their safety 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. Throughout the summer months

sheep will venture away from the town to forage increasing the chances that they will cross the highway resulting in more bighorn deaths.

New for the 2021 bighorn season is an archery hunt that will occur from October 20-November 14. This was proposed by the Mineral County Advisory Board and was passed by the Wildlife Commission.

The population estimate for Unit 202 is 150 animals which is a significant decrease from previous estimates. This population continues to experience a declining population trend most likely caused by high losses to vehicle collisions, lion predation and low lamb production for 2020.

Unit 204: East Walker River; Lyon County

Report by: Jason Salisbury

Survey Data

In September 2020, an aerial survey conducted in the East Walker yielded a sample of 30 desert bighorn sheep. The sample provided a sex and age ratio of 42 rams:100 ewes:16 lambs.

Harvest Results

The quota for 2020 was 2 tags. In 2020, hunters harvested 2 rams aged at 6 and 8 years old. This was the third consecutive season where Unit 204 was a standalone hunt unit.

Habitat

Habitat conditions for the East Walker River corridor are in an extremely degraded state due to the lack of precipitation received in fall 2020 and winter 2021. Sheep within the river corridor have access to greener grass and forbs but foraging along the river also increases the chances for additional lion predation.

The Flying M Ranch along the Walker River was purchased and has been given to Nevada State Parks. Plans are being developed on how the property will be managed to benefit wildlife. Fencing on the ranch along the East Walker River is currently restrictive to bighorn sheep movement. A potential project that could benefit bighorn sheep includes removing barbwire or raising the bottom wire of the fence to at least 20 inches above the ground, allowing 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 2020 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 September 2020, an aerial survey yielded a sample of 180 bighorn sheep. The observed sex and age ratios were 49 rams:100 ewes:5 lambs. Bighorn sheep were encountered in the Sante Fe mine area, Gillis, Paymaster, and Chukar Ridge.

Habitat

During summer and early fall 2020, several water developments went dry or were nearly dry. Nevada Department of Wildlife personnel and volunteers delivered water to Lower Paymaster, Wildhorse, and Sante Fe water developments by way of water trucks, while the Butte and Volcano guzzler were recharged using an NDOW helicopter.

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

The Lower Paymaster water development located in the Gillis Range was rebuilt in 2018. 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.

Units 205 and 207 are severely impacted by horses and livestock around perennial water sources. Currently, Nevada Department of Wildlife staff is coordinating with Bureau of Land Management and permittees to fix numerous degraded springs in the area. Improving natural water sources is one of the most important elements in any bighorn sheep unit to improve functioning habitat.

Population Status and Trend

The current modeled population estimate for this herd is 450 animals. This estimate is a 18% decrease from what was reported in 2020. In October 2019, a pneumonia outbreak was detected in Units 207 as well as 205. A helicopter survey in September 2020 confirmed low lamb survival, observed at 5 lambs:100 ewes. The *Mycoplasma ovipneumoniae (Movi)* strain type identified in Units 205 and 207 is the same as was found in adjacent Hunt Units 181,182, and 183.

It is hoped that lamb mortality will not be a chronic issue in Units 205 and 207 because of the past experience in the initial *Movi* pathogen spillover in Unit 181 in 2007, lamb mortality was only high for one year. If drought conditions persist in 2021 it may cause high lamb mortality even though pneumonia may not be killing lambs.

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

Report by: Jason Salisbury

Survey Data

In September 2020, aerial surveys resulted in the observation of 97 desert bighorn sheep classified as 29 rams, 64 ewes, and 4 lambs. The observed lamb ratio of 6 lambs:100 ewes on survey indicate a declining population trend.

Habitat

In early fall 2020, 3 water developments needed an additional recharge due to the lack of precipitation received as well as increased use by bighorn sheep. Nevada Department of Wildlife delivered water to Townsite, Mine Pad, and Middle Mable water developments by way of water trucks.

The Excelsior Mountains have extensive pinyon and juniper encroachment in the upper elevations. Prescribed fires or naturally occurring fires are needed in most of the northern half of the Excelsior's to restore preferred bighorn habitat that is open with healthy grass and forb components.

Future spring protection projects in the Excelsior's will allow for increased wildlife use at springheads while providing adequate separation of feral horse use lower in the drainage away from the springhead.

The Marrietta Burro Range is located within the bighorn herd area. These non-native animals occupy naturally occurring springs and limit use by bighorn. The increased burro population has provided an additional prey source for mountain lions within this unit. Due to the increased prey base, mountain lion populations appear to be increasing and having a significant impact on this declining bighorn herd.

Population Status and Trend

The Unit 206, 208 desert sheep population experienced good production rates in the recent past. This year's lamb production is dismal compared to previous surveys. Most of the sheep encountered were primarily in the Garfield Hills and the Candelaria Hills. The main Excelsior herd still suffers from increased predation from mountain lions. It is believed that the recently converted habitats in the Garfield Hills and Candalaria Hills have displaced sheep from the Excelsior Range as well. Bighorn sheep will exit tree-covered areas with higher predation rates to habitats with lower predation potential.

Future projects addressing predation are needed to allow for increased recruitment into this population. For the Excelsior herd to recover, a long-term plan is needed that allows for transplanting sheep coupled with predator removal. Mountain lion control efforts to protect the bighorn sheep population may be initiated in 2021. Due to the low lamb ratio observed in 2020, it will be recommended that disease sampling take place in 2021 to determine if the Fairview Range *Movi* strain is now present in Unit 206 and 208.

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

Report by: Hunter Burkett

Survey Data

No formal surveys were conducted in 2020. In comparison, the survey conducted in 2019 yielded a sample size of 315 bighorn sheep which were classified as 90 rams, 166 ewes, and 59 lambs. Areas surveyed include Nivloc Mine, Argentine Canyon, Rhyolite Ridge, Mineral Ridge, Emigrant Pass, and the Volcanic Hills.

Habitat

Central Nevada received 39% of the 30-year average of precipitation based off the data collected from the Community Environmental Monitoring and Planning (CEMP). Spring precipitation for March through May 2020 resulted in 66% of the total 2020-2021 precipitation. Due to drought, range conditions are predicted to become less palatable and nutritious for bighorn sheep. Drought conditions in 2018 required emergency aerial water hauls. 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, bighorn sheep movement occurred regularly between the Silver Peak Range in Unit 211 and the Monte Cristo Range in Unit 213, and Lone Mountain in Unit 212.

Most of the bighorn 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* (*Movi*), a bacteria which is related to pneumonia outbreaks in bighorn sheep, was documented in a ram harvested in Unit 211 during the 2013 bighorn sheep hunting season. During October 2014, a disease surveillance and radio marking effort was conducted in Unit 211. GPS collars were placed on 4 rams in Unit 211 during the effort, including 2 in the Silver Peak Range and 2 in the Volcanic Hills. During the operation, biological samples were obtained from 13 bighorn sheep. Results indicate that *Movi* 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 *Movi* 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 *Movi* will have on the herd moving forward. Lack of precipitation will however impact lamb ratios and adult fitness. This will result in a slight contraction of this population.

Unit 212: Lone Mountain; Esmeralda County

Report by: Hunter Burkett

Survey Data

No formal surveys were conducted in 2020. In comparison, the 2019 aerial survey for Unit 212 yielded a sample size of 230 bighorn sheep classified as 98 rams, 105 ewes, and 27 lambs. Survey areas include Lone Mountain and the Weepah Hills.

Population Status and Trend

The Unit 212 bighorn 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* (*Movi*). In April 2014, 2 adult ewes and a young ram were collected for sampling and necropsy. Results confirmed the presence of *Movi* in the Unit 212 bighorn sheep herd. Additionally, in 2014, as part of a larger disease monitoring effort, several bighorn sheep were captured and sampled, and 2 rams were collared to assess movements. Despite the presence of *Movi* 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 to help reduce bighorn sheep densities on Lone Mountain. In 2018, once population objective was met, the Nevada Department of Wildlife removed the ewe hunt. In January 2016, 34 ewes were captured for a University of Nevada, Reno Ph.D. research project. Of these 34 bighorn sheep, 18 ewes were translocated to the Garfield Hills. The purpose of this project was 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 to be pregnant were fitted with Vaginal Implant Transmitters to obtain lambing locations. During fall 2018, 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, and 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: Hunter Burkett

Survey Data

An aerial survey was conducted in 2020. The survey yielded a sample size of 112 rams, 154 ewes, and 31 lambs. In comparison, the most recent aerial survey in September 2018 yielded a sample size of 379 bighorn sheep 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 1 guzzler.

Habitat

From January 2020 to January 2021, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 39% of the 30-year average. Spring precipitation in March through May resulted in 66% of the total 2020 2021 precipitation. 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 documentation to rebuild and expanded the Monte Cristo 1 guzzler.

Population Status and Trend

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

During late 2013 and early 2014, bacteria that cause pneumonia in bighorn sheep, *Mycoplasma ovipneumoniae* (*Movi*), 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 bighorn sheep were captured from various parts of the Monte Cristo Range for pathogen testing. Four rams were also fitted with GPS collars. Current hunter harvest data indicate the *Movi* is still present in this population and sinus tumor was recently detected in this herd.

Due to ewe harvest and recent observations of low lamb recruitment, the current population model for Unit 213 shows a decreasing trend that is below the population objective of 400. With last year's harvest and the current population estimate, the department will recommend reducing the ewe quota. An additional year of female harvest at a low level will allow us to manage this population below the population objective.

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

Survey Data

Aerial surveys were conducted throughout Units 221, 223, and 241 in 2020. A record 10-hour survey was conducted, resulting in the largest sample ever recorded for this unit group. A total of 201 bighorn sheep was classified as 47 rams, 112 ewes, and 42 lambs. Bighorn sheep were distributed throughout the Hiko range, in the southwestern portion of Unit 223, and northwest portion of Unit 241, as well as throughout the southern portion of the Delamar Range in Unit 241.

Habitat

Habitat conditions were poor relative to previous years due to severe drought conditions observed for much of the year. Only 47% of the average annual precipitation was received, with no precipitation recorded during the entire summer. Water distribution and receipts were limited relative to previous years and water developments were low during late summer and fall. In October, the Nevada Department of Wildlife hauled 3,600 gallons of water via helicopter to the Rowberry water development to help offset effects of severe drought. Forage resources were likely below-average due to the drought conditions. In 2019 a 3,200-acre wildfire burned in the Delamar Range, though it does not appear the fire had a detrimental effect on bighorn sheep in the area. Bighorn sheep continue to face a variety of threats, including OHV races and rock-crawling courses, new power lines, development, and possible domestic sheep interactions. In 2015, disease sampling efforts resulted in the detection of *Mycoplasma ovipneumoniae* within bighorn sheep in this area. The Nevada Department of Wildlife will continue monitoring effort for this disease.

Population Status and Trend

Despite drought conditions, the estimated population for bighorn sheep within this unit group increased slightly to 240 individuals. Observed lamb recruitment was at a record high level this year. Disease is still a concern in this area due to proximity to domestic sheep and the detection of *Mycoplasma ovipneumoniae* within the herd in 2015. Monitoring efforts will continue to track disease events. This unit group was changed in 2020 to distribute harvest pressure more evenly across adjacent bighorn sheep populations. Units 221 and 223 are now a unit grouping, however the density and distribution is unknown within Unit 221. Unit 241 is now a single hunting unit for bighorn sheep.

Unit 243: Meadow Valley Mountains; Lincoln County
Report by: Daniel Sallee

Survey Data

No formal aerial survey was conducted in the Meadow Valley Mountains in 2020. In 2019, a record survey of 158 bighorn sheep was classified, including 48 rams, 88 ewes, and 22 lambs. The number of sheep observed during surveys in this unit has been increasing since 2006. Bighorn sheep are typically observed within close vicinity of water sources.

Habitat

The Meadow Valley Mountains experienced severe drought conditions this year. The area received 48% of the average annual precipitation, with no precipitation received for 6 consecutive months throughout the summer. Some water developments were very low or dry throughout the summer. The Nevada Department of Wildlife conducted emergency water hauls to replenish water developments before the hunt season. In October, 6,552 gallons of water were transported via helicopter to the Mr. Shameless and Stoudt guzzlers. As of March 5, 2021, water developments were at 46% of maximum capacity. Most

water developments have been maintained and repaired to maximize capture of precipitation. Natural water sources in the area seem to be reliable throughout the year even when precipitation is below average. Drought conditions will cause forage resources to be reduced relative to previous years. A large wildfire burned 59,310 acres in habitat that supports bighorn sheep. Reseeding efforts were conducted to promote the regeneration of native forage species. The wilderness area, private land blocking access, and limited road access into the Meadow Valley Mountains makes this unit very difficult for bighorn sheep hunters, resulting in lower hunter success. Domestic sheep and goats range in close proximity to this area, causing a concern for disease transmission.

Unit 244: Arrow Canyon Range; Northern Clark County

Report by: Pat Cummings

Survey Data

In September 2020, a 4.5-hour aerial survey over the Arrow Canyon Range and Battleship Hills yielded a sample of 94 desert bighorn sheep. The sample was comprised of 30 rams, 43 ewes, and 21 lambs. The distribution of bighorn sheep was strongly associated with water sources. Most of the bighorn were found within 2 miles of water developments. Due to lack of water availability at the Full Curl project in late summer, many bighorn sheep moved either east to access water from 2 developments in the Battleship Hills or south to access water at New Arrows #2.

Habitat

In early 2020, storm systems developed in late February and weekly in March. The precipitation in early 2020 greatly enhanced range conditions and fully recharged most of the 6 water developments in the Arrow Canyon Range and Battleship Hills. However, the remainder of 2020 was marked by deteriorating environmental conditions brought about by inadequate precipitation. In the absence of spring storms and an active mid-year monsoon season, forage plant production was curtailed, and water developments were empty or nearly depleted.

In early October 2020, a broadscale emergency aerial water haul operation was initiated. In the Arrow Canyon Range and Battleship Hills, 3 nearly depleted water developments were partially recharged via helicopter. In total, approximately 7,270 gallons were supplied to the 3 water developments. In that the Full Curl development was fully depleted months earlier, it was decided to allocate water to the developments receiving heavy sheep use. Late in the first quarter 2021, environmental conditions are worse than the end of the first quarter last year in the Arrow Canyon Range. In general, each of the several recent winter storms were lacking in intensity and duration. Consequently, plant vigor and forage plant production may be less than optimal in the months ahead. The National Weather Service expects above-normal temperatures and below-normal precipitation to persist. Thus, bighorn sheep may face constraints in nutrient and energy availability and heightened uncertainty in access to water.

Population Status and Trend

Based on aerial survey data collected in September 2020, lamb representation was sufficiently high to reflect an increase in the desert bighorn sheep population estimate. However, given that dry conditions are likely to persist, it is recognized that a small uptick in the population may be soon negated.

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 245, 133: Pahranagat and Mount Irish Ranges; Lincoln County
Report by: Daniel Sallee

Survey Data

An aerial survey was conducted in Units 133 and 245 in 2020, resulting in 113 bighorn sheep classified as 23 rams, 66 ewes, and 27 lambs. The previous survey, conducted in 2018, resulted in a near record-high classification of 140 bighorn sheep.

Habitat

The area experienced severe drought conditions during 2020. Annual precipitation was 47% of average, with no precipitation received for 6 consecutive months during the summer. Most water developments were nearly dry during late summer and fall. The Nevada Department of Wildlife conducted emergency water hauls in August and November to replenish water developments. In August, 3,000 gallons of water was hauled via helicopter to the Long Canyon guzzler. In November 4,400 gallons of water was hauled via helicopter to the East Pahranagat One and North Wall guzzlers. As of March 5, 2021, water developments in the Pahranagat Range are at 25% of total capacity. Poor habitat conditions likely are degraded from previous years due to severe drought conditions and distribution of bighorn sheep was likely restricted to water sources.

Population Status, and Trend

This population has remained stable over the past 5 years, with the population estimate of 130 individuals for 2021. Improved lamb recruitment has been observed, likely due to mild winter conditions. Drought conditions have contributed to reduced forage availability and water distribution in 2020-2021. Disease risk is moderate in this area due to proximity of domestic animals. In 2012, 3 of 7 bighorn sheep in this area tested positive for *Mycoplasma ovipneumoniae (Movi)* blood antibodies, indicating past exposure to the pathogen. All 7 were negative for *Movi* via Polymerase Chain Reaction for any active infection. In October 2015, an additional 10 bighorn sheep were sampled in the Pahranagat, East Pahranagat, and Mt Irish Ranges with 4 testing positive for *Movi* blood antibodies and all 10 were negative for presence of *Movi* via PCR. The Nevada Department of Wildlife continues to monitor for interactions with domestic sheep and goats and assess disease risk.

Unit 252: Stonewall Mountain; Nye County
Report by: Hunter Burkett

Survey Data

An aerial survey was conducted in September 2020. The survey yielded a sample size of 18 rams, 67 ewes, and 2 lambs. In comparison, the most recent aerial survey conducted in September 2018 resulted in 117 bighorn 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. Trail camera data has already documented bighorn 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. 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 in 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 7 consecutive years (2014-2020). 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. In 2015, 19 bighorn sheep were collared to help give insight into movements of bighorn sheep populations throughout the NTTR. An additional 6 bighorn sheep were captured in November 2016 and 12 more 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 bighorn sheep herd experienced additional mortalities due to predation near Vitavich Spring in 2017.

Modeling of the Stonewall Mountain population is challenging due to the continual movement of bighorn sheep 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 almost no 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 2020. In November 2018, an aerial survey yielded a sample of 148 desert bighorn sheep. The sample was comprised of 76 rams, 69 ewes, and 3 lambs. In comparison, in October 2014, a record aerial survey yielded a sample of 265 bighorn sheep. The largest recorded sample was comprised of 73 rams, 125 ewes, and 67 lambs.

Habitat

In the first quarter of 2020, precipitation receipts were found to be insufficient to fully recharge 3 water developments: Keli, Charles and Buzzworm. Keli and Charles were recharged to 85% and 89%, respectively. Buzzworm was filled to only 35% capacity. In mid-October 2020, an emergency aerial water haul operation was initiated. In total, approximately 3,840 gallons were supplied to Keli and Charles via helicopter. Overall, dry conditions prevailed through 2020.

In early 2021, environmental conditions are not favorable. Limited precipitation in recent winter months resulted in inadequate recharge of the 3 water developments on Bare Mountain. While conducting water development inspection and maintenance flights in late February 2021, Keli and Charles were noted as 42% and 73% recharged, respectively. The status of Buzzworm was not ascertained, as high winds precluded a helicopter landing. At Buzzworm, the collection efficiency of the natural slickrock apron is relatively low. Thus, it is anticipated Buzzworm is empty or nearly depleted.

Bighorn sheep have coped with the impacts from excess burros and their aggressive nature and dominance at water sources. The Bureau of Land Management (BLM) established an Appropriate Management Level (AML) for feral burros in the Bullfrog Herd Management Area (HMA) at 58-91. In September 2019, the BLM gathered and removed a total of 690 burros from within and outside the Bullfrog HMA. Specifically, approximately 250 burros were removed from the immediate area of the Coeur Stirling Mine. According to the BLM, pre-gather burro estimate was 828 and the post-gather estimate was 138, with both likely

conservative. A year earlier, in July 2018, 404 burros were removed from the Bullfrog HMA. Burro gather efforts were focused on the U.S. Route 95 corridor, Sterling Mine area, mouth of Fluorspar Canyon and Bullfrog Hills.

Population Status and Trend

Evidence suggests the bighorn sheep herd was exposed to *Mycoplasma ovipneumoniae* in 2014. Modest population contractions due to reduced lamb survival and recruitment occurred in 2016-2018. More recently in 2019 and 2020, population declines were greater and marked by negligible lamb survival and recruitment. In the last 6 years, the herd has declined an estimated 48%.

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, from late fall through winter and into spring. The Beatty Wash-west Yucca Mountain area is an important movement corridor and should be recognized in land use planning.

Unit 254: Specter Range; Southern Nye County

Report by: Pat Cummings

Survey Data

In September 2020, an aerial survey over the Specter Range yielded a sample of 158 desert bighorn sheep. The sample comprised 40 rams, 98 ewes, and 20 lambs. Bighorn sheep were encountered regularly throughout the 4.1-hour survey and within 2 miles of water sources.

Habitat

In the Specter Range, dry conditions prevailed throughout 2020 and the first quarter of 2021. During this period, the storms that developed were brief and lacking in rainfall intensity. Importantly, there are no natural water sources and only a limited number of water developments.

In February 2021, measurements obtained during a water development inspection and maintenance flight revealed the collective storage of water among the 6 water developments was 36% of total capacity. Three water developments ranged from empty to minimally recharged (<15% capacity). Two water developments were well below half capacity. Only one water development was nearly fully recharged. Overall, the deficit in stored water signals a critical situation. It is anticipated that an emergency aerial water haul will be initiated by mid May 2021.

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. The more recent population data collected in 2018 and 2020 lent support to a population expansion. The survey sample obtained in 2020 was intermediate in total sheep encountered and encounter rate relative to samples obtained in 2017 and 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, 2018, and 2020 survey samples was low and may indicate 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 1 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

In early September 2020, a 4.2-hour aerial survey over the Last Chance Range yielded a sample of 117 desert bighorn sheep. The sample was comprised of 36 rams, 53 ewes, and 28 lambs. Bighorn sheep were broadly distributed and within 2 miles of water sources.

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. In 2020, available water stores inclusive of Point of Rocks Springs were sufficient to meet bighorn sheep demand. More recently, the dry conditions that prevailed in 2020 and continued through the first quarter of 2021 have resulted in inadequate recharge of the 7 water developments. In late February 2021, the total amount of stored water was 49% of overall storage capacity.

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 2021 desert bighorn sheep population estimate reflects a minor contraction relative to 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 2020. 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.

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 such as 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.

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 2021 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, and anthropogenic disturbances such as rock climbing, mountain bike riding, and OHV use. 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.

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 2020. 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

Persistent dry conditions in 2020 coupled with high bighorn sheep use at water developments resulted in dry and nearly depleted water developments in the McCullough Range. The dire situation prompted repeated emergency aerial water haul activities that spanned summer and fall 2020 and concluded in early January 2021.

Based on water development inspections in late February 2021, storms in fall and mid-winter 2020-2021 produced insufficient precipitation to substantially recharge water developments in the McCullough Range and Highland Range. However, recent storm activity that developed in mid-March 2021 resulted in

complete recharge of Poppy and Penny water developments and partial recharge of Rance (63%) and Rogers (63%). Further south, Roy was noted at 50% recharged and at Linda no water was available due to a maintenance issue. Bighorn sheep in the vicinity of Linda have reliable access to water at the nearby Southern Nevada Liteweight mine. In the Highland Range, collectively, the 2 water developments were charged to 42%.

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 soon. 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 US Interstate 11 segment at Railroad Pass. Additional urban sprawl southward along US Interstate 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 2020. 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 (Movi)* is endemic in the Newberry Mountains bighorn sheep population. The low lamb representation coupled with low animal encounter rate in the most recent aerial survey was consistent with adjacent bighorn herds struggling with *Movi*. The Mojave strain of *Movi* has been associated with desert bighorn sheep die-offs marked by not only low lamb survival, but also substantial adult morbidity and mortality. The 2021 population estimate approximates the estimate reported last year.

Unit 265: South Eldorado Mountains; Southeastern Clark County

Report by: Pat Cummings

Survey Data

No aerial survey was conducted over the south Eldorado Mountains in 2020. 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 (Movi)* was detected in bighorn in the Eldorado Mountains. The Mojave strain of *Movi* 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 2021 population estimate approximates the estimate reported last year.

Unit 266: North Eldorado Mountains; Southeastern Clark County
Report by: Pat Cummings

Survey Data

No aerial survey was conducted over the north Eldorado Mountains in 2020. In September 2019, a 4.6-hour aerial survey yielded a sample of 29 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 Mike O'Callaghan – Pat Tillman Memorial Bridge was opened to traffic in October 2010. The bridge spans the Colorado River approximately 1,500 feet downstream of the dam.

Phase II of Interstate 11 Boulder City Bypass was opened in August 2018. The new interstate highway courses south and east of Boulder City, and links with the Mike O'Callaghan – Pat Tillman Memorial Bridge. 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.

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. All 7 animals tested negative for *Mycoplasma ovipneumoniae* (*Movi*) by Polymerase Chain Reaction (PCR). Antibodies in the blood for *Movi* were detected in 4 of the sheep indicating past exposure to *Movi* infection. This was the first time since the initial captures in 2015 that all sampled animals were negative for Movi by PCR. Overall, the apparent reduction in prevalence of *Movi* by PCR may signal a reduction in infection rates at the population level. The 2021 population estimate approximates the estimate reported last year.

Unit 267: Black Mountains; Eastern Clark County
Report by: Pat Cummings

Survey Data

No aerial survey was conducted over the Black Mountains in 2020. In early October 2019, a 5.5-hour aerial desert bighorn sheep survey yielded a sample of 251 with 52 rams:100 ewes:21 lambs. During the survey, bighorn sheep were found to be broadly distributed.

Habitat

In 2020, precipitation receipts were well below average. Higher ambient temperatures in summer months and lack of an active monsoon season resulted in deteriorated range conditions marked by reduced plant vigor and abundance. Overall, dry conditions persisted through the first quarter of 2021. The National Weather Service, Climate Prediction Center forecasted drought conditions to persist through June 2021.

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 2021 population estimate for desert bighorn sheep inhabiting the Black Mountains and Muddy Mountains reflects a small contraction relative to the estimate reported last year.

Unit 268: Muddy Mountains; Clark County

Report by: Pat Cummings

Harvest

The seventh desert bighorn sheep ewe hunt in Unit 268 was held in October 2020. Seventy-two tags were apportioned to the resident hunt and 8 tags were allotted to the nonresident hunt. Overall, 49 ewes, including 2 reported as wounding loss, were harvested in 2020. Since the first hunt season in 2014, 235 ewes were harvested.

Survey Data

No aerial survey was conducted over the Muddy Mountains in 2020. In early October 2019, 8.0 hours of flight time detected 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 early 2020, storms developed late in February and weekly in March. The precipitation greatly enhanced range conditions and recharged the 6 water developments in the Muddy Mountains. Like in 2019, water developments were 97% of capacity going into early summer 2020. However, it was anticipated that in the absence of an active monsoon season, water developments on Muddy Peak and in the central Muddy Mountains would be fully depleted at some point in late July or in the first half of August 2020. The late spring and summer months were marked by drought conditions, as storm systems largely failed to develop during the mid-year monsoon season and ensuing fall and early winter. Lack of precipitation caused deteriorated range conditions and little to no recharge of water developments that were receiving heavy sheep use throughout the year.

Expectedly, emergency aerial water haul actions were initiated in the first half of August 2020. Persistent high ambient temperatures and dry conditions coupled with high water drawdown rates at water developments due to heavy bighorn sheep use prompted additional water haul. The 3 subsequent emergency water haul operations were undertaken in early October, mid-November, and early January 2021. Overall, approximately 38,540 gallons of water were supplied to 4 water developments: Five Ram – 20,920 gallons, Flipper – 6,980 gallons, Cliff Site – 5,000 gallons and Jerry – 5,640 gallons.

In early March 2021, measurements obtained during a water development maintenance flight for 4 of the 6 water developments revealed the collective store of water was 32% of capacity. Two of the water developments inspected were on the south end of Muddy Peak and together were recharged to only 24% of

capacity. The few storms later in March 2021 appeared short in duration and low in rainfall intensity. Overall, the deficit in stored water signals a critical situation. It is anticipated that an emergency aerial water haul will be initiated by mid May 2021.

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.

Population Status and Trend

The last aerial desert bighorn sheep survey conducted over the Muddy Mountains was in early October 2019. Since the last survey, events that influence the bighorn population include 2 ewe and 2 ram hunt seasons and 2 episodes of bighorn sheep deaths due to lack of water availability. Although the number of bighorn sheep that succumbed to dehydration in early fall 2019 and summer 2020 is unknown and difficult to simulate in the population model, harvest metrics associated with hunt seasons (i.e., average days afield, average age of rams) were satisfactory. Thus, it appears the bighorn sheep population segment in the Muddy Mountains may have been impacted to only a minor extent due to its large size.

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 (Movi) 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 *Movi* 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 2021 population estimate for bighorn sheep inhabiting the Black Mountains and Muddy Mountains reflects a small contraction relative to the estimate reported last year. The modeled decline in population was deemed reasonable to account for known and estimated bighorn sheep deaths in the western portion of Unit 268. The deaths were attributed to dehydration as a result of no water available at 2 water developments.

Unit 269: River Mountains; Clark County

Report by: Pat Cummings

Survey Data

In late September 2020, a 5.1-hour aerial desert bighorn sheep survey was conducted over the River Mountains. The survey yielded a sample of 198 bighorn sheep comprised of 56 rams, 134 ewes, and 8 lambs.

Habitat

In early 2020, storm systems developed in late February and weekly in March. The precipitation in early 2020 greatly enhanced range conditions. However, the remainder of 2020 was marked by worsening environmental conditions brought about by inadequate precipitation. In the absence of spring storms and an active mid-year monsoon season forage plant production was curtailed.

In early 2021, environmental conditions are not favorable. Bighorn sheep that frequent Hemenway Park in Boulder City generally do so from early May to sometime in November each year. However, due to poor range conditions brought about by persistent drought, bighorn sheep frequented the park from May 2020 to spring 2021. In the near term, the National Weather Service expects above-normal temperatures and

below-normal precipitation to persist through June 2021. Thus, most of bighorn sheep that do not frequent Hemenway Park will likely face constraints in nutrient and energy availability.

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 (Movi)* was detected in a female lamb captured in Hemenway Park, Boulder City. Subsequently, in spring 2015, the more virulent Mojave National Preserve strain of *Movi* 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: Daniel Sallee

Survey Data

No formal aerial survey was conducted in the Mormon Mountains in 2020. The last aerial survey conducted was in September 2019 with sample size of 144 which were classified as 35 rams, 79 ewes, and 30 lambs. Bighorn sheep were observed within close vicinities of natural water sources, livestock tanks, and water developments, many of which need repairs and maintenance. The majority of the bighorn sheep were observed in the Mormon Mountains, while a lower density of sheep was observed in Unit 242 in the Tule Hills.

Habitat

Habitat conditions were poor relative to previous years due to severe drought conditions. The area received 42% of the long-term average precipitation, including a 7-month period with no recorded precipitation. There are 5 water developments in the Mormon Mountains, however most need repairs and upgrades to hold sufficient quantities of water. Despite needed repairs, water developments were observed to be holding 74% of total capacity in February 2021 and providing water to bighorn sheep in the area. The Bertha water development was rebuilt in early 2019 by the Nevada Department of Wildlife and volunteers which will allow it to provide a reliable source of water. The Prospect water development is scheduled for repair and upgrade in 2021. Bighorn have been observed in a wide range of elevations throughout the year and have been observed using vegetation that has regenerated in recent burns.

Population Status, and Trend

Bighorn sheep in the Mormon Mountains appear to be stable with an estimated population size of 300 animals. No pathogen spillovers or interaction with domestic sheep or goats have been detected in the Mormon Mountains bighorn sheep herd at this time. Monitoring for disease by the Nevada Department of Wildlife will continue.

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

Survey Data

No aerial survey was conducted over the Virgin Mountains and Gold Butte in 2020. 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 early spring 2020, annual grasses and forbs were green, lush, and abundant. It was noted on a water development maintenance flight conducted in February 2020 that both Virgin No. 1 and No. 2 were fully recharged. However, the remainder of 2020 was marked by worsening environmental conditions brought about by inadequate precipitation. More recently, dry conditions persisted through the first quarter of 2021. In early March 2021, it was noted that Virgin #1 and Virgin #2 were both recharged to 88%.

In September 2020, the lightning-caused Virgin Mountain Fire consumed vegetation at the upper elevations across 1,624 acres. In the near term, it is anticipated that feral cattle may hamper burned area stabilization and rehabilitation efforts. Five feral cows were encountered at Virgin #1 during the water development maintenance flight in March 2021. It is thought feral cattle displaced from the upper elevations by the fire discovered Virgin #1 in their movements to lower elevations. Feral cattle utilizing a bighorn sheep water development is an obvious problem. In the near future, resolution of the problem will come about through either gaining cooperation with the livestock owner or land manager or constructing a pipe-rail fence.

Population Status and Trend

The 2021 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 in 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

In September 2020, a 3.4-hour aerial survey yielded a sample of 100 desert bighorn sheep. An additional 5 rams were encountered but not able to be aged. Bighorn sheep were well dispersed and encountered throughout much of the survey area. Most bighorn encounters were within 2 linear miles of water sources. Although the number of bighorn sheep encountered in the recent survey was well below the sample obtained in 2018, sample size and population data in the recent survey were similar to earlier surveys (Table 3).

Table 3. Desert bighorn sheep herd composition obtained through aerial surveys in the Spotted Range.

Year	Rams	Ewes	Lambs	Total	Rams:100 Ewes: Lambs
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
2018	47	90	25	162	52:100:28

Habitat

In early 2020, storms developed late in February and weekly in March. The precipitation 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 in early 2020, revealed the collective store of water among the 6 water developments was 90% of total capacity. The remainder of 2020, however, was marked by drought causing deteriorated range conditions and no recharge of water developments receiving heavy sheep use throughout the year.

During aerial bighorn sheep survey conducted on September 20, 2020, it was noted that Spotted #5 was dry, and that it appeared water availability ceased perhaps a week or 2earlier. Despite the lack of water availability, heavy site disturbance from bighorn sheep hoof prints indicated continued bighorn sheep visitation. On October 10, 2020, an emergency aerial water haul resulted in delivery of approximately 5,180 gallons to Spotted No. 5. On an early March 2021 water development inspection and maintenance flight, measurements revealed the collective store of water among the 6 water developments was 64% of total capacity. The Spotted #5 water development was charged to 77% of capacity. In the absence of additional moisture producing storms, Spotted No. 5 will likely become depleted in late July 2021.

Population Status and Trend

The 2021 desert bighorn sheep population estimate reflects a contraction relative to the estimate reported last year. The population was reasoned to have experienced a decline based on low lamb and yearling ram representation in the fall 2020 aerial survey.

Unit 281: Pintwater Range; Northwestern Clark County

Report by: Pat Cummings

Survey Data

In September 2020, a 4.4-hour aerial survey yielded a sample of 111 desert bighorn sheep. The sample was comprised of 38 rams, 47 ewes, and 24 lambs (2 unclassified). 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 as 44 rams, 76 ewes, and 33 lambs.

Habitat

Storms in late February and March 2020 promoted germination and growth of annual native and exotic grasses and forbs. In early spring 2020, annual grasses and forbs were green, lush, and ubiquitous. Although precipitation receipts in the first quarter of 2020 were adequate to recharge water developments in the northern areas, the 2 water developments on the south end of the range were only partially recharged due

to maintenance and design issues. Thus, in early 2020, it was anticipated that if dry conditions prevailed then water availability would cease on the south end of the Pintwater Range during summer 2020.

Dry conditions persisted from April throughout the remainder of 2020. During an aerial bighorn sheep survey in mid-September 2020, it was noted that water was not available at Heavens Well and Dain Peak on the south end of the range. It was also noted that recent site disturbance from bighorn sheep hoof prints indicated that bighorn sheep were frequenting the dry water developments. The lack of water availability on the south end of the range prompted an emergency water haul. In early October 2020, approximately 4,160 gallons were airlifted via helicopters and deposited in Heavens Well.

Overall, winter 2020–2021 was dry. The few storms that developed were short in duration and low in rainfall intensity and generally inadequate to wet soil beyond a few inches. Therefore, it is anticipated forage plant production will be curtailed in 2021. In early spring 2021, 2 water developments on the northern end and 2 on the southern end of the Pintwater Range are inadequately recharged. In the absence of storm activity in upcoming months sufficient to recharge these 4 water developments emergency aerial water haul actions are expected.

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.

Population Status and Trend

The 2021 desert bighorn sheep population estimate for the Pintwater Range reflects a slight expansion relative to the estimate reported last year due to high lamb representation encountered during the fall 2020 aerial survey.

Unit 282: Desert Range and Desert Hills; Northwestern Clark County

Report by: Pat Cummings

Survey Data

In late September 2020, an aerial survey over the Desert Range yielded a sample of 97 desert bighorn sheep. The sample was comprised of 40 rams, 41 ewes and 16 lambs. Bighorn sheep were encountered in the general vicinity of the Black Top water development, White Sage Gap and the Chuckwalla water development. No bighorn sheep were encountered near the Tommy water development. During the survey, Tommy was inspected and found to be dry, yet sign indicated bighorn sheep were repeatedly visiting the empty water development.

Habitat

In early 2020, range conditions were improved as result of storm activity that developed in the final 6 weeks of the first quarter. Annual grasses and forbs were green, lush, and ubiquitous. However, the recharge status of the water developments in the Desert Range was 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%. Dry conditions prevailed throughout the remainder of 2020. In October 2020, with the assistance of the US Air Force and US Fish and Wildlife Service, emergency aerial water haul actions were initiated. In 2 days, 2,300 gallons of water were supplied to Tommy and 3,020 gallons to Chuckwalla.

In early March 2021, water development inspections revealed insufficient recharge of 4 water developments. The Black Top water development had no water in the storage tanks. The Tommy and Chuckwalla projects were recharged to 40% and 60%, respectively. White Sage Gap was noted at 67%

recharged. It is anticipated no water will be available at Black Top, Tommy, and Chuckwalla by mid-summer 2021.

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.

Population Status and Trend

The 2021 population estimate for desert bighorn sheep inhabiting the Desert Range reflects a small expansion relative to 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

No aerial surveys were conducted over the Sheep Range and the East Desert Range in 2020. 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 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 were favorable. Precipitation receipts were sufficient to promote establishment and growth of native and invasive forbs and grasses across the landscape. However, the remainder of 2020 was marked by worsening environmental conditions brought about by inadequate precipitation. In the absence of spring storms and an active mid-year monsoon season, range conditions deteriorated. In mid-November 2020, emergency aerial water haul operations included the delivery of 2,700 gallons of water to the nearly depleted Yoxen water development situated high on the northwest portion of the Maynard Hills.

At the end of the first quarter of 2021, environmental conditions are deemed worse by comparison to the end of the first quarter last year in the Sheep Range and East Desert Range. In the East Desert Range, the Rug Mountain and Saddle Mountain water developments were recharged to 49% and 76%, respectively. In the Sheep Range, the Woody and Yoxen water developments were both noted at 57% capacity.

In mid-March 2019, the Woody water development situated on the north end of the Sheep Range was rebuilt. The new equilibrium system, which has 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 tank pad had settled under the weight of full tanks.

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 establishment of fire-adapted invasive and exotic annual grasses at low and mid-elevations.

Population Status and Trend

The 2021 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 (Movi)* in recent years. Through disease surveillance measures, several strains of *Movi* were identified in southern herds. It is possible that bighorn sheep inhabiting the Sheep Range and the greater Desert National Wildlife Refuge are in a recovery stage.

Unit 286: Las Vegas Range; North Clark County

Report by: Pat Cummings

Survey Data

No aerial survey was conducted over the Las Vegas Range in 2020. In September 2019, an 8.7-hour aerial survey over the Las Vegas Range yielded a sample of 148 desert bighorn sheep. The sample was comprised of 32 rams, 80 ewes, and 36 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 sample was comprised of 55 rams, 123 ewes, and 52 lambs.

Habitat

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 were favorable. Based on findings during the February 2020 water development inspection flight, spring developments were functioning properly, and water developments were fully recharged. However, dry conditions prevailed throughout the remainder of 2020. As environmental conditions worsened, the scope of mid-October 2020 emergency aerial water haul operations was extended to include 2 water developments in the Las Vegas Range. Juniper Peak and Frozen Toe that were supplied with 1,940 gallons and 3,600 gallons, respectively.

In early March 2021, a maintenance flight revealed the collective store of water among 3 water developments was 53% of total capacity. Individually, Juniper Peak was recharged to 50% and New Hidden Valley and Frozen Toe were noted at 67% and 40%, respectively. Overall, dry conditions persisted through the first quarter of 2021. In the near term, the National Weather Service Climate Prediction Center forecasted drought conditions to persist through June 2021.

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 the prohibition of unlicensed OHVs 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 desert bighorn sheep survey yielded a sample that was well above all previous survey results. It was deemed imprudent to force the population model to completely account for and be entirely consistent with the 2017 survey data. It was reasoned that additional surveys need to be conducted to accurately portray the degree of population expansion. The 2021 bighorn sheep population estimate approximates the estimate reported last year.

CALIFORNIA BIGHORN SHEEP

Unit 011: Massacre Rim, Coleman Rim; Northern Washoe County
Report by: Mike Cox and Chris Hampson

The current Massacre Rim bighorn population in northern Washoe County was from 3 translocations: 2012 – 29 from Montana and Double H Mountains; 2014 – 15 from Sheep Creek Range; and 2019 – 19 from Double H Mountains released near Big Point. The Massacre Rim sheep population is stable to decreasing at approximately 50 adults. Drought conditions between 2007 and 2015 dried up many of the spring sources contributing to bighorn dispersing eastward onto the Guano Rim on the Sheldon. Many of the sheep eventually moved back to the Massacre Rim but some likely stayed on the Sheldon. Mountain lion predation on Massacre Rim has also been a factor in suppressing the small sheep population from reaching sustainable numbers.

The bighorn population on the Coleman Rim was established by both Nevada and Oregon through translocations. Oregon conducted the first introduction in 1991 with 15 bighorns from Steens Mountain. Nevada augmented the Coleman Rim population in 2014 with 19 bighorns from the Double H Mountains. A bighorn guzzler was built to support the herd 2 miles south of the Oregon border. The interstate herd appears to be stable to increasing with an estimate of 100 bighorn that live along the Coleman Rim in both states. In January 2021, Oregon Department of Fish and Wildlife (ODFW) biologist Jon Muir shared information on the Coleman Rim herd: over half of the ewes spend summer and early fall on Nevada side; ODFW has issued 2 ram tags for the Coleman and East Guano Rim Unit and has seen nice rams harvested each year.

As of April 20, 2021, the NRCS percent of average accumulative precipitation for the Sheldon National Wildlife Refuge to the east and Dismal Swamp in Warner Mountains to the west, were 65% and 67%, respectively. The US Drought Monitor Map as of mid-April 2021 shows northern Washoe County in the Severe to Extreme Drought categories predicting continued dry spring and summer months for this area. It will be a very challenged year for bighorn sheep with little new vegetative growth and huge demands and likely competition on existing water sources and riparian areas.

Unit 012: Calico Mountains and High Rock Canyon; Western Humboldt and Washoe Counties
Report by: Mike Cox and Chris Hampson

Survey Data

Late summer 2020 aerial surveys in Unit 012 classified 26 rams, 64 ewes, and 26 lambs resulting in lamb ratio of 41 lambs:100 ewes. Though sample size is 10-20 less animals than the previous two years, the ratios are almost identical to 2018 and 2019 survey results.

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

Several new big game water developments have been proposed to be constructed within 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.

As of April 20, 2021, the NRCS percent of average accumulative precipitation amounts for the Sheldon National Wildlife Refuge to the east and Dismal Swamp in Warner Mountains to the west, were 65% and 67%, respectively. The US Drought Monitor Map as of mid-April 2021 shows northern Washoe County in the Severe to Extreme Drought categories predicting continued very dry spring and summer months for this area.

The BLM's Black Rock Field Office released in mid-April 2021 an Environmental Assessment to conduct a horse and burro gather in the Calico Complex. As with most Herd Management Areas in Nevada, the horse and burro numbers are excessively high and severely degrading riparian areas and rangelands. BLM estimates that there will be approximately 2,000 horses and burros in the complex in 2021 that includes the Calico Mountains, Black Rock Range, and surrounding areas. NDOW will certainly provide a letter of support to the Black Rock Field Office for conducting the gather. To compare apples to apples, the average weight of a single horse equals the weight of 6 bighorn sheep. The weight of 2,000 horses would equal 12,000 bighorn sheep. That is more than all bighorn sheep in the entire state of Nevada. Public lands are struggling under the number of animals that are not only destroying water sources but are outcompeting and preventing native animals like bighorn sheep from drinking water. This competition results in direct death of bighorn sheep, especially lambs who are unable to travel long distances and multiple days without water during the heat of the summer.

Population Status and Trend

The 41 lambs:100 ewes recruitment rate observed in 2020 and 2019 should allow for herd growth but it is likely that lamb survival will be low in 2021 due to severe drought conditions that are predicted to persist through the summer months.

Unit 013: Hays Canyon Range; Washoe County

Report by: Mike Cox and Chris Hampson

Survey Data

No aerial or ground surveys were conducted in 2020 in the Hays Canyon Range. Ground surveys were conducted summer 2019 detecting 50 bighorn sheep in the Unit Group including both 011 and 013 Units. The 45 lambs:100 ewes ratio indicated fair to good recruitment, even accounting for additional mortality through fall and winter months for the herd that lives in the Hays Canyon Range (Unit 013).

Habitat

As of April 20, 2021, the NRCS percent of average accumulative precipitation amounts for the Sheldon National Wildlife Refuge to the east and Dismal Swamp in Warner Mountains to the northwest, were 65% and 67%, respectively. The US Drought Monitor Map as of mid-April 2021 shows northern Washoe County in the Severe to Extreme Drought categories predicting continued very dry spring and summer months for this area.

Population Status and Trend

Recruitment for the Hays Canyon herd continues to be good, and the small population has been stable to slowly increasing over the past few years. Mountain lion control activities and hunter harvest continue within the Hays Canyon Range and other areas within Unit 013 and have helped to reduce lion mortality and pressure on the small bighorn herd as it builds to a viable population level that can sustain normal

levels of predation. With the initial repopulation of Hays Canyon in 2013 with 30 animals including 5 young rams, it is estimated that there are 6–10 mature rams in the Hays Canyon Range in 2021.

Unit 014: Granite Range; Washoe County

Report by: Jon Ewanyk and Chris Hampson

Harvest Results

The quota for Unit 014 has been lowered stepwise since 2016 to 4 tags from 5, then 3 tags in 2017-2018 and to 2 tags in 2019. In 2020, only 1 hunter was successful harvesting a 7-year-old ram. The average days hunted for this unit was 10.5. The latter portion of the hunting season generally provides more opportunity for hunters to locate and observe bighorn rams.

Survey Data

Surveys in Hunt Unit 014 located 51 sheep with a composition ratio of 43 rams:100 ewes:39 lambs. This lamb ratio sufficient to allow for herd growth, similar to the 2019 lamb ratio of 40 lambs:100 ewes.

Habitat

Habitat conditions in 2020 were poor due to drought conditions that persisted from late spring through the winter months. As of April 2021, the Northern Great Basin sits at 57% of average for Snow Water Equivalent and only 73% of average for precipitation totals. The US Drought Monitor Map as of mid-April 2021 shows northern Washoe County in the Severe to Extreme Drought categories predicting continued very dry spring and summer months making forage conditions even worse than in 2020. 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 bighorns 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. Lion control was initiated prior to translocation to allow the newly transplanted bighorn the chance to become familiar with the new habitat and learn available escape terrain. Unfortunately, 3 collared bighorns were lion mortalities in the first few months post-release. Two lions that were removed were known to be responsible for two of the bighorn sheep mortalities.

Bighorn from the recent release have explored the entire Granite Range. Two of the collared bighorns have explored areas well to the south near the southern tip of the range. Two other collared bighorns moved eastward and crossed Leadville Canyon and are now in the Calico Range east of Donnelly Peak in Unit 012. Most of the bighorn have more recently moved back to the general area of the release site near Buckhorn Peak.

Units 021, 022: Virginia Mountains; Washoe County

Report by: Cooper Munson

Survey Data

No dedicated composition surveys were conducted during this reporting period. Ancillary observations of bighorn were made during deer surveys in the spring 2021. Bighorns were noted to be utilizing low to moderate elevations on the northern portion of Unit 022.

Ram ratios appear to be strong in this small population of bighorn. The 2019 observations by biologists provided insight to the age classes in the population, where all age classes of rams appeared to be present with the exception of limited numbers of older age class rams.

Habitat

Wildfire continues to impact habitat conditions within Units 021 and 022. Fires in 2020 burned vast acreages within the hunt unit group that are not currently occupied by bighorn sheep. In 2019, 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 previously on the north end of the Virginia Mountains and in the Sand Hills of Unit 021.

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.

Access for all hunters continues to be problematic with the closure of the Cottonwood Canyon Road in previous years by a private landowner. Accessing some of the higher density bighorn use areas is 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 at the base of the mountain.

Population Status and Trend

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

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 2020. The Montana Mountains were not surveyed this year; however, subsequent flights have indicated that the area is still void of sheep. Aerial survey flights in the Double H Mountains detected appeared healthy and well distributed bighorn sheep throughout the range. During this survey sheep numbers were slightly lower than last year's survey. Bighorn sheep continue to expand into unoccupied habitats to the east side of the range. During the 2020 Double H survey, 70 animals were observed with a ratio of 76 rams:100 ewes: 66 lambs.

Habitat

Despite the lack of significant winter precipitation, habitat conditions this year remain good mainly due to the abundant amount of moisture received the previous year. February precipitation levels were above average which has brought season totals to 95% of average. Snowpack amounts at this point are at 101% of average compared to the 91% received in winter 2019-2020. 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 6 years ago in the Montana Mountains resulting in the depopulation of the entire herd. Aerial surveys revealed good age representation in the ram segment that should sustain this herd in the coming years. Continued strong lamb recruitment is supporting an increase in this herd from the previous year.

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

Report by: Ed Partee

Survey Data

Aerial surveys were conducted in the Pine Forest Range in mid-August 2020. During this survey period the weather conditions were very hot, and the survey was cut short due to the poor visibility caused by smoke from California wildland fires. This survey classified nearly 100 animals less than previous years' surveys; 76 sheep were classified with a ratio of 47 rams:100 ewes:53 lambs. Despite the lower number of animals observed the ratios are still in line with the 5-year averages.

Habitat

Habitat conditions currently remain fair with no additional loss from fires and with moisture coming a little later than in years past. The snowpack as of March 1, 2021 is reported at 101% of average, promoting forage quality that 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.

Population Status and Trend

The population in this unit has rebounded from past capture operations. There is a slight increase in this population with an upward trend. Age classes remain strong across the cohorts with this herd, and ram harvest should once again be good this year. There is a slight decline in the quality of rams harvested; however, the age class of harvested rams remain strong. Animals remain healthy in this population and age distribution on rams remains stable with many age classes observed. With the upcoming hunts the McGee Mountain portion of this unit has been removed and added to Unit 033 for sheep only.

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

Report by: Jon Ewanyk and Chris Hampson

Harvest Results

In 2020, only 1 of the 3 hunters reported harvesting a ram. Ram hunters expended an average of 11 days hunting the unit. Hunting bighorn on the Sheldon National Wildlife Refuge Sheldon remains a challenge, but in 2021 this hunt was expanded to include the contiguous McGee Mountain portion of Unit 032 that adjoins the east boundary of the Sheldon to provide more hunt area options for tagholders.

Survey Data

California bighorn aerial surveys were not conducted in 2020; however, in August of 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.

Habitat

The Sheldon continues to see the impacts of drought on habitat condition and water availability. As of April 1, 2021, the Great Basin Outlook Report shows the Northern Great Basin to be around 73% of average for Water Year to Date Precipitation. Snow total averages are low and are sitting at 57% of average for Snow Water Equivalent. Both precipitation and snow total averages are lower this year compared to previous years, which will no doubt impact wildlife on the Sheldon.

Pinyon and juniper control work has been ongoing at 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 to help mitigate the effects of predation.

Population Status and Trend

In 2018, in cooperation with the US Fish and Wildlife Service, 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.

Although there is no survey data for 2020, population modeling suggests from the previous two years of strong recruitment, the Sheldon bighorn population should experience an increasing trend.

Unit 034: Black Rock Range; Humboldt County

Report by: Ed Partee

Survey Data

Surveys in this unit took place in August 2020. During this survey 90 sheep were classified which is approximately the same that was observed last year. This survey yielded a ratio of 20 rams:100 ewes:60 lambs. During this survey, rams were very difficult to locate with ewe and lamb numbers remaining unchanged. The ram ratio has dropped from the previous year and remains within the 5-year average. This year's lamb ratio is slightly higher than the 5-year average.

Habitat

During the time of the survey, habitat conditions were poor to moderate with lack of moisture throughout the unit. Past precipitation has helped habitat conditions in the area and added moisture will sustain current conditions. Previous year's above-average precipitation greatly increased the habitat quality across the unit. As of March 1, 2021, precipitation was 95% of average. Spring and summer precipitation will be needed to sustain these 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. Hunter success in 2020 was only 64%, the lowest on record, compared to the long-term average since 1998 of 94%.

Population Status and Trend

In winter 2020-2021 a bighorn capture operation was conducted for source stock to translocate to the Lake Range on Pyramid Lake Tribal lands. A total of 16 animals were removed for the Pyramid Lake Paiute Tribe in Washoe County. With the higher lamb ratios in this population over the last 10 years, this population has increased over the course of the last nine years and continues to do so. Despite the

capture operation that took place in this unit, this year the population estimate for this herd is showing another slight increase. This unit has experienced a slight drop in ram quality over the last few years in conjunction with the average age the last 5 years of 7.2 years compared to long-term average from 1998 to 2015 being 7.7 years of age for harvested rams.

Unit 035: Jackson Mountains; Humboldt County

Report by: Ed Partee

Survey Data

Surveys in this unit took place in mid-August 2020 with hot and smokey conditions. During this survey 112 sheep were surveyed which is down from the record survey of 2019. With the augmentation that took place in the Bloody Run Hills in early 2019, this portion of the survey had good recruitment from translocated ewes once again this year. For the entire unit lamb ratios remain stable with a ratio at 37 lambs:100 ewes. Ram ratios continue to be biased low at only 30 rams:100 ewes observed.

Habitat

Habitat conditions in this unit are like those throughout Humboldt County which has remained stable. This unit encompasses 2 different mountain ranges with individual herds that occupy each range. Both units have experienced the same type of weather patterns throughout the year. Both the Bloody Runs and the Jackson Mountains had a decent snowpack with it being at 101% of normal on March 1, 2021. With the feral horse herds in the Jackson mountains, many of the springs have experienced overutilization. This and other factors have contributed to impacts on the habitat conditions. Spring and summer moisture will be needed to sustain these areas. With the good habitat conditions existing in the Bloody Runs, the translocated sheep have responded well the last couple of years showing 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 is doing very well with continued growth in both populations. Multiple releases have taken place within this unit including both the Jackson Mountains and the Bloody Runs. Due to the lack of mature rams present in the Bloody Runs at this time, this portion of the unit has been excluded from the hunt unit. Once the mature segment is present a limited harvest will be allowed in this portion. The Jackson Mountain population continues to grow with a strong age class of mature rams. 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 currently located on east side of the Jackson Mountains. The population estimate for this unit has once again increased for 2021.

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

Hunt Results

One tag was offered for the 2020 season. The hunter harvested a 4-year-old ram in the Razorback Mountains near Trego Hot Springs off Jungo Road. The hunting season for California Bighorns in Unit 041 will be closed for 2021 and 2022 due to the lack of mature rams anticipated in this population.

Survey Data

A 1-day aerial survey occurred in several mountain ranges of Unit 041 in late August and produced an observation of 16 bighorns in the Sahwave Mountains. Subsequent trail camera surveys in the Sahwave Mountains showed an additional 6 bighorns with a survey total of 22 that calculated into ratios of 46 rams:100 ewes:23 lambs. The 2020 lamb ratio is well below maintenance level and has resulted in a declining population.

Population Estimate and Trend

This California bighorn herd has declined to an estimated 40 animals. Population decline is attributed to increases in predation from mountain lions over the last 3 years and a low observed recruitment rate in 2020. It is thought that high numbers of burros and feral horses around the Sahwave Mountains have provided a consistent prey base for mountain lions. Bureau of Land Management conducted a feral horse and burro gather in August 2021 resulting in 1,873 equids being removed. BLM's Appropriate Management Levels (AML) for the Sahwave Mountains Herd Management Area (HMA) is a low of 82 horses to a high of 136, and burros to be 0. Prior to this gather, BLM estimated the feral horse population at 1,722 horses or 1,266% over AML and burros at 160. BLM gathered 1,653 feral horses and 220 burros bringing estimated feral horse numbers to 69 and burros to theoretically zero. Targeted predator removal is recommended within the Sahwave Mountains until an increasing trend is observed, with likely mountain lion "prey switching" to bighorn sheep at higher rate with the horse and burro population reduced to AML.

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

Survey Data

Surveys were conducted in mid-August 2020. During this survey, a total of 134 animals were classified with a ratio of 73 rams:100 ewes:66 lambs. Despite the continued struggle from disease issues, survey numbers were much higher than what was observed last year. Both lamb and ram ratios observed on this flight are above the average that has been observed in this herd the last 5 years. There remain a few animals marked and some with active GPS collars 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, 2021, snowpack was 101% of normal with the precipitation at 95% of normal. The snow conditions came a little late this year again, but 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, effectively reducing the heavy use from horses, which 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 notwithstanding potential impacts from chronic carriers of pneumonia-causing pathogens.

Population Status and Trend

The 2021 modeled population estimate for this unit is slightly lower once again this year, attributable to projected low lamb survival post survey. Unit 051 continues to struggle from disease issues and will continue for some time in the future. Ram ratios were up on survey with 41 individuals classified. Eight-Mile Canyon had a much better number surveyed this year compared to last year after the horse gather took place. Ram numbers are still holding with a few more in the younger age classes. Disease surveillance was conducted in early 2021 to sample, mark, and monitor sheep sub-herd interaction and lamb production and recruitment. This brings the total collared bighorn to 14 individuals in the Santa Rosa Range. The early 2021 capture was the initiation of a Test and Remove project, that many other states and provinces are conducting to detect and eliminated from the population chronic carriers of deadly pathogens that spread to healthy animals in the herd especially within large nursery groups during spring and summer months. This project will be a challenge in the Santa Rosa Range with its many sub-herds and make take several years to implement with the hope of restoring the population to its former numbers prior to 2004. Despite the drops and other issues 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, 16 ewes, 5 lambs and about 13 rams occupy the Snowstorms. 2020 lamb recruitment was the lowest since the 2015-2017 test and cull project. A combination of information from marked animals well distributed across all 3 sub-herds, summer ground surveys and two bighorn collaring and sampling events in early 2021 has resulted in a reliable estimate of the current population.

Habitat

Range conditions remain suitable for bighorn sheep across much of the Snowstorms given the propensity of bighorn to utilize steep and rugged terrain. That said, drought has taken a toll on many of the riparian areas throughout the Snowstorm Mountains. Livestock and feral horse utilization have impacted much of the riparian habitat on the Snowstorms as well as newly seeded blocks of habitat that were rehabilitated following the historic 2018 Martin Fire. Bureau of Land Management offices in Elko and Winnemucca are aware that many pastures on the Snowstorms are not meeting land health standards.

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 2017-2019 indicated the removal of super-shedder ewes, which are ewes that have active infection of virulent pathogens, had improved lamb recruitment. While the increased lamb ratios between 2017-2019 were favorable, additional collaring and sampling of adult ewes and rams during winter 2019-2020 indicated the original strain of *Mycoplasma ovipneumoniae (Movi)* was still being circulated in 2 of the 3 sub-herds of ewes. Mature rams also tested positive for *Movi* during the 2019-2020 sampling effort. This was a significant find as biologists had geared most previous testing efforts towards the adult ewe segment of the population. In addition to documenting *Movi* during the 2019-2020 sampling effort, last summer a dead lamb was recovered from the Owyhee Bluffs. That lamb tested positive for the Snowstorm strain of *Movi* as well. Lamb production was very low in 2020. In fact, it was one of the lowest production years on record with only 8 lambs observed in early summer. Along with documenting greatly reduced lamb production last summer, several bighorn ewes vanished from the Kelly Creek and Owyhee Bluffs sub-herds. These animals are presumed dead, either falling prey to lion predation or pneumonia.

In response to the setback of finding *Movi* still circulating among Snowstorm bighorn, NDOW captured and sampled 21 bighorn in early 2021. The sampling represented all age and sex classes. Animals captured in early 2021 included newly caught animals as well as those previously marked and sampled. Most animals were fitted with new collars. The main objective of the sampling effort was to resample 5 bighorn from various portions of the Snowstorms that had tested positive for *Movi* winter 2019-2020. Of those 5 highest priority bighorns to retest, 2 tested positive for *Movi* again in early 2021. Both chronic shedders were removed from the population; 1young ewe from Kelly Creek and a mature ram from the north end of the range. These findings are significant as biologists sampled a high percentage of the adult population in 2021 and the only *Movi* positive animals detected had also been identified as potential carriers following the 2019-2020 sampling effort. These data are extremely encouraging. Results indicate a high probability *Movi* may have finally been removed from the Snowstorm bighorn herd. While NDOW staff remain optimistic, summer lamb survival will be one of the key metrics used moving forward to measure the success of these efforts.

Unit 068: Sheep Creek; Northern Lander and Eureka Counties

Report by: Sarah Hale

Hunt Results

All 9 of the 2020 California ram tag holders in the Sheep Creeks were successful in harvesting a ram. Additionally, all 3 of the specialty tags (Wildlife Heritage, PIW, and Dream) were filled in Unit 068. The average age of harvested rams was 7.2, and the average unofficial score was 162 2/8. Average age of harvested rams was similar to 2019 (7.3), but average unofficial score increased from that of 2019 (155 7/8). One ewe tag was issued and successfully filled in 2020.

Survey Data

No aerial survey of California bighorn sheep took place in 2020, but ground surveys were conducted during summer months. A total of 101 California bighorn sheep were classified as 21 rams, 46 ewes, and 34 lambs. The observed lamb ratio of 74 lambs:100 ewes is above average and is an increase from the observed 2019 lamb ratio of 66 lambs:100 ewes, which was also above average.

Habitat

Drought conditions persisted in Unit 068 throughout 2020 and into 2021, but despite the lack of precipitation, sheep remained in excellent body condition and the Sheep Creek herd experienced greater than average lamb production. This is likely due to a nutritious forage species, forage kochia, becoming established on the landscape after wildfire rehabilitation. Furthermore, water is readily available in the Sheep Creeks in the form of perennial creeks, springs, and man-made water developments.

Population Status and Trend

Since 2012, the Nevada Department of Wildlife has actively managed this herd through relocation efforts and ewe harvest so that the population remains at sustainable levels. Most recently, in February 2021, 20 sheep were removed from the population and translocated to McGee Mountain in Unit 032. 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. The season was reinitiated in 2019, with 1 tag offered in each of the past 2 years. The hunter in 2020 was successful in harvesting a 5-year-old ram.

Survey Data

In November 2020, 23 Rock Mountain bighorn were classified as 7 rams, 13 ewes, and 3 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's Wells Field Office for many vegetation treatments within this unit group. Once the environmental assessment is completed, possible treatments may include herbicide application, 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 (Movi)* 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. One ewe died during summer 2021. Her cause of death was undetermined; however, it did not appear to be a predation related mortality. In January 2021, the collar from the ewe mortality was used to replace one of the collars deployed in 2017. During the same capture event, 2 additional ewes were collared bringing the total number of bighorn collared to 12. Three male lions have been removed since the initiation of the predator project. No predator related deaths have been documented in this herd 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 *Movi*, 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 Utah resident tag was offered in this unit for the 2020 season. The hunter was successful in harvesting a 7-year-old ram. Due to lack of mature rams, the 2021 hunting season will be closed, and will likely remain that way for the foreseeable future.

Survey Data

No aerial surveys were conducted in this unit in 2020. Survey data was gathered using camera traps at the Pilot water development, the Leppy Hills water development, Leppy Pass, and Jenkins Canyon. Forty bighorn were classified as 11 rams, 23 ewes, and 6 lambs.

Habitat

The construction of an artificial water development was 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 (Movi)* and one was still actively shedding the organism.

In August 2020, another capture event was conducted. Six bighorn were sampled and collared, 2 rams and 4 ewes. Of the 6 bighorn sampled, 3 were positive for *Movi* from Polymerase Chain Reaction test. One of the collared rams that tested positive was killed by a mountain lion shortly after capture. In January 2021, the remaining 2 bighorn that were positive in August were resampled and one of the ewes was still actively shedding the virus. She has since been removed from the population. The other ram's sample came back inconclusive. 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 2021, an aerial survey classified 21 sheep consisting of 3 rams (≤6 years of age), 16 ewes, and 2 lambs.

Weather and Habitat

Winter 2020-2021 was below average with April 1, 2021 local water basin reports showing 77-81% of average snowpack present. The mild winter conditions experienced allowed for an abundance of high

elevation winter use. Collared sheep spent most of the winter on the high elevation blown off ridges of the main spine of the East Humboldts.

Population Status and Trend

Since the most recent pneumonic disease event involving of *Mycoplasma ovipneumoniae* during late-fall 2014 and early winter 2015, the Rocky Mountain bighorn herd has been slowly growing between 20 and 25 adults. Lamb recruitment had been improving from 2017 through 2019, with lamb ratios of 30, 55, and 50 lambs/100 ewes, respectively. Unfortunately, the most recent survey in early 2021 showed 2020 having poor lamb recruitment with unknown causes for this decline.

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, 6 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 2021, 32 Rocky Mountain bighorn sheep were classified yielding age and sex ratios of 160 rams:100 ewes:60 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 most 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 site selection, with high utilization within or adjacent to the burned area.

Population Status and Trend

Initially after all age die-off in winter 2009-2010, this herd struggled with little to no annual lamb recruitment. 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. 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. To date all of the collared sheep have survived with all of the collars fully functioning.

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

A ground survey was conducted in July 2020 and resulted in the classification of 31 bighorn sheep. The observed sex and age ratios were 35 rams:100 ewes:47 lambs.

Weather and Habitat

The National Weather Service recorded 50% of normal precipitation at the Ely Airport for the 2020 calendar year. Spring 2019 was the wettest recorded in Ely, but dry conditions have persisted since June 2019. National Weather Service precipitation data measured at the Ely Airport from June 2019 to February 2021 was 57% of normal. Winter 2020-2021 was warm and dry. At the time of this report, spring weather has continued to be warm and dry. Habitat conditions are expected to continue to deteriorate in 2021 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, though very few bighorn have been observed in the burn area to date.

Population Status and Trend

In March 2021, 3 bighorn ewes were radio collared in this unit. This project, and future collaring projects, will help to better understand seasonal movements, habitat use, and bighorn distribution. This population is showing a slight increase in 2021.

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.

Survey Data

Aerial herd composition surveys were conducted in March 2021 and resulted in the classification of 29 bighorn sheep. The observed sex and age ratios were 100 rams:100 ewes:68 lambs.

Weather and Habitat

The National Weather Service recorded 50% of normal precipitation at the Ely Airport for the 2020 calendar year. Spring 2019 was the wettest recorded in Ely, but dry conditions have persisted since June 2019. National Weather Service precipitation data measured at the Ely Airport from June 2019 to February 2021 was 57% of normal. Winter 2020-2021 was warm and dry. At the time of this report, spring weather has continued to be warm and dry. Habitat conditions are expected to continue to deteriorate in 2021 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 and 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 telemetry collaring efforts for several years. In March 2021, a total of 3 bighorn were collared in this unit. One ewe and 2 rams were collared to better understand bighorn movements, seasonal ranges, and to monitor potential interactions with domestic sheep. There are currently 5 functional collars in the unit. This Rocky Mountain bighorn sheep population is increasing with a population estimate of 60 adult 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, the Unit 101 mountain goat herd still struggles with pathogens, high kid mortality, and subsequent decreases in annual survival rates.

All 9 tag holders hunted during the 2020 season, of which only 1 was unsuccessful. Of the 8 mountain goats harvested, 3, or 38%, were nannies. The average age of all harvested mountain goats was 5 years old. Nanny harvest continues to be closely monitored due to the naturally low productivity potential of mountain goats. To curtail nanny harvest, the Game Division sent Mountain Goat Sex Identification material to all tagholders as a voluntary approach to reduce nanny harvest. In 2019, the Nevada Department of Wildlife (NDOW) implemented a mandatory online Mountain Goat Sex Identification Orientation via NDOW's license sales and tag application contractor. Further outreach, additional online course testing or field requirements, or a male-only mountain goat hunt may be needed to protect nannies from harvest.

Survey Data

Aerial mountain goat surveys were conducted in Units 101-103 in January 2021. Survey Results are as follows: Unit 101 - 38 mountain goats with ratio of 12 kids:100 adults; Unit 102 - 133 mountain goats with ratio of 35 kids:100 adults; and Unit 103 - 21 mountain goats with ratio of 20 kids:100 adults.

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. 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 the fire, as escape was improbable due to the incredible speed with which the fire moved and intense amount of smoke it produced. In February 2019, NDOW, 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 strong recruitment in 2018 and 2019, 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 of 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 one 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 fitted with collars. In January and February 2021, the monitoring effort was resumed with 7 more individuals being collared. The disease samples from all the goats have been processed, yielding promising results as none of the individuals sampled appeared to be chronically shedding the previously identified pathogens. To date, 12 collars are still deployed and fully functioning. 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 2020 is 1,794 (Table 1), including 1,099 individual bears. All bears are marked with permanently identifying individual ear tags, tattoos, or PIT tags prior to release. Since 1997 the Nevada Department of Wildlife has permanently marked and released 634 individual bears.

Table 1: Bears handled in the Western Region, 2011-2020.

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bears handled	78	83	97	143	122	71	89	121	75	102
Cumulative total[a] (since 1997)	894	977	1073	1216	1338	1409	1496	1617	1692	1794

[a] *Includes recaptured bears previously handled and marked in the same or preceding years (all capture events).*

Harvest Analysis

Since the inception of the hunt, season structure has varied little with minor changes in season length. The 2020 season was open from September 15 to December 1 (78 days). The harvest limit established by the Wildlife 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 for resident and non-resident hunters to 45 and 5, respectively. One auction tag (Dream Tag) became available each year beginning in 2018. Resident, nonresident, and bonus point-only applications for these tags have increased each year (Table 2).

Table 2: Applications received for Black Bear Tags 2011-2020.

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Applications	1,113	1,719	1,972	2,090	2,293	2,457	2,546	2,828	3,109	3,206
Bonus Point Only	129	568	708	939	1,182	1,387	1,592	2,301	2,537	2,905
Total Applications	1,242	2,287	2,680	3,029	3,475	3,844	4,138	5,129	5,646	6,111

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 survival 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 13 bears in 2020 represents less than 2% of the total estimated population and is far below reported estimates of sustainable harvest rates found in the literature (12%-21%). The average harvest rate (2011-2020) for males and females (total harvest from total population of each cohort) is 2.4% and 1.6% respectively. The hunter success rate was 29% in 2020, which is equal to the long-term. Of the 139 successful hunters to date; 91% saved the meat for consumption, 25% were guided by

professional guides, 5% were nonresident hunters, and 71% used hounds to harvest. To date, it is reported that bears have been pursued or treed and selectively not harvested on 173 occasions.

Fifty-one percent (71 of 139) of the bears harvested during the 10 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, comprised of Units 192, 194, 195, and 196, had a total harvest limit of 6 with a female harvest limit of 3. The harvest limits for Area 20, comprised of Units 201, 202, 204, and 206, and Area 29, comprised of Units 291 and 203, were set at 6 total and 2 females and 8 total and 3 females, respectively. Considering the harvest rates noted above, these are very conservative harvest limits.

Table 3: Hunter harvest data 2014-2020.

Data from all successful hunters	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Last 3 years**	**3 yr Harvest criteria indicator**	All Years 2011-2020
Male bears killed	12	8	5	9	11	14	6	31		94
Male harvest rate	3.1%	2.2%	1.3%	2.2%	2.6%	3.4%	1.4%	2.4%		2.4%
Female bears killed	6	6	6	4	3	3	7	13		45
Female harvest rate	2.2%	2.2%	2.1%	1.4%	1.0%	1.0%	2.3%	1.4%		1.6%
Total harvest	18	14	11	13	14	17	13	44		139
Total harvest rate	2.7%	2.2%	1.6%	1.8%	1.9%	2.4%	1.8%	2.0%		2.1%
% females in harvest	33%	43%	55%	31%	21%	18%	54%	30%	*Light harvest*	32%
Mean age males (years)	*6.3*	*6.8*	*9.4*	*3.9*	*5.9*	*8.6*	*9.3*	*7.7*	*Light harvest*	6.6
Mean age females (years)	9.3	4.8	7.0	6.3	4.0	4.7	5.9	5.2	*Stable Harvest*	6.2
Mean age all (years)	7.9	5.9	8.1	5.8	6.1	7.9	7.5	7.0		6.4
Male:female ratio	2.0	1.3	0.8	2.3	3.7	4.7	0.9	2.4		2.1
Hunter success rate	40%	31%	24%	26%	28%	33%	25%	29%		29%
Average days hunted	5.1	6.7	8.8	5.2	8.8	5.4	4.8	6.3		6.9
Average days scouted	2.9	2.5	4.3	7.5	4.6	4.9	1.5	3.8		4.1
Hunt Method: Dogs Other	 13 5	 9 5	 8 3	 9 4	 11 3	 12 5	 10 3			 99 40

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 includes the Carson Range and Pine Nut Mountains, has or is reaching stabilization at about 450 bears. 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 in Unit 022 and other parts of northern Washoe county are increasing. Random sightings and captures in historical habitat throughout the state have been documented and these instances are increasing as well. 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

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Harvest, Survey, and Population Tables

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Antelope Horns Longer Than Ears	Antelope	ALW	011	2020-08-22 to 2020-09-07	503	65	62	39	13%	94%	67%		39%	3.3	4.4	4.3
Res Antelope Horns Longer Than Ears	Antelope	ALW	012 - 014	2020-08-22 to 2020-09-07	1,329	150	141	91	11%	99%	65%		23%	3.6	5.1	4.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	015	2020-08-22 to 2020-09-07	543	75	68	37	14%	97%	56%		30%	3.6	5.0	3.8
Res Antelope Horns Longer Than Ears	Antelope	ALW	021, 022	2020-08-22 to 2020-09-07	1,855	40	35	29	2%	97%	85%		34%	3.1	7.3	4.8
Res Antelope Horns Longer Than Ears	Antelope	ALW	031	2020-08-22 to 2020-09-07	549	130	122	56	24%	98%	47%		7%	3.9	5.6	3.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	032, 034	2020-08-22 to 2020-09-07	341	70	67	24	21%	99%	36%		21%	3.6	4.7	3.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	033	2020-08-22 to 2020-08-28	435	30	28	19	7%	100%	68%		26%	3.2	4.2	4.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	033	2020-08-29 to 2020-09-07	140	30	28	18	21%	100%	64%		28%	4.5	5.6	3.9
Res Antelope Horns Longer Than Ears	Antelope	ALW	035	2020-08-22 to 2020-09-07	240	25	24	17	10%	96%	74%		53%	2.0	3.8	4.5
Res Antelope Horns Longer Than Ears	Antelope	ALW	041, 042	2020-08-22 to 2020-08-28	1,012	55	53	44	5%	98%	85%		23%	2.1	4.2	4.2
Res Antelope Horns Longer Than Ears	Antelope	ALW	041, 042	2020-08-29 to 2020-09-07	305	55	49	41	18%	100%	84%		27%	2.6	5.0	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	043 - 046	2020-08-22 to 2020-09-07	486	110	105	91	23%	99%	88%		26%	2.2	4.6	4.6
Res Antelope Horns Longer Than Ears	Antelope	ALW	051	2020-08-22 to 2020-09-07	354	50	49	41	14%	100%	84%		29%	2.7	4.0	4.3
Res Antelope Horns Longer Than Ears	Antelope	ALW	061, 062, 064, 071, 073	2020-08-22 to 2020-09-07	1,347	120	119	97	9%	97%	84%		21%	2.7	4.0	4.3
Res Antelope Horns Longer Than Ears	Antelope	ALW	065, 142, 144	2020-08-22 to 2020-09-07	555	70	68	53	13%	100%	78%		25%	2.7	4.3	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	066	2020-08-22 to 2020-09-07	166	35	32	23	21%	100%	72%		9%	3.4	4.8	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	067, 068	2020-08-22 to 2020-09-07	658	100	94	79	15%	98%	86%		31%	3.2	4.6	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	072, 074 - 075	2020-08-22 to 2020-09-07	487	45	42	36	9%	100%	86%		25%	2.9	4.5	4.3
Res Antelope Horns Longer Than Ears	Antelope	ALW	076, 077, 079, 081, 091	2020-08-22 to 2020-09-07	829	35	32	28	4%	97%	90%		46%	2.7	4.4	4.3
Res Antelope Horns Longer Than Ears	Antelope	ALW	078, 105 - 107, 121	2020-08-22 to 2020-09-07	550	90	88	68	16%	97%	80%		28%	2.6	4.0	4.3
Res Antelope Horns Longer Than Ears	Antelope	ALW	101 - 104, 108 - 109, 144	2020-08-22 to 2020-09-07	627	65	61	50	10%	100%	82%		40%	2.1	3.7	4.5
Res Antelope Horns Longer Than Ears	Antelope	ALW	111 - 114	2020-08-22 to 2020-09-07	1,118	100	99	62	9%	97%	65%		27%	3.0	4.6	4.3
Res Antelope Horns Longer Than Ears	Antelope	ALW	115, 231, 242	2020-08-22 to 2020-09-07	525	45	40	40	9%	100%	100%		25%	2.6	4.7	4.5
Res Antelope Horns Longer Than Ears	Antelope	ALW	131, 145, 163 - 164	2020-08-22 to 2020-09-07	532	80	80	63	15%	98%	81%		19%	2.9	4.9	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	132 - 134, 245	2020-08-22 to 2020-09-07	606	35	34	29	6%	100%	85%		17%	2.6	5.2	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	141, 143, 151 - 156	2020-08-22 to 2020-09-07	1,405	230	225	188	16%	99%	85%		18%	2.8	4.3	4.5
Res Antelope Horns Longer Than Ears	Antelope	ALW	161 - 162	2020-08-22 to 2020-09-07	497	45	43	38	9%	98%	90%		45%	2.3	4.2	4.7
Res Antelope Horns Longer Than Ears	Antelope	ALW	171 - 173	2020-08-22 to 2020-09-07	264	25	24	21	9%	100%	88%		33%	2.3	3.9	4.3
Res Antelope Horns Longer Than Ears	Antelope	ALW	181 - 184	2020-08-22 to 2020-09-07	600	40	39	36	7%	97%	95%		19%	2.0	4.4	4.7
Res Antelope Horns Longer Than Ears	Antelope	ALW	202, 204	2020-10-15 to 2020-10-30	145	10	9	4	7%	100%	44%		0%	2.8	3.9	3.8
Res Antelope Horns Longer Than Ears	Antelope	ALW	203, 291	2020-08-22 to 2020-09-07	90	8	8	6	9%	100%	75%		33%	3.3	7.3	4.4
Res Antelope Horns Longer Than Ears	Antelope	ALW	205 - 208	2020-08-22 to 2020-09-07	166	15	14	13	9%	100%	93%		31%	1.8	4.4	4.5
Res Antelope Horns Longer Than Ears	Antelope	ALW	211 - 213	2020-08-22 to 2020-09-07	61	8	8	7	13%	100%	88%		14%	2.0	6.6	4.8
Res Antelope Horns Longer Than Ears	Antelope	ALW	221 - 223, 241	2020-08-22 to 2020-09-07	635	45	44	38	7%	98%	88%		21%	2.3	4.0	4.8
Res Antelope Horns Longer Than Ears	Antelope	ALW	251	2020-08-22 to 2020-09-07	476	25	24	22	5%	100%	92%		45%	1.9	4.8	4.9
Res Antelope Horns Longer Than Ears	Antelope	AR	011	2020-08-01 to 2020-08-21	61	15	13	7	25%	100%	54%		14%	4.4	6.6	4.6
Res Antelope Horns Longer Than Ears	Antelope	AR	012 - 014	2020-08-01 to 2020-08-21	113	30	27	8	27%	100%	30%		38%	5.2	9.5	3.9
Res Antelope Horns Longer Than Ears	Antelope	AR	015	2020-08-01 to 2020-08-21	52	20	15	3	38%	93%	21%		100%	6.3	10.8	4.0
Res Antelope Horns Longer Than Ears	Antelope	AR	021, 022	2020-08-01 to 2020-08-21	146	5	3	1	3%	100%	33%		100%	6.0	15.0	4.3
Res Antelope Horns Longer Than Ears	Antelope	AR	031	2020-08-01 to 2020-08-21	45	20	14	2	44%	100%	14%		0%	6.0	7.5	3.4
Res Antelope Horns Longer Than Ears	Antelope	AR	032, 034	2020-08-01 to 2020-08-21	68	30	21	1	44%	100%	5%		0%	4.9	7.4	3.2
Res Antelope Horns Longer Than Ears	Antelope	AR	033	2020-08-01 to 2020-08-21	50	7	5	4	14%	100%	80%		0%	3.2	5.2	4.6
Res Antelope Horns Longer Than Ears	Antelope	AR	035	2020-08-01 to 2020-08-21	23	4	4	1	17%	75%	33%		0%	2.3	3.0	3.0

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Antelope Horns Longer Than Ears	Antelope	AR	041, 042	2020-08-01 to 2020-08-21	108	15	14	9	14%	100%	64%		44%	4.3	9.8	4.1
Res Antelope Horns Longer Than Ears	Antelope	AR	043 - 046	2020-08-01 to 2020-08-21	59	40	36	13	68%	100%	36%		25%	4.9	7.9	4.5
Res Antelope Horns Longer Than Ears	Antelope	AR	051	2020-08-01 to 2020-08-21	60	35	29	6	58%	100%	21%		0%	6.5	8.2	3.9
Res Antelope Horns Longer Than Ears	Antelope	AR	061, 062, 064, 071, 073	2020-08-01 to 2020-08-21	151	60	56	15	40%	100%	27%		33%	4.9	6.7	4.2
Res Antelope Horns Longer Than Ears	Antelope	AR	065, 142, 144	2020-08-01 to 2020-08-21	35	15	15	4	43%	100%	27%		50%	4.1	8.4	3.5
Res Antelope Horns Longer Than Ears	Antelope	AR	066	2020-08-01 to 2020-08-21	18	10	10	4	56%	100%	40%		25%	4.6	6.8	3.8
Res Antelope Horns Longer Than Ears	Antelope	AR	067, 068	2020-08-01 to 2020-08-21	80	55	46	7	69%	98%	16%		14%	6.5	9.9	4.1
Res Antelope Horns Longer Than Ears	Antelope	AR	072, 074 - 075	2020-08-01 to 2020-08-21	49	20	15	1	41%	93%	7%		0%	7.5	9.7	3.9
Res Antelope Horns Longer Than Ears	Antelope	AR	076, 077, 079, 081, 091	2020-08-01 to 2020-08-21	88	25	20	10	28%	95%	53%		60%	4.9	9.4	4.3
Res Antelope Horns Longer Than Ears	Antelope	AR	078, 105 - 107, 121	2020-08-01 to 2020-08-21	30	10	7	3	33%	100%	43%		0%	4.4	6.1	3.9
Res Antelope Horns Longer Than Ears	Antelope	AR	101 - 104, 108 - 109, 144	2020-08-01 to 2020-08-21	62	15	11	3	24%	100%	27%		0%	5.3	6.5	4.3
Res Antelope Horns Longer Than Ears	Antelope	AR	111 - 114	2020-08-01 to 2020-08-21	69	20	17	6	29%	100%	35%		17%	5.6	7.3	4.5
Res Antelope Horns Longer Than Ears	Antelope	AR	115, 231, 242	2020-08-01 to 2020-08-14	55	15	15	10	27%	100%	67%		0%	4.7	7.9	4.1
Res Antelope Horns Longer Than Ears	Antelope	AR	131, 145, 163 - 164	2020-08-01 to 2020-08-14	39	15	13	6	38%	92%	50%		33%	5.3	8.9	3.9
Res Antelope Horns Longer Than Ears	Antelope	AR	132 - 134, 245	2020-08-01 to 2020-08-14	43	5	5	2	12%	100%	40%		50%	3.8	9.0	3.6
Res Antelope Horns Longer Than Ears	Antelope	AR	141, 143, 151 - 156	2020-08-01 to 2020-08-21	163	80	66	17	49%	98%	26%		12%	5.4	8.6	4.1
Res Antelope Horns Longer Than Ears	Antelope	AR	161 - 162	2020-08-01 to 2020-08-21	38	10	9	4	26%	100%	44%		25%	6.7	9.8	4.8
Res Antelope Horns Longer Than Ears	Antelope	AR	171 - 173	2020-08-01 to 2020-08-21	26	5	5	3	19%	100%	60%		0%	4.0	7.5	4.3
Res Antelope Horns Longer Than Ears	Antelope	AR	181 - 184	2020-08-01 to 2020-08-21	57	10	9	4	18%	89%	50%		25%	3.2	8.3	4.7
Res Antelope Horns Longer Than Ears	Antelope	AR	203, 291	2020-08-01 to 2020-08-21	8	2	2	0	25%	100%	0%			7.0	13.5	4.0
Res Antelope Horns Longer Than Ears	Antelope	AR	205 - 208	2020-08-01 to 2020-08-21	23	5	5	2	22%	100%	40%		0%	3.6	6.0	4.0
Res Antelope Horns Longer Than Ears	Antelope	AR	211 - 213	2020-08-01 to 2020-08-21	6	1	1	1	17%	100%	100%		0%	1.0	4.0	4.0
Res Antelope Horns Longer Than Ears	Antelope	AR	221 - 223, 241	2020-08-01 to 2020-08-14	51	15	12	3	29%	92%	27%		33%	5.0	10.2	3.6
Res Antelope Horns Longer Than Ears	Antelope	AR	251	2020-08-01 to 2020-08-21	49	5	5	4	10%	100%	80%		50%	3.8		4.0
Res Antelope Horns Longer Than Ears	Antelope	M	011	2020-09-25 to 2020-10-04	10	5	5	1	50%	100%	20%		0%	4.8	5.2	5.0
Res Antelope Horns Longer Than Ears	Antelope	M	012 - 014	2020-09-25 to 2020-10-04	26	10	5	3	38%	100%	60%		0%	3.0	3.6	4.4
Res Antelope Horns Longer Than Ears	Antelope	M	015	2020-09-25 to 2020-10-04	21	10	9	1	48%	100%	11%			4.3	4.9	3.5
Res Antelope Horns Longer Than Ears	Antelope	M	021, 022	2020-09-25 to 2020-10-04	25	5	4	2	20%	100%	50%		50%	2.5	5.3	3.5
Res Antelope Horns Longer Than Ears	Antelope	M	033	2020-09-25 to 2020-10-04	10	5	5	2	50%	100%	40%		0%	5.8	7.8	3.6
Res Antelope Horns Longer Than Ears	Antelope	M	065, 142, 144	2020-09-25 to 2020-10-04	18	4	4	0	22%	100%	0%			4.7	8.0	4.0
Res Antelope Horns Longer Than Ears	Antelope	M	078, 105 - 107, 121	2020-09-25 to 2020-10-04	11	6	5	1	55%	100%	20%		0%	4.4	7.2	3.6
Res Antelope Horns Longer Than Ears	Antelope	M	101 - 104, 108 - 109, 144	2020-09-25 to 2020-10-04	8	2	2	2	25%	100%	100%		0%	5.0		4.0
Res Antelope Horns Longer Than Ears	Antelope	M	111 - 114	2020-09-25 to 2020-10-04	18	5	5	2	28%	100%	40%		0%	3.5	4.3	4.0
Res Antelope Horns Longer Than Ears	Antelope	M	115, 231, 242	2020-08-15 to 2020-08-21	13	5	4	4	38%	100%	100%		75%	2.5	4.3	5.0
Res Antelope Horns Longer Than Ears	Antelope	M	131, 145, 163 - 164	2020-08-15 to 2020-08-21	9	3	2	2	33%	100%	100%		0%	3.0	3.0	4.5
Res Antelope Horns Longer Than Ears	Antelope	M	132 - 134, 245	2020-08-15 to 2020-08-21	10	1	1	0	10%	100%	0%			6.0		4.0
Res Antelope Horns Longer Than Ears	Antelope	M	221 - 223, 241	2020-08-15 to 2020-08-21	19	5	4	2	26%	100%	50%		50%	3.3	6.0	4.3
Res Antelope Horns Shorter Than Ears	Antelope	ALW	031	2020-09-08 to 2020-09-24	441	40	40	23	9%	100%	58%			3.3	4.3	3.5
Res Antelope Horns Shorter Than Ears	Antelope	ALW	032, 034	2020-09-08 to 2020-09-24	246	30	30	12	12%	90%	44%			2.6	3.2	3.6
Res Antelope Horns Shorter Than Ears	Antelope	ALW	035	2020-09-08 to 2020-09-24	171	15	15	12	9%	100%	80%			2.8	3.8	4.2
Res Antelope Horns Shorter Than Ears	Antelope	ALW	041, 042	2020-09-08 to 2020-09-24	1,034	25	25	17	2%	96%	71%			2.0	3.0	4.6
Res Antelope Horns Shorter Than Ears	Antelope	ALW	061, 062, 064, 071, 073	2020-09-08 to 2020-09-24	950	170	170	128	18%	98%	77%			2.2	3.0	4.5
Res Antelope Horns Shorter Than Ears	Antelope	ALW	065, 142, 144	2020-09-08 to 2020-09-24	265	40	40	30	15%	98%	77%			1.9	2.7	4.3

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Antelope Horns Shorter Than Ears	Antelope	ALW	066	2020-09-08 to 2020-09-24	82	15	15	12	18%	100%	80%			2.3	3.5	4.4
Res Antelope Horns Shorter Than Ears	Antelope	ALW	067, 068	2020-09-08 to 2020-09-24	480	90	90	51	19%	96%	59%			2.8	3.5	4.0
Res Antelope Horns Shorter Than Ears	Antelope	ALW	072, 074 - 075	2020-09-08 to 2020-09-24	190	45	45	20	24%	93%	48%			2.0	2.6	4.2
Res Antelope Horns Shorter Than Ears	Antelope	ALW	076, 077, 079, 081, 091	2020-09-08 to 2020-09-24	115	20	20	17	17%	100%	85%			1.9	2.5	4.4
Res Antelope Horns Shorter Than Ears	Antelope	ALW	078, 105 - 107, 121	2020-09-08 to 2020-09-24	277	45	45	34	16%	98%	77%			1.9	3.2	4.7
Res Antelope Horns Shorter Than Ears	Antelope	ALW	101 - 104, 108 - 109, 144	2020-09-08 to 2020-09-24	250	35	34	25	14%	97%	76%			2.6	3.9	4.4
Res Antelope Horns Shorter Than Ears	Antelope	ALW	111 - 114	2020-09-08 to 2020-09-24	531	60	57	28	11%	100%	49%			2.3	2.8	3.9
Res Antelope Horns Shorter Than Ears	Antelope	ALW	114, 115 (Baker Ranch)	2020-09-10 to 2020-09-16	46	10	10	4	22%	100%	40%			3.3	5.2	3.7
Res Antelope Horns Shorter Than Ears	Antelope	ALW	131, 145	2020-09-08 to 2020-09-24	253	30	30	22	12%	97%	76%			2.4	3.5	4.1
Res Antelope Horns Shorter Than Ears	Antelope	ALW	141, 143, 152, 154 - 155	2020-09-08 to 2020-09-24	977	290	285	197	30%	96%	72%			2.5	3.5	4.4
Res Antelope Horns Shorter Than Ears	Antelope	ALW	151, 153, 156	2020-09-08 to 2020-09-24	656	190	190	145	29%	99%	77%			1.8	2.7	4.6
Res Antelope Horns Shorter Than Ears	Antelope	ALW	181 - 184	2020-09-08 to 2020-09-24	396	30	30	26	8%	100%	87%			1.4	2.0	4.9
Res Landowner Damage Comp Antelope	Antelope	SWR	031	See Regulations			1			100%						
Res Landowner Damage Comp Antelope	Antelope	SWR	035	See Regulations			1	1		100%	100%		0%	2.0	3.0	5.0
Res Landowner Damage Comp Antelope	Antelope	SWR	041	See Regulations			1	1		100%	100%		0%	3.0	4.0	2.0
Res Landowner Damage Comp Antelope	Antelope	SWR	044	See Regulations			2	2		100%	100%		50%	7.5	13.5	3.5
Res Landowner Damage Comp Antelope	Antelope	SWR	051	See Regulations			1			100%						
Res Landowner Damage Comp Antelope	Antelope	SWR	081	See Regulations			1			100%						
Res Landowner Damage Comp Antelope	Antelope	SWR	156	See Regulations			1	1		100%	100%		0%	1.0	1.0	3.0
Res Landowner Damage Comp Antelope	Antelope	SWR	161, 173	See Regulations			1	1		100%	100%		0%	1.0	1.0	5.0
Res Landowner Damage Comp Antelope	Antelope	SWR	172	See Regulations			3	3		100%	100%		33%	1.7	4.0	5.0
Res Landowner Damage Comp Antelope	Antelope	SWR	172, 184	See Regulations			2	2		100%	100%		100%	1.5	2.0	4.5
Res Landowner Damage Comp Antelope	Antelope	SWR	184	See Regulations			1			0%						
Res Landowner Damage Comp Antelope	Antelope	SWR	251	See Regulations			2	2		100%	100%		100%	2.0	6.5	5.0
Res Landowner Damage Comp Antelope	Antelope	SWR	012	See Regulations			1	1		100%	100%		100%	5.0		5.0
Res Landowner Damage Comp Antelope	Antelope	SWR	121	See Regulations			1	1		100%	100%		0%	5.0	5.0	4.0
Res Landowner Damage Comp Antelope	Antelope	SWR	144	See Regulations			2	2		100%	100%		50%	1.0	1.5	5.0
Res Landowner Damage Comp Antelope	Antelope	SWR	132	See Regulations			1	1		100%	100%		100%	2.0	6.0	4.0
Res PIW Antelope Horns Longer Than Ears	Antelope	SWR	Any Open Unit	2020-08-01 to 2020-10-30	2,371	5	5	4	0.2%	100%	80%		50%	8.6	14.4	5.0
Res Wildlife Heritage Antelope	Antelope	ALW	Any Open Unit	2020-08-01 to 2020-12-31			1	1		100%	100%		0%	5.0	5.0	5.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	011	2020-08-22 to 2020-09-07	401	7	7	6	2%	100%	86%		33%	3.0	4.3	3.1
NR Antelope Horns Longer Than Ears	Antelope	ALW	012 - 014	2020-08-22 to 2020-09-07	466	15	13	8	3%	85%	73%		25%	2.8	4.2	4.4
NR Antelope Horns Longer Than Ears	Antelope	ALW	015	2020-08-22 to 2020-09-07	298	6	6	5	2%	100%	83%		20%	3.0	5.5	3.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	021, 022	2020-08-22 to 2020-09-07	528	4	2	2	1%	100%	100%		50%	1.5	2.5	3.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	031	2020-08-22 to 2020-09-07	233	15	15	7	6%	93%	50%		29%	4.7	6.1	3.1
NR Antelope Horns Longer Than Ears	Antelope	ALW	032, 034	2020-08-22 to 2020-09-07	175	8	7	4	5%	100%	57%		50%	2.3	2.8	3.8
NR Antelope Horns Longer Than Ears	Antelope	ALW	033	2020-08-22 to 2020-08-28	522	4	4	3	1%	100%	75%		33%	3.0	4.0	3.3
NR Antelope Horns Longer Than Ears	Antelope	ALW	033	2020-08-29 to 2020-09-07	130	4	4	1	3%	50%	50%		0%	4.5	6.5	4.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	035	2020-08-22 to 2020-09-07	61	3	3	2	5%	100%	67%		50%	3.3	6.0	4.7
NR Antelope Horns Longer Than Ears	Antelope	ALW	041, 042	2020-08-22 to 2020-08-28	192	6	6	4	3%	100%	67%		25%	3.2	6.0	3.8
NR Antelope Horns Longer Than Ears	Antelope	ALW	041, 042	2020-08-29 to 2020-09-07	82	6	5	5	7%	100%	100%		0%	2.6	4.2	4.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	043 - 046	2020-08-22 to 2020-09-07	107	15	15	14	14%	93%	100%		29%	1.6	4.1	4.8
NR Antelope Horns Longer Than Ears	Antelope	ALW	051	2020-08-22 to 2020-09-07	79	6	6	5	8%	100%	83%		0%	2.2	2.5	4.3

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Antelope Horns Longer Than Ears	Antelope	ALW	061, 062, 064, 071, 073	2020-08-22 to 2020-09-07	287	15	14	12	5%	100%	86%		25%	3.4	4.2	4.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	065, 142, 144	2020-08-22 to 2020-09-07	98	8	7	6	8%	100%	86%		17%	3.0	4.6	4.3
NR Antelope Horns Longer Than Ears	Antelope	ALW	066	2020-08-22 to 2020-09-07	62	4	4	3	6%	100%	75%		0%	2.8	3.5	5.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	067, 068	2020-08-22 to 2020-09-07	274	10	8	6	4%	100%	75%		67%	3.3	4.3	3.9
NR Antelope Horns Longer Than Ears	Antelope	ALW	072, 074 - 075	2020-08-22 to 2020-09-07	165	5	4	4	3%	100%	100%		25%	2.3	2.5	4.8
NR Antelope Horns Longer Than Ears	Antelope	ALW	076, 077, 079, 081, 091	2020-08-22 to 2020-09-07	1,673	4	4	3	0.2%	100%	75%		67%	3.0	4.0	3.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	078, 105 - 107, 121	2020-08-22 to 2020-09-07	94	10	9	6	11%	100%	67%		50%	2.3	5.9	3.7
NR Antelope Horns Longer Than Ears	Antelope	ALW	101 - 104, 108 - 109, 144	2020-08-22 to 2020-09-07	135	7	7	6	5%	100%	86%		0%	2.3	2.9	4.6
NR Antelope Horns Longer Than Ears	Antelope	ALW	111 - 114	2020-08-22 to 2020-09-07	170	10	9	5	6%	100%	56%		0%	2.3	4.0	3.6
NR Antelope Horns Longer Than Ears	Antelope	ALW	115, 231, 242	2020-08-22 to 2020-09-07	119	5	5	4	4%	80%	100%		25%	3.3	5.8	4.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	131, 145, 163 - 164	2020-08-22 to 2020-09-07	116	9	9	8	8%	100%	89%		25%	1.9	3.0	4.2
NR Antelope Horns Longer Than Ears	Antelope	ALW	132 - 134, 245	2020-08-22 to 2020-09-07	103	4	4	2	4%	100%	50%		50%	5.3	5.8	3.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	141, 143, 151 - 156	2020-08-22 to 2020-09-07	310	25	22	19	8%	95%	90%		32%	3.4	4.9	3.8
NR Antelope Horns Longer Than Ears	Antelope	ALW	161 - 162	2020-08-22 to 2020-09-07	142	5	5	5	4%	100%	100%		80%	4.0	4.8	4.4
NR Antelope Horns Longer Than Ears	Antelope	ALW	171 - 173	2020-08-22 to 2020-09-07	56	3	3	3	5%	100%	100%		0%	1.3	2.3	5.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	181 - 184	2020-08-22 to 2020-09-07	101	4	4	3	4%	100%	75%		0%	3.0	5.3	4.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	202, 204	2020-10-15 to 2020-10-30	28	1	1	1	4%	100%	100%		0%	5.0	5.0	2.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	205 - 208	2020-08-22 to 2020-09-07	55	2	2	2	4%	100%	100%		0%	2.0	2.5	4.5
NR Antelope Horns Longer Than Ears	Antelope	ALW	221 - 223, 241	2020-08-22 to 2020-09-07	95	4	2	2	4%	100%	100%		100%	6.0	8.0	4.0
NR Antelope Horns Longer Than Ears	Antelope	ALW	251	2020-08-22 to 2020-09-07	239	3	3	2	1%	100%	67%		100%	2.7	2.7	5.0
NR Antelope Horns Longer Than Ears	Antelope	AR	011	2020-08-01 to 2020-08-21	20	2	2	1	10%	50%	100%		0%	5.0	5.0	2.0
NR Antelope Horns Longer Than Ears	Antelope	AR	012 - 014	2020-08-01 to 2020-08-21	28	3	3	2	11%	100%	67%		0%	6.3	8.0	2.7
NR Antelope Horns Longer Than Ears	Antelope	AR	015	2020-08-01 to 2020-08-21	18	2	2	1	11%	100%	50%		0%	7.5	14.0	3.5
NR Antelope Horns Longer Than Ears	Antelope	AR	021, 022	2020-08-01 to 2020-08-21	44	1	1	1	2%	100%	100%		100%	3.0	4.0	5.0
NR Antelope Horns Longer Than Ears	Antelope	AR	031	2020-08-01 to 2020-08-21	9	2	2	1	22%	100%	50%		0%	3.0	10.0	3.5
NR Antelope Horns Longer Than Ears	Antelope	AR	032, 034	2020-08-01 to 2020-08-21	12	3	5	2	25%	100%	40%		0%	7.6	11.2	3.6
NR Antelope Horns Longer Than Ears	Antelope	AR	033	2020-08-01 to 2020-08-21	56	1	1	0	2%	100%	0%			10.0	10.0	4.0
NR Antelope Horns Longer Than Ears	Antelope	AR	035	2020-08-01 to 2020-08-21	5	1	1	1	20%	100%	100%		0%	2.0	4.0	4.0
NR Antelope Horns Longer Than Ears	Antelope	AR	041, 042	2020-08-01 to 2020-08-21	27	1	1	0	4%	100%	0%			6.0		5.0
NR Antelope Horns Longer Than Ears	Antelope	AR	043 - 046	2020-08-01 to 2020-08-21	7	4	4	1	57%	100%	25%		100%	5.3	6.5	3.5
NR Antelope Horns Longer Than Ears	Antelope	AR	051	2020-08-01 to 2020-08-21	5	4	5	1	80%	100%	20%		0%	3.6	6.8	3.4
NR Antelope Horns Longer Than Ears	Antelope	AR	061, 062, 064, 071, 073	2020-08-01 to 2020-08-21	11	6	6	2	55%	83%	40%		0%	5.2	5.6	4.0
NR Antelope Horns Longer Than Ears	Antelope	AR	065, 142, 144	2020-08-01 to 2020-08-21	6	2	2	1	33%	50%	100%		100%	7.0	14.0	5.0
NR Antelope Horns Longer Than Ears	Antelope	AR	066	2020-08-01 to 2020-08-21			1	0		100%	0%			3.0	3.0	4.0
NR Antelope Horns Longer Than Ears	Antelope	AR	067, 068	2020-08-01 to 2020-08-21	23	6	9	4	26%	100%	44%		75%	4.6	5.6	4.3
NR Antelope Horns Longer Than Ears	Antelope	AR	072, 074 - 075	2020-08-01 to 2020-08-21	11	2	2	0	18%	100%	0%			6.0		5.0
NR Antelope Horns Longer Than Ears	Antelope	AR	078, 105 - 107, 121	2020-08-01 to 2020-08-21	8	1	2	1	13%	100%	50%		0%	4.0	16.0	3.0
NR Antelope Horns Longer Than Ears	Antelope	AR	101 - 104, 108 - 109, 144	2020-08-01 to 2020-08-21	6	2	2	0	33%	100%	0%			3.0		4.0
NR Antelope Horns Longer Than Ears	Antelope	AR	111 - 114	2020-08-01 to 2020-08-21	12	2	2	2	17%	100%	100%		0%	1.0	5.0	4.0
NR Antelope Horns Longer Than Ears	Antelope	AR	115, 231, 242	2020-08-01 to 2020-08-14	13	2	2	2	15%	100%	100%		100%	1.5	7.0	5.0
NR Antelope Horns Longer Than Ears	Antelope	AR	131, 145, 163 - 164	2020-08-01 to 2020-08-14	2	2	1	0	100%	100%	0%			3.0	3.0	1.0
NR Antelope Horns Longer Than Ears	Antelope	AR	132 - 134, 245	2020-08-01 to 2020-08-14	11	1	1	1	9%	100%	100%		100%	2.0	2.0	5.0
NR Antelope Horns Longer Than Ears	Antelope	AR	141, 143, 151 - 156	2020-08-01 to 2020-08-21	18	9	10	7	50%	100%	70%		14%	4.4	5.9	4.1

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Antelope Horns Longer Than Ears	Antelope	AR	161 - 162	2020-08-01 to 2020-08-21	8	1	1	1	13%	100%	100%		100%	4.0	4.0	5.0
NR Antelope Horns Longer Than Ears	Antelope	AR	171 - 173	2020-08-01 to 2020-08-21	1	1	0		100%							
NR Antelope Horns Longer Than Ears	Antelope	AR	181 - 184	2020-08-01 to 2020-08-21	10	1	1	1	10%	100%	100%		0%	4.0	5.0	5.0
NR Antelope Horns Longer Than Ears	Antelope	AR	205 - 208	2020-08-01 to 2020-08-21	6	1	1	1	17%	100%	100%		0%	3.0	3.0	5.0
Dream Antelope	Antelope	SWR	Any Open Unit	2020-08-01 to 2020-10-30			1	1		100%	100%		0%	13.0		5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	114, 115	See Regulations			1	1		100%	100%		100%	1.0	2.0	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	032	See Regulations			3	3		100%	100%		33%	2.0	2.7	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	034	See Regulations			1	1		100%	100%		0%	2.0	2.0	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	035	See Regulations			4	4		100%	100%		50%	3.5	4.3	4.0
NR Landowner Damage Comp Antelope	Antelope	SWR	044	See Regulations			2	2		100%	100%		50%	2.5	2.5	3.5
NR Landowner Damage Comp Antelope	Antelope	SWR	051	See Regulations			4	4		100%	100%		50%	1.8	3.8	4.8
NR Landowner Damage Comp Antelope	Antelope	SWR	062	See Regulations			7	7		100%	100%		43%	2.3	3.3	4.6
NR Landowner Damage Comp Antelope	Antelope	SWR	068	See Regulations			1	1		100%	100%		0%	1.0	1.0	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	081	See Regulations			1	1		100%	100%		100%	1.0	1.0	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	141	See Regulations			1	1		100%	100%		0%	1.0	2.0	4.0
NR Landowner Damage Comp Antelope	Antelope	SWR	155	See Regulations			1	1		100%	100%		0%	2.0	2.0	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	156	See Regulations			2	2		100%	100%		0%	2.0	3.0	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	172	See Regulations			7	7		100%	100%		57%	2.3	2.6	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	172, 184	See Regulations			8	7		88%	100%		43%	2.6	3.1	4.9
NR Landowner Damage Comp Antelope	Antelope	SWR	183	See Regulations			3	3		100%	100%		0%	4.0	5.0	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	184	See Regulations			3	3		100%	100%		33%	2.3	3.0	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	251	See Regulations			6	6		100%	100%		33%	2.0	2.5	4.0
NR Landowner Damage Comp Antelope	Antelope	SWR	022	See Regulations			1	1		100%	100%		100%	3.0	4.0	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	105	See Regulations			1			0%						
NR Landowner Damage Comp Antelope	Antelope	SWR	121	See Regulations			1	1		100%	100%		0%	1.0	1.0	2.0
NR Landowner Damage Comp Antelope	Antelope	SWR	144	See Regulations			3	2		67%	100%		100%	1.0	1.5	5.0
NR Landowner Damage Comp Antelope	Antelope	SWR	115	See Regulations			4	4		100%	100%		50%	1.8	1.8	4.8
Silver State Pronghorn Antelope	Antelope	ALW	Any Open Unit	2020-08-01 to 2020-12-31	5,078	1	1	1	0.02%	100%	100%		100%	3.0	4.0	5.0
NR Wildlife Heritage Antelope	Antelope	ALW	Any Open Unit	2020-08-01 to 2020-12-31			1	1		100%	100%		100%	9.0	10.0	3.0
Res Black Bear Either Sex	Black Bear	ALW	192, 194 - 196, 201 - 204, 206, 291	2020-09-15 to 2020-12-01	3,202	45	41	12	1%	98%	30%			6.1	7.7	
NR Black Bear Either Sex	Black Bear	ALW	192, 194 - 196, 201 - 204, 206, 291	2020-09-15 to 2020-12-01	258	5	5	1	2%	100%	20%			5.7	6.3	
Dream Black Bear	Black Bear	SWR	Any Open Unit	2020-09-15 to 2020-12-01			1	0		100%	0%			4.0	4.0	
Res California Bighorn Any Ewe	California Bighorn	ALW	068	2020-11-06 to 2020-11-30	438	1	1	1	0.2%	100%	100%			4.0	5.0	
Res California Bighorn Any Ram	California Bighorn	ALW	012	2020-09-01 to 2020-10-31	405	4	4	4	1%	100%	100%			15.5	18.8	
Res California Bighorn Any Ram	California Bighorn	ALW	014	2020-09-01 to 2020-10-31	172	2	2	1	1%	100%	50%			10.5	15.0	
Res California Bighorn Any Ram	California Bighorn	ALW	021, 022	2020-09-01 to 2020-10-31	588	3	3	2	1%	100%	67%			11.5		
Res California Bighorn Any Ram	California Bighorn	ALW	031	2020-09-01 to 2020-10-31	1,824	6	6	5	0.3%	100%	83%			3.2	8.2	
Res California Bighorn Any Ram	California Bighorn	ALW	032	2020-09-01 to 2020-10-31	1,753	11	11	9	1%	100%	82%			14.2	17.3	
Res California Bighorn Any Ram	California Bighorn	ALW	033	2020-09-01 to 2020-10-31	211	3	3	1	1%	67%	50%			11.0	18.5	
Res California Bighorn Any Ram	California Bighorn	ALW	034	2020-09-01 to 2020-10-31	553	10	10	6	2%	100%	60%			11.3	17.7	
Res California Bighorn Any Ram	California Bighorn	ALW	035	2020-09-01 to 2020-10-31	396	8	8	6	2%	100%	75%			5.4	11.3	
Res California Bighorn Any Ram	California Bighorn	ALW	041	2020-09-01 to 2020-10-31	564	1	1	1	0.2%	100%	100%			12.0	16.0	
Res California Bighorn Any Ram	California Bighorn	ALW	051	2020-09-01 to 2020-10-31	710	2	2	1	0.3%	100%	50%			6.0	20.0	

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res California Bighorn Any Ram	California Bighorn	ALW	066	2020-09-01 to 2020-10-31	166	1	1	1	1%	100%	100%			14.0	14.0	
Res California Bighorn Any Ram	California Bighorn	ALW	068	2020-09-01 to 2020-10-31	1,253	8	8	8	1%	100%	100%			4.9	11.0	
Res PIW California Bighorn Any Ram	California Bighorn	SWR	Any Open Unit Except 031, 041, and 051	2020-09-01 to 2020-10-31	2,624	1	1	1	0.04%	100%	100%			1.0	8.0	
NR California Bighorn Any Ram	California Bighorn	ALW	012	2020-09-01 to 2020-10-31	1,064	1	1	1	0.1%	100%	100%			2.0	13.0	
NR California Bighorn Any Ram	California Bighorn	ALW	032	2020-09-01 to 2020-10-31	2,423	1	1	1	0.04%	100%	100%			9.0	14.0	
NR California Bighorn Any Ram	California Bighorn	ALW	034	2020-09-01 to 2020-10-31	679	1	1	1	0.1%	100%	100%			1.0	1.0	
NR California Bighorn Any Ram	California Bighorn	ALW	035	2020-09-01 to 2020-10-31	1,142	1	1	1	0.1%	100%	100%			1.0	7.0	
NR California Bighorn Any Ram	California Bighorn	ALW	051	2020-09-01 to 2020-10-31	2,836	1	1	1	0.04%	100%	100%			2.0	12.0	
NR California Bighorn Any Ram	California Bighorn	ALW	068	2020-09-01 to 2020-10-31	2,265	1	1	1	0.04%	100%	100%			3.0	3.0	
NR Wildlife Heritage California Bighorn Sheep	California Bighorn	ALW	Any open unit except unit 041	2020-08-01 to 2020-12-31			1	1		100%	100%			2.0	12.0	
Dream California Bighorn Sheep	California Bighorn	SWR	Any Open Unit Except 031, 041, and 051	2020-09-01 to 2020-10-31			1	1		100%	100%			18.0	18.0	
Res Desert Bighorn Any Ewe	Desert Bighorn	ALW	213	2020-10-05 to 2020-10-25	449	28	27	22	6%	100%	81%			1.9	2.9	
Res Desert Bighorn Any Ewe	Desert Bighorn	ALW	268	2020-10-05 to 2020-10-25	517	72	67	41	14%	96%	64%			2.7	3.9	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	044, 182	2020-11-20 to 2021-01-01	780	17	16	15	2%	100%	94%			5.0	9.8	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	045, 153	2020-09-15 to 2020-10-15	146	6	6	5	4%	100%	83%			7.7	17.7	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	045, 153	2020-11-20 to 2021-01-01	45	3	1	1	7%	100%	100%			11.0	13.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	131, 164	2020-11-20 to 2021-01-01	99	3	3	1	3%	100%	33%			14.7	24.3	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	132	2020-11-20 to 2021-01-01	51	4	3	3	8%	100%	100%			1.0	7.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	133, 245	2020-11-20 to 2021-01-01	54	4	4	4	7%	100%	100%			2.0	11.5	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	134, 251	2020-11-20 to 2021-01-01	77	5	5	5	6%	100%	100%			8.2	15.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	161	2020-09-15 to 2020-10-15	146	8	8	8	5%	100%	100%			2.9	5.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	161	2020-11-20 to 2021-01-01	87	8	8	8	9%	100%	100%			5.6	7.4	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	162 - 163	2020-11-20 to 2021-01-01	255	8	8	7	3%	100%	88%			2.4	7.4	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	181	2020-11-20 to 2021-01-01	929	17	17	17	2%	100%	100%			3.6	9.7	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	183	2020-11-20 to 2021-01-01	276	6	6	6	2%	100%	100%			2.8	14.7	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	184	2020-09-15 to 2020-10-15	154	5	5	5	3%	100%	100%			2.4	9.2	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	202	2020-11-20 to 2021-01-01	265	5	5	5	2%	100%	100%			1.2	5.2	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	204	2020-10-15 to 2020-11-15	77	2	2	2	3%	100%	100%			3.5	17.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	205	2020-11-20 to 2021-01-01	362	8	8	8	2%	100%	100%			3.9	9.4	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	206, 208	2020-11-20 to 2021-01-01	42	4	4	4	10%	100%	100%			4.3	15.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	207	2020-10-15 to 2020-11-15	67	3	3	3	4%	100%	100%			2.3	12.3	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	211	2020-11-20 to 2021-01-01	159	13	13	12	8%	100%	92%			4.8	7.2	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	212	2020-11-15 to 2020-12-08	126	8	8	8	6%	100%	100%			3.5	6.4	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	212	2020-12-09 to 2021-01-01	67	8	6	6	12%	100%	100%			3.2	5.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	213	2020-11-15 to 2020-12-08	122	7	7	6	6%	100%	86%			4.3	7.9	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	213	2020-12-09 to 2021-01-01	49	6	6	6	12%	100%	100%			5.2	12.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	221, 223, 241	2020-11-20 to 2021-01-01	115	4	4	4	3%	100%	100%			3.8	10.5	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	242, 271	2020-11-20 to 2021-01-01	260	8	8	7	3%	100%	88%			7.4	12.8	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	243	2020-11-20 to 2021-01-01	65	5	4	4	8%	100%	100%			5.8	14.5	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	244	2020-11-20 to 2021-01-01	134	5	5	5	4%	100%	100%			6.0	11.2	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	252	2020-11-21 to 2020-12-13	102	4	4	4	4%	100%	100%			3.8	8.3	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	253	2020-11-20 to 2021-01-01	880	7	7	6	1%	100%	86%			2.3	6.2	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	254	2020-11-20 to 2021-01-01	39	3	3	3	8%	100%	100%			4.7	8.7	

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Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	261	2020-11-20 to 2021-01-01	75	3	3	3	4%	100%	100%			10.0	20.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	262	2020-11-20 to 2021-01-01	336	4	4	3	1%	100%	75%			4.8	12.3	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	263	2020-11-20 to 2021-01-01	555	7	7	7	1%	100%	100%			2.7	5.9	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	264 - 265	2020-11-20 to 2021-01-01	101	1	1	1	1%	100%	100%			1.0	2.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	266	2020-11-20 to 2021-01-01	74	1	1	1	1%	100%	100%			2.0	8.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	267	2020-11-20 to 2021-01-01	327	9	9	9	3%	100%	100%			2.9	4.8	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	268	2020-11-20 to 2021-01-01	2,980	28	28	27	1%	100%	96%			5.9	11.5	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	272	2020-11-20 to 2021-01-01	61	1	1	0	2%	100%	0%			7.0	9.0	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	280	2020-12-19 to 2021-01-03	58	5	5	4	9%	100%	80%			3.4	3.6	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	281	2020-12-19 to 2021-01-03	63	6	6	6	10%	100%	100%			3.8	3.8	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	282	2020-12-19 to 2021-01-03	168	4	4	3	2%	100%	75%			7.3	7.8	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	283 - 284	2020-11-20 to 2021-01-01	99	4	4	3	4%	100%	75%			11.0	14.3	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	286	2020-11-20 to 2021-01-01	130	5	5	5	4%	100%	100%			6.8	14.8	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	173N	2020-09-15 to 2020-10-20	47	3	3	0	6%	100%	0%			10.5	15.5	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	173S	2020-11-20 to 2021-01-01	45	2	2	2	4%	100%	100%			11.0	16.5	
Res Desert Bighorn Any Ram	Desert Bighorn	ALW	241	2020-11-20 to 2021-01-01	55	3	2	2	5%	100%	100%			5.0	10.0	
Res PIW Desert Bighorn Any Ram	Desert Bighorn	SWR	Any Open Unit Except Units 262 and 267	2020-09-15 to 2021-01-03	2,676	1	1	1	0.04%	100%	100%			9.0	9.0	
NR Desert Bighorn Any Ewe	Desert Bighorn	ALW	213	2020-10-05 to 2020-10-25	134	3	3	3	2%	100%	100%			3.0	3.0	
NR Desert Bighorn Any Ewe	Desert Bighorn	ALW	268	2020-10-05 to 2020-10-25	100	8	8	6	8%	100%	75%			2.2	4.3	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	044, 182	2020-11-20 to 2021-01-01	1,239	3	3	3	0.2%	100%	100%			4.0		
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	045, 153	2020-11-20 to 2021-01-01	108	1	0		1%							
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	161	2020-09-15 to 2020-10-15	211	1	1	1	0.5%	100%	100%			2.0	4.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	161	2020-11-20 to 2021-01-01	179	1	1	1	1%	100%	100%			9.0	10.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	162 - 163	2020-11-20 to 2021-01-01	223	1	1	1	0.4%	100%	100%			1.0	4.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	181	2020-11-20 to 2021-01-01	480	2	2	2	0.4%	100%	100%			2.0	4.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	183	2020-11-20 to 2021-01-01	193	1	1	1	1%	100%	100%			3.0	12.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	184	2020-09-15 to 2020-10-15	84	1	1	1	1%	100%	100%			4.0	4.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	205	2020-11-20 to 2021-01-01	172	1	1	1	1%	100%	100%			3.0	15.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	207	2020-10-15 to 2020-11-15	109	1	1	1	1%	100%	100%			1.0	1.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	211	2020-11-20 to 2021-01-01	203	1	1	1	0.5%	100%	100%			6.0	7.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	212	2020-11-15 to 2020-12-08	99	1	1	1	1%	100%	100%			1.0	5.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	212	2020-12-09 to 2021-01-01	109	1	1	1	1%	100%	100%			2.0	4.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	213	2020-11-15 to 2020-12-08	181	2	2	2	1%	100%	100%			1.0	5.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	213	2020-12-09 to 2021-01-01	61	1	1	1	2%	100%	100%			2.0	3.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	242, 271	2020-11-20 to 2021-01-01	614	1	1	1	0.2%	100%	100%			3.0	3.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	261	2020-11-20 to 2021-01-01	63	1	1	1	2%	100%	100%			2.0	9.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	262	2020-11-20 to 2021-01-01	950	1	1	1	0.1%	100%	100%			3.0	3.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	263	2020-11-20 to 2021-01-01	1,371	1	1	1	0.1%	100%	100%			3.0	7.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	267	2020-11-20 to 2021-01-01	475	1	1	1	0.2%	100%	100%			3.0	3.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	268	2020-11-20 to 2021-01-01	4,679	4	4	4	0.1%	100%	100%			3.5	4.5	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	283 - 284	2020-11-20 to 2021-01-01	125	1	1	1	1%	100%	100%			7.0	14.0	
NR Desert Bighorn Any Ram	Desert Bighorn	ALW	173N	2020-09-15 to 2020-10-20	84	1	1	1	1%	100%	100%			4.0	13.0	
NR Wildlife Heritage Desert BHS #1	Desert Bighorn	ALW	Any Open Unit	2020-09-01 to 2021-01-31			1	1		100%	100%			3.0	3.0	

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Wildlife Heritage Desert BHS #2	Desert Bighorn	ALW	Any Open Unit	2020-09-01 to 2021-01-31			1	1		100%	100%			1.0	1.0	
Dream Desert Bighorn Sheep	Desert Bighorn	SWR	Any Open Unit Except Units 262 and 267	2020-09-15 to 2021-01-03			1	1		100%	100%			1.0	16.0	
Silver State Desert Bighorn Ram	Desert Bighorn	ALW	Any Open Unit Except Unit 267	2020-09-01 to 2021-01-31	7,190	1	1	1	0.01%	100%	100%			2.0	16.0	
Res Elk Antlered	Elk	ALW	051	2020-09-17 to 2020-09-30	321	3	3	2	1%	100%	67%	100%	50%	9.3	13.7	3.3
Res Elk Antlered	Elk	ALW	051	2020-11-06 to 2020-11-28	90	3	3	0	3%	67%	0%			11.5	16.5	1.0
Res Elk Antlered	Elk	ALW	061, 071	2020-10-05 to 2020-10-21	629	40	39	24	6%	100%	62%	63%	14%	4.7	7.4	3.8
Res Elk Antlered	Elk	ALW	061, 071	2020-10-22 to 2020-11-05	249	50	49	29	20%	100%	59%	59%	14%	5.3	7.5	4.1
Res Elk Antlered	Elk	ALW	062, 064, 066 - 068	2020-10-22 to 2020-11-05	501	20	20	10	4%	100%	50%	67%	22%	5.9	9.4	3.4
Res Elk Antlered	Elk	ALW	062, 064, 066 - 068	2020-11-06 to 2020-11-20	188	15	15	4	8%	93%	29%	75%	25%	8.3	10.4	2.8
Res Elk Antlered	Elk	ALW	065	2020-09-17 to 2020-09-30	62	1	1	1	2%	100%	100%	100%	100%	7.0	13.0	5.0
Res Elk Antlered	Elk	ALW	072 - 074	2020-10-22 to 2020-11-05	1,010	180	169	48	18%	96%	30%	51%	17%	6.0	8.1	3.2
Res Elk Antlered	Elk	ALW	072 - 074	2020-11-06 to 2020-11-20	451	180	169	30	40%	96%	18%	53%	7%	6.3	8.6	3.0
Res Elk Antlered	Elk	ALW	075	2020-10-22 to 2020-11-05	89	10	10	6	11%	100%	60%	83%	17%	6.2	9.0	4.0
Res Elk Antlered	Elk	ALW	075	2020-11-06 to 2020-11-20	67	10	8	2	15%	100%	25%	50%	50%	6.0	8.0	3.3
Res Elk Antlered	Elk	ALW	076, 077, 079, 081	2020-11-06 to 2020-11-20	1,162	55	52	41	5%	98%	80%	80%	44%	4.9	7.5	4.2
Res Elk Antlered	Elk	ALW	076, 077, 079, 081	2020-11-21 to 2020-12-04	379	55	53	30	15%	98%	58%	69%	29%	5.9	8.6	3.8
Res Elk Antlered	Elk	ALW	078, 105 - 107, 109	2020-10-22 to 2020-11-05	212	13	12	9	6%	100%	75%	89%	67%	3.6	6.4	4.1
Res Elk Antlered	Elk	ALW	078, 105 - 107, 109	2020-11-06 to 2020-11-28	117	13	13	11	11%	92%	92%	82%	55%	8.7	11.1	4.2
Res Elk Antlered	Elk	ALW	091	2020-09-12 to 2020-10-02	658	11	11	9	2%	91%	90%	100%	44%	7.6	12.4	4.5
Res Elk Antlered	Elk	ALW	104, 108, 121	2020-11-06 to 2020-11-20	558	65	63	40	12%	100%	63%	72%	41%	6.0	10.0	4.2
Res Elk Antlered	Elk	ALW	111 - 115	2020-11-06 to 2020-11-20	2,545	100	92	64	4%	92%	75%	77%	33%	5.1	8.0	4.4
Res Elk Antlered	Elk	ALW	111 - 115	2020-11-21 to 2020-12-04	573	110	102	58	19%	97%	59%	72%	31%	6.3	8.7	4.1
Res Elk Antlered	Elk	ALW	108, 131, 132	2020-11-06 to 2020-11-20	355	60	55	24	17%	100%	44%	42%	17%	6.4	9.6	3.4
Res Elk Antlered	Elk	ALW	161 - 164, 171 - 173	2020-09-17 to 2020-09-30	1,152	7	7	7	1%	100%	100%	71%	71%	5.3	8.4	4.9
Res Elk Antlered	Elk	ALW	161 - 164, 171 - 173	2020-11-06 to 2020-11-20	403	35	34	15	9%	100%	44%	50%	21%	6.4	9.2	3.5
Res Elk Antlered	Elk	ALW	161 - 164, 171 - 173	2020-11-21 to 2020-12-04	187	35	31	10	19%	100%	32%	50%	11%	6.8	9.2	3.5
Res Elk Antlered	Elk	ALW	221 - 223	2020-11-06 to 2020-11-20	1,786	70	64	40	4%	98%	63%	65%	33%	5.3	8.5	4.1
Res Elk Antlered	Elk	ALW	221 - 223	2020-11-21 to 2020-12-04	437	70	66	43	16%	98%	66%	65%	28%	5.7	8.9	4.0
Res Elk Antlered	Elk	ALW	231	2020-11-06 to 2020-11-20	1,285	40	39	32	3%	100%	82%	55%	23%	5.4	8.9	4.6
Res Elk Antlered	Elk	ALW	231	2020-11-21 to 2020-12-04	361	45	43	23	12%	100%	53%	61%	30%	6.8	10.2	3.8
Res Elk Antlered	Elk	ALW	241, 242	2020-09-17 to 2020-09-24	168	3	3	3	2%	100%	100%	100%	33%	3.3	5.0	5.0
Res Elk Antlered	Elk	ALW	262	2020-09-17 to 2020-09-30	528	3	2	2	1%	100%	100%	50%	0%	1.5	9.5	5.0
Res Elk Antlered	Elk	AR	061, 071	2020-08-16 to 2020-08-31	51	30	24	0	59%	100%	0%			8.9	12.7	3.8
Res Elk Antlered	Elk	AR	062, 064, 066 - 068	2020-08-16 to 2020-08-31	25	4	4	1	16%	100%	25%	0%	100%	6.0	7.5	3.0
Res Elk Antlered	Elk	AR	072 - 074	2020-08-16 to 2020-08-31	143	110	100	8	77%	100%	8%	50%	13%	8.4	11.5	3.1
Res Elk Antlered	Elk	AR	075	2020-08-16 to 2020-08-31	13	2	2	0	15%	100%	0%			8.0	9.5	4.5
Res Elk Antlered	Elk	AR	076, 077, 079, 081	2020-08-25 to 2020-09-16	86	20	18	8	23%	100%	44%	63%	25%	10.7	17.1	4.2
Res Elk Antlered	Elk	AR	078, 105 - 107, 109	2020-09-01 to 2020-09-20	64	11	10	3	17%	100%	30%	67%	0%	11.6	16.0	3.1
Res Elk Antlered	Elk	AR	104, 108, 121	2020-08-25 to 2020-09-16	71	10	10	7	14%	100%	70%	100%	57%	12.8	20.4	4.2
Res Elk Antlered	Elk	AR	111 - 115	2020-08-25 to 2020-09-16	394	35	34	12	9%	97%	36%	58%	33%	12.0	18.2	4.1
Res Elk Antlered	Elk	AR	108, 131, 132	2020-08-25 to 2020-09-16	66	8	7	4	12%	86%	67%	100%	100%	5.3	9.5	4.7
Res Elk Antlered	Elk	AR	161 - 164, 171 - 173	2020-08-25 to 2020-09-16	75	20	19	4	27%	100%	21%	75%	75%	9.8	13.4	4.1
Res Elk Antlered	Elk	AR	221 - 223	2020-08-25 to 2020-09-16	285	25	24	9	9%	100%	38%	78%	44%	13.3	22.6	3.3

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Elk Antlered	Elk	AR	231	2020-08-25 to 2020-09-16	145	20	20	4	14%	95%	21%	75%	50%	12.7	20.6	3.5
Res Elk Antlered	Elk	AR	241, 242	2020-08-25 to 2020-09-16	10	2	2	1	20%	100%	50%	0%	0%	3.5	13.0	3.0
Res Elk Antlered	Elk	AR	262	2020-08-25 to 2020-09-16	38	1	0		3%							
Res Elk Antlered	Elk	M	061, 071	2020-09-01 to 2020-09-16	154	20	19	7	13%	100%	37%	71%	14%	8.3	10.6	3.9
Res Elk Antlered	Elk	M	062, 064, 066 - 068	2020-09-01 to 2020-09-16	68	7	7	2	10%	100%	29%	100%	50%	9.8	16.0	3.3
Res Elk Antlered	Elk	M	072 - 074	2020-09-01 to 2020-09-16	220	55	54	18	25%	94%	35%	67%	22%	6.9	9.2	3.5
Res Elk Antlered	Elk	M	075	2020-09-01 to 2020-09-16	35	2	2	2	6%	100%	100%	50%	0%	6.0	8.0	4.0
Res Elk Antlered	Elk	M	076, 077, 079, 081	2020-10-22 to 2020-11-05	95	9	9	1	9%	89%	13%	100%	0%	8.8	12.0	3.6
Res Elk Antlered	Elk	M	078, 105 - 107, 109	2020-10-05 to 2020-10-21	72	9	7	1	13%	100%	14%	0%	100%	6.8	10.8	2.8
Res Elk Antlered	Elk	M	104, 108, 121	2020-10-22 to 2020-11-05	40	6	6	4	15%	100%	67%	100%	50%	8.0	9.0	4.5
Res Elk Antlered	Elk	M	111 - 115	2020-10-22 to 2020-11-05	149	30	29	12	20%	97%	43%	75%	50%	6.2	10.1	4.3
Res Elk Antlered	Elk	M	108, 131, 132	2020-10-22 to 2020-11-05	27	10	9	4	37%	100%	44%	100%	75%	7.3	12.1	3.1
Res Elk Antlered	Elk	M	161 - 164, 171 - 173	2020-10-22 to 2020-11-05	61	20	17	4	33%	100%	24%	0%	25%	7.2	10.4	3.8
Res Elk Antlered	Elk	M	221 - 223	2020-10-22 to 2020-11-05	74	7	5	4	9%	100%	80%	50%	25%	9.6	16.0	3.6
Res Elk Antlered	Elk	M	231	2020-10-22 to 2020-11-05	70	6	6	1	9%	83%	20%	0%	0%	8.6	12.0	4.2
Res Elk Antlered	Elk	M	241, 242	2020-10-22 to 2020-11-05	8	2	1	1	25%	100%	100%	100%	0%	2.0	4.0	5.0
Res Elk Antlered	Elk	M	262	2020-10-22 to 2020-11-05	16	1	1	1	6%	100%	100%	0%	0%	3.0	11.0	5.0
Res Elk Antlerless	Elk	ALW	051	2020-10-01 to 2020-10-20	196	3	3	0	2%	100%	0%			6.0	8.0	4.0
Res Elk Antlerless	Elk	ALW	051	2020-12-05 to 2021-01-31	88	5	5	2	6%	100%	40%			5.3	5.2	3.0
Res Elk Antlerless	Elk	ALW	061, 071	2020-09-17 to 2020-10-04	1,624	310	302	95	19%	98%	32%			5.7	7.5	3.3
Res Elk Antlerless	Elk	ALW	061, 071	2020-11-06 to 2021-01-05	489	180	176	34	37%	97%	20%			5.1	6.6	3.5
Res Elk Antlerless	Elk	ALW	062, 064, 066 - 068	2020-09-17 to 2020-10-04	875	70	62	13	8%	97%	22%			5.9	8.0	3.3
Res Elk Antlerless	Elk	ALW	062, 064, 066 - 068	2020-11-21 to 2021-01-05	195	20	20	1	10%	100%	5%			6.4	8.8	2.4
Res Elk Antlerless	Elk	ALW	065	2020-10-01 to 2020-10-20	49	2	2	0	4%	100%	0%			8.0	12.0	1.0
Res Elk Antlerless	Elk	ALW	072 - 074	2020-09-17 to 2020-10-04	724	140	137	31	19%	98%	23%			6.1	7.9	2.9
Res Elk Antlerless	Elk	ALW	072 - 075	2020-11-21 to 2021-01-05	903	120	120	17	13%	98%	15%			5.5	6.8	2.7
Res Elk Antlerless	Elk	ALW	072 Wilderness	2020-09-17 to 2020-10-04	219	20	20	8	9%	100%	40%			3.5	3.7	4.5
Res Elk Antlerless	Elk	ALW	075	2020-09-17 to 2020-10-04	187	6	5	2	3%	100%	40%			4.0	4.2	3.4
Res Elk Antlerless	Elk	ALW	076, 077, 079, 081	2020-10-01 to 2020-10-20	1,427	40	40	23	3%	98%	59%			4.2	5.0	4.1
Res Elk Antlerless	Elk	ALW	076, 077, 079, 081	2020-12-05 to 2021-01-05	430	20	20	11	5%	95%	58%			3.2	4.6	4.3
Res Elk Antlerless	Elk	ALW	078, 105 - 107, 109	2020-09-21 to 2020-10-04	345	95	95	22	28%	98%	24%			4.4	5.9	3.0
Res Elk Antlerless	Elk	ALW	091	2020-08-01 to 2020-08-31	141	5	5	4	4%	100%	80%			2.0	2.3	5.0
Res Elk Antlerless	Elk	ALW	091	2020-10-03 to 2020-11-01	62	5	5	4	8%	100%	80%			2.8	3.0	4.8
Res Elk Antlerless	Elk	ALW	104, 108, 121	2020-09-25 to 2020-10-04	684	90	88	53	13%	100%	60%			4.0	5.3	4.2
Res Elk Antlerless	Elk	ALW	104, 108, 121	2020-11-21 to 2021-01-05	118	20	20	8	17%	100%	40%			5.1	6.2	4.1
Res Elk Antlerless	Elk	ALW	111, 112	2020-09-25 to 2020-10-04	1,598	85	85	48	5%	100%	56%			3.8	4.8	4.3
Res Elk Antlerless	Elk	ALW	111, 112	2020-12-05 to 2021-01-05	578	90	87	45	16%	100%	52%			4.1	5.3	4.1
Res Elk Antlerless	Elk	ALW	113	2020-09-25 to 2020-10-04	133	25	24	8	19%	96%	35%			5.1	6.7	3.4
Res Elk Antlerless	Elk	ALW	113	2020-12-05 to 2021-01-05	113	35	35	15	31%	100%	43%			4.8	6.1	3.3
Res Elk Antlerless	Elk	ALW	113N	2021-01-06 to 2021-01-31	62	20	19	6	32%	79%	40%			5.1	6.2	4.5
Res Elk Antlerless	Elk	ALW	114, 115	2020-09-25 to 2020-10-04	323	55	52	21	17%	100%	40%			4.2	5.9	3.6
Res Elk Antlerless	Elk	ALW	114, 115	2020-12-05 to 2021-01-05	177	75	71	22	42%	100%	31%			6.7	8.3	3.7
Res Elk Antlerless	Elk	ALW	108, 131, 132	2020-09-25 to 2020-10-04	380	20	20	9	5%	100%	45%			4.6	6.0	3.2

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Elk Antlerless	Elk	ALW	161 - 164	2020-10-01 to 2020-10-20	716	65	61	8	9%	100%	13%			4.7	6.1	3.3
Res Elk Antlerless	Elk	ALW	161 - 164	2020-12-05 to 2021-01-05	482	70	69	7	15%	99%	10%			7.3	10.5	3.0
Res Elk Antlerless	Elk	ALW	162 Wilderness	2020-10-01 to 2020-10-20	115	20	18	10	17%	94%	59%			3.7	3.9	4.7
Res Elk Antlerless	Elk	ALW	221	2020-09-25 to 2020-10-04	335	30	30	6	9%	100%	20%			7.6	9.3	2.7
Res Elk Antlerless	Elk	ALW	221	2020-12-05 to 2021-01-05	102	40	32	12	39%	100%	38%			3.9	5.0	3.6
Res Elk Antlerless	Elk	ALW	222 - 223	2020-09-25 to 2020-10-04	1,034	50	47	21	5%	98%	46%			4.0	4.7	3.9
Res Elk Antlerless	Elk	ALW	222 - 223	2020-12-05 to 2021-01-05	390	50	45	15	13%	98%	34%			5.2	6.1	3.9
Res Elk Antlerless	Elk	ALW	222 Wilderness	2020-09-25 to 2020-10-04	77	10	10	5	13%	100%	50%			3.6	4.2	3.6
Res Elk Antlerless	Elk	ALW	222 Wilderness	2020-12-05 to 2021-01-05	34	10	10	6	29%	100%	60%			4.3	4.3	4.3
Res Elk Antlerless	Elk	ALW	231	2020-09-25 to 2020-10-04	1,044	55	54	30	5%	98%	57%			4.0	5.5	4.3
Res Elk Antlerless	Elk	ALW	231	2020-12-05 to 2021-01-05	521	60	59	20	12%	97%	35%			8.7	10.9	3.6
Res Elk Antlerless	Elk	ALW	231 Wilderness	2020-09-25 to 2020-10-04	64	35	35	9	55%	94%	27%			4.1	5.4	3.6
Res Elk Antlerless	Elk	ALW	241, 242	2020-09-25 to 2020-10-04	123	10	10	5	8%	100%	50%			3.2	4.1	3.8
Res Elk Emergency Depredation Antlerless	Elk	ALW	Unit 121, 111, and 106	2020-12-19 to 2021-01-01			5	3		100%	60%			1.6	1.6	3.4
Res Elk Emergency Depredation Antlerless	Elk	ALW	Unit 121, 111, and 106	2021-01-02 to 2021-01-17			10	1		100%	10%			4.5	4.8	1.6
Res Elk Antlerless	Elk	AR	061, 071	2020-08-01 to 2020-08-15	110	65	63	4	59%	97%	7%			5.7	7.1	3.1
Res Elk Antlerless	Elk	AR	062, 064, 066 - 068	2020-08-01 to 2020-08-15	43	20	18	1	47%	94%	6%			6.1	7.5	3.1
Res Elk Antlerless	Elk	AR	072 - 074	2020-08-01 to 2020-08-15	81	25	25	4	31%	92%	17%			4.5	4.8	3.3
Res Elk Antlerless	Elk	AR	075	2020-08-01 to 2020-08-15	4	1	1	0	25%	100%	0%			7.0	7.0	1.0
Res Elk Antlerless	Elk	AR	076, 077, 079, 081	2020-08-01 to 2020-08-24	82	6	6	3	7%	100%	50%			3.7	6.8	4.2
Res Elk Antlerless	Elk	AR	078, 105 - 107, 109	2020-08-01 to 2020-08-15	31	15	15	2	48%	100%	13%			6.8	10.8	2.8
Res Elk Antlerless	Elk	AR	104, 108, 121	2020-08-01 to 2020-08-24	50	8	8	5	16%	100%	63%			5.0	10.3	4.1
Res Elk Antlerless	Elk	AR	111, 112	2020-08-01 to 2020-08-24	185	30	30	10	16%	100%	33%			5.6	7.6	3.9
Res Elk Antlerless	Elk	AR	113	2020-08-01 to 2020-08-24	45	40	36	8	89%	100%	22%			6.2	8.4	3.6
Res Elk Antlerless	Elk	AR	114, 115	2020-08-01 to 2020-08-24	63	30	27	7	48%	100%	26%			5.9	9.0	4.0
Res Elk Antlerless	Elk	AR	108, 131, 132	2020-08-01 to 2020-08-24	43	3	3	3	7%	100%	100%			3.0	4.7	5.0
Res Elk Antlerless	Elk	AR	161 - 164	2020-08-01 to 2020-08-15	92	25	24	3	27%	100%	13%			5.8	7.5	3.8
Res Elk Antlerless	Elk	AR	221 - 223	2020-08-01 to 2020-08-24	188	45	43	17	24%	98%	40%			5.0	7.4	4.1
Res Elk Antlerless	Elk	AR	231	2020-08-01 to 2020-08-24	126	20	19	9	16%	95%	50%			7.4	9.9	4.3
Res Elk Antlerless	Elk	AR	241, 242	2020-08-01 to 2020-08-24	15	3	3	1	20%	100%	33%			2.0	5.0	5.0
Res Elk Antlerless	Elk	M	072 - 074	2020-09-01 to 2020-09-16	129	10	10	0	8%	100%	0%			6.4	7.2	2.9
Res Elk Antlerless	Elk	M	075	2020-09-01 to 2020-09-16	15	3	3	0	20%	100%	0%			7.3	10.7	3.0
Res Elk Antlerless	Elk	M	076, 077, 079, 081	2020-09-17 to 2020-09-30	112	15	14	5	13%	100%	36%			5.0	5.7	3.3
Res Elk Antlerless	Elk	M	078, 105 - 107, 109	2020-08-16 to 2020-08-31	22	15	12	4	68%	100%	33%			4.7	6.9	3.6
Res Elk Antlerless	Elk	M	104, 108, 121	2020-09-17 to 2020-09-24	48	10	10	7	21%	100%	70%			2.9	4.0	4.6
Res Elk Antlerless	Elk	M	111, 112	2020-09-17 to 2020-09-24	120	15	14	6	13%	100%	43%			3.1	3.5	4.2
Res Elk Antlerless	Elk	M	113	2020-09-17 to 2020-09-24	34	10	8	4	29%	100%	50%			4.3	5.6	4.0
Res Elk Antlerless	Elk	M	114, 115	2020-09-17 to 2020-09-24	41	10	8	2	24%	100%	25%			1.9	2.5	3.1
Res Elk Antlerless	Elk	M	108, 131, 132	2020-09-17 to 2020-09-24	36	5	5	4	14%	100%	80%			5.4	8.8	5.0
Res Elk Antlerless	Elk	M	161 - 164	2020-09-01 to 2020-09-16	87	20	19	6	23%	95%	33%			4.8	6.5	3.5
Res Elk Antlerless	Elk	M	221 - 223	2020-09-17 to 2020-09-24	190	25	25	4	13%	96%	17%			5.3	6.3	3.1
Res Elk Antlerless	Elk	M	231	2020-09-17 to 2020-09-24	142	15	15	4	11%	100%	27%			4.4	6.3	3.6
Res Elk Depredation Antlered	Elk	ALW	101 - 103	2020-08-01 to 2020-09-30	1,247	50	50	25	4%	100%	50%	60%	42%	7.9	11.2	3.9

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Elk Depredation Antlered	Elk	ALW	101 - 103	2020-10-01 to 2021-01-05	568	50	50	17	9%	98%	35%	47%	24%	8.0	9.1	3.5
Res Elk Depredation Antlered	Elk	ALW	144, 145	2020-09-01 to 2020-09-30	313	5	5	3	2%	100%	60%	67%	67%	5.0	7.8	2.8
Res Elk Depredation Antlered	Elk	ALW	144, 145	2020-10-01 to 2020-10-31	56	5	5	2	9%	100%	40%	100%	0%	2.7	3.3	4.3
Res Elk Depredation Antlered	Elk	ALW	144, 145	2020-11-01 to 2021-01-05	74	5	5	1	7%	100%	20%	0%	0%	6.8	7.4	2.2
Res Elk Depredation Antlered	Elk	ALW	251	2020-08-01 to 2021-01-05	385	5	5	3	1%	100%	60%	67%	33%	5.8	9.3	4.0
Res Elk Depredation Antlerless	Elk	ALW	101 - 103	2020-08-01 to 2021-01-05	463	150	150	12	32%	94%	9%			7.2	9.7	2.8
Res Elk Depredation Antlerless	Elk	ALW	144, 145	2020-08-01 to 2020-08-31	45	5	5	0	11%	100%	0%			7.8	9.2	3.3
Res Elk Depredation Antlerless	Elk	ALW	144, 145	2020-09-01 to 2020-09-30	22	5	5	1	23%	100%	20%			4.0	5.0	4.0
Res Elk Depredation Antlerless	Elk	ALW	144, 145	2020-10-01 to 2021-01-05	37	5	5	0	14%	60%	0%			5.0	8.5	2.5
Res Elk Depredation Antlerless	Elk	ALW	251	2020-08-01 to 2021-01-05	138	10	10	0	7%	100%	0%			3.7	5.4	2.6
Res Elk Depredation Antlerless	Elk	ALW	081	2020-08-01 to 2020-08-24	88	10	10	1	11%	100%	10%			4.0	5.0	3.2
Res Elk Depredation Antlerless	Elk	ALW	081	2020-09-17 to 2020-09-30	132	10	9	6	8%	89%	75%			3.6	5.7	4.7
Res Elk Depredation Antlerless	Elk	ALW	081	2020-10-01 to 2020-10-20	91	15	15	7	16%	93%	50%			3.4	5.5	3.8
Res Elk Depredation Antlerless	Elk	ALW	081	2020-12-05 to 2021-01-05	90	15	15	8	17%	100%	53%			3.1	3.5	3.5
Res Elk Depredation Antlerless	Elk	ALW	121	2020-08-01 to 2020-08-31	92	25	23	9	27%	100%	39%			4.8	6.7	3.5
Res Elk Depredation Antlerless	Elk	ALW	121	2020-09-01 to 2020-09-30	45	10	9	0	22%	100%	0%			4.3	5.0	1.9
Res Elk Depredation Antlerless	Elk	ALW	121	2020-10-01 to 2021-01-05	56	10	10	5	18%	100%	50%			2.6	3.7	4.0
Res Elk Incentive	Elk	ALW	061, 071	2020-10-05 to 2020-11-05			2	2		100%	100%	100%	0%	4.5	9.0	4.5
Res Elk Incentive	Elk	ALW	072 - 074	2020-10-22 to 2020-11-20			1	1		100%	100%	0%	0%	3.0	3.0	5.0
Res Elk Incentive	Elk	ALW	075	2020-10-22 to 2020-11-20			4	3		100%	75%	100%	0%	5.5	7.0	3.5
Res Elk Incentive	Elk	ALW	076, 077, 079, 081	2020-11-06 to 2020-12-04			4	4		100%	100%	75%	25%	4.3	8.5	5.0
Res Elk Incentive	Elk	ALW	111 - 115	2020-11-06 to 2020-12-04			2	2		100%	100%	100%	100%	13.5	15.0	4.5
Res Elk Incentive	Elk	ALW	221 - 223	2020-11-06 to 2020-12-04			4	2		100%	50%	100%	50%	8.3	13.8	3.5
Res Elk Incentive	Elk	ALW	231	2020-11-06 to 2020-12-04			3	2		100%	67%	100%	50%	7.7	7.7	4.7
Res Elk Incentive	Elk	AR	076, 077, 079, 081	2020-08-25 to 2020-09-16			1	1		100%	100%	100%	100%	7.0	12.0	5.0
Res Elk Incentive	Elk	AR	221 - 223	2020-08-25 to 2020-09-16			3	1		100%	33%	100%	100%	12.7	21.3	3.7
Res Elk Incentive	Elk	AR	231, 221 - 223	2020-08-25 to 2020-09-16			1	0		100%	0%			12.0	24.0	1.0
Res Elk Incentive	Elk	M	072 - 074	2020-09-01 to 2020-09-16			3	2		100%	67%	100%	50%	4.7	5.3	4.3
Res Elk Incentive	Elk	M	075	2020-09-01 to 2020-09-16			1	1		100%	100%	100%	0%	3.0	3.0	5.0
Res Elk Incentive	Elk	M	111 - 115	2020-10-22 to 2020-11-05			1	0		100%	0%			7.0	7.0	4.0
Res Elk Spike	Elk	ALW	061, 071	2020-09-17 to 2020-10-04	346	10	10	1	3%	100%	10%			4.0	4.4	3.2
Res Elk Spike	Elk	ALW	061, 071	2020-11-06 to 2021-01-05	167	10	10	5	6%	100%	50%			5.1	5.4	4.6
Res Elk Spike	Elk	ALW	062, 064, 066 - 068	2020-09-17 to 2020-10-04	147	5	5	2	3%	100%	40%			5.0	7.4	3.2
Res Elk Spike	Elk	ALW	062, 064, 066 - 068	2020-10-05 to 2020-10-20	38	5	5	1	13%	80%	25%			5.8	8.3	3.0
Res Elk Spike	Elk	ALW	062, 064, 066 - 068	2020-11-21 to 2021-01-05	58	5	5	2	9%	100%	40%			6.0	6.8	3.5
Res Elk Spike	Elk	ALW	072 - 074	2020-09-17 to 2020-10-04	202	20	20	3	10%	100%	15%			5.8	8.1	3.3
Res Elk Spike	Elk	ALW	072 - 074	2020-11-21 to 2021-01-05	90	20	20	1	22%	100%	5%			7.8	8.7	2.5
Res Elk Spike	Elk	ALW	076, 077, 079, 081	2020-10-01 to 2020-10-20	252	10	8	6	4%	100%	75%			6.0	8.6	4.4
Res Elk Spike	Elk	ALW	076, 077, 079, 081	2020-12-05 to 2021-01-05	126	10	10	5	8%	100%	50%			3.8	4.0	3.5
Res Elk Spike	Elk	ALW	078, 105 - 107, 109	2020-09-21 to 2020-10-04	138	10	10	2	7%	100%	20%			4.3	4.9	2.7
Res PIW Elk Antlered	Elk	SWR	Any Open Unit Except Unit 091	2020-08-16 to 2020-12-04	2,809	3	3	3	0.1%	100%	100%	100%	0%	14.3	21.7	4.3
Res Private Lands Antlerless Elk	Elk	ALW	111	2020-08-10 to 2020-08-31			10	8		100%	80%			1.8	2.5	4.5
Res Private Lands Antlerless Elk	Elk	ALW	111	2020-10-01 to 2020-10-21			14	10		86%	83%			1.3	1.3	4.4

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Private Lands Antlerless Elk	Elk	ALW	109, 121	2020-12-01 to 2021-01-01			1	1		100%	100%			2.0	5.0	5.0
Res Private Lands Antlerless Elk	Elk	ALW	231	2020-08-15 to 2021-01-05			4	3		75%	100%			5.7	8.7	4.7
Res Private Lands Antlerless Elk	Elk	ALW	231	2020-08-15 to 2020-12-31			6	6		100%	100%			2.3	3.2	4.8
Res Private Lands Antlerless Elk	Elk	ALW	077, 081	2020-07-15 to 2020-11-30			8	8		100%	100%			2.0	5.0	5.0
Res Wildlife Heritage Elk	Elk	ALW	Any Open Unit Except Unit 091	2020-08-01 to 2020-12-31			1	1		100%	100%	100%	100%	21.0	38.0	4.0
Dream Elk	Elk	SWR	Any Open Unit Except Unit 091	2020-08-01 to 2021-01-05			1	1		100%	100%	100%	100%	15.0	20.0	5.0
NR Elk Antlered	Elk	ALW	061, 071	2020-10-05 to 2020-10-21	218	5	4	3	2%	100%	75%	100%	0%	7.0	7.8	2.8
NR Elk Antlered	Elk	ALW	061, 071	2020-10-22 to 2020-11-05	87	6	5	4	7%	100%	80%	75%	75%	4.2	4.8	3.6
NR Elk Antlered	Elk	ALW	062, 064, 066 - 068	2020-10-22 to 2020-11-05	140	2	1	1	1%	100%	100%	100%	0%	5.0	8.0	5.0
NR Elk Antlered	Elk	ALW	062, 064, 066 - 068	2020-11-06 to 2020-11-20	80	1	1	1	1%	100%	100%	100%	100%	4.0	4.0	2.0
NR Elk Antlered	Elk	ALW	072 - 074	2020-10-22 to 2020-11-05	358	18	18	9	5%	94%	53%	67%	22%	5.2	7.8	3.3
NR Elk Antlered	Elk	ALW	072 - 074	2020-11-06 to 2020-11-20	194	18	17	8	9%	100%	47%	50%	25%	5.5	7.2	3.2
NR Elk Antlered	Elk	ALW	075	2020-10-22 to 2020-11-05	72	1	1	1	1%	100%	100%	100%	100%	3.0	5.0	3.0
NR Elk Antlered	Elk	ALW	075	2020-11-06 to 2020-11-20	37	1	1		3%	100%						
NR Elk Antlered	Elk	ALW	076, 077, 079, 081	2020-11-06 to 2020-11-20	372	6	6	5	2%	100%	83%	80%	20%	7.0	11.2	4.3
NR Elk Antlered	Elk	ALW	076, 077, 079, 081	2020-11-21 to 2020-12-04	159	6	6	5	4%	83%	100%	100%	20%	7.0	8.2	4.0
NR Elk Antlered	Elk	ALW	078, 105 - 107, 109	2020-10-22 to 2020-11-05	78	2	2	2	3%	100%	100%	50%	50%	6.5	12.5	5.0
NR Elk Antlered	Elk	ALW	078, 105 - 107, 109	2020-11-06 to 2020-11-28	51	2	2	2	4%	100%	100%	100%	50%	7.0	10.5	5.0
NR Elk Antlered	Elk	ALW	104, 108, 121	2020-11-06 to 2020-11-20	155	8	8	3	5%	100%	38%	67%	67%	7.7	10.4	4.1
NR Elk Antlered	Elk	ALW	111 - 115	2020-11-06 to 2020-11-20	2,049	12	12	9	1%	92%	82%	89%	78%	5.6	7.9	4.7
NR Elk Antlered	Elk	ALW	111 - 115	2020-11-21 to 2020-12-04	448	13	13	7	3%	85%	64%	100%	71%	6.5	6.7	4.2
NR Elk Antlered	Elk	ALW	108, 131, 132	2020-11-06 to 2020-11-20	48	6	6	4	13%	83%	80%	100%	67%	6.4	10.0	4.2
NR Elk Antlered	Elk	ALW	161 - 164, 171 - 173	2020-09-17 to 2020-09-30	1,278	1	0		0.1%							
NR Elk Antlered	Elk	ALW	161 - 164, 171 - 173	2020-11-06 to 2020-11-20	102	4	4	3	4%	75%	100%	33%	67%	4.3	10.0	5.0
NR Elk Antlered	Elk	ALW	161 - 164, 171 - 173	2020-11-21 to 2020-12-04	75	4	4	2	5%	75%	67%	50%	0%	9.3	13.0	4.7
NR Elk Antlered	Elk	ALW	221 - 223	2020-11-06 to 2020-11-20	1,225	8	7	6	1%	100%	86%	83%	33%	4.9	5.9	4.6
NR Elk Antlered	Elk	ALW	221 - 223	2020-11-21 to 2020-12-04	245	8	6	3	3%	83%	60%	67%	67%	5.5	6.8	5.0
NR Elk Antlered	Elk	ALW	231	2020-11-06 to 2020-11-20	341	5	5	3	1%	100%	60%	100%	100%	7.8	10.8	4.0
NR Elk Antlered	Elk	ALW	231	2020-11-21 to 2020-12-04	195	5	5	3	3%	100%	60%	100%	67%	7.0	7.8	4.0
NR Elk Antlered	Elk	AR	061, 071	2020-08-16 to 2020-08-31	65	3	2	1	5%	100%	50%	0%	0%	10.0	12.5	4.5
NR Elk Antlered	Elk	AR	062, 064, 066 - 068	2020-08-16 to 2020-08-31	51	1	1	1	2%	100%	100%	0%	0%	12.0	16.0	4.0
NR Elk Antlered	Elk	AR	072 - 074	2020-08-16 to 2020-08-31	157	15	15	7	10%	93%	50%	86%	29%	6.2	7.9	3.4
NR Elk Antlered	Elk	AR	076, 077, 079, 081	2020-08-25 to 2020-09-16	137	2	2	0	1%	100%	0%			7.5	7.5	4.5
NR Elk Antlered	Elk	AR	078, 105 - 107, 109	2020-09-01 to 2020-09-20	67	1	1	0	1%	100%	0%			12.0	12.0	2.0
NR Elk Antlered	Elk	AR	104, 108, 121	2020-08-25 to 2020-09-16	99	1	1	1	1%	100%	100%	100%	100%	6.0	6.0	5.0
NR Elk Antlered	Elk	AR	111 - 115	2020-08-25 to 2020-09-16	1,398	4	4	2	0.3%	100%	50%	100%	100%	8.8	11.0	3.5
NR Elk Antlered	Elk	AR	108, 131, 132	2020-08-25 to 2020-09-16	136	1	1	1	1%	100%	100%	100%	100%	19.0	26.0	5.0
NR Elk Antlered	Elk	AR	161 - 164, 171 - 173	2020-08-25 to 2020-09-16	115	2	2	0	2%	100%	0%			10.0	10.0	2.0
NR Elk Antlered	Elk	AR	221 - 223	2020-08-25 to 2020-09-16	836	3	3	0	0.4%	100%	0%			10.5	13.5	2.5
NR Elk Antlered	Elk	AR	231	2020-08-25 to 2020-09-16	174	2	2	1	1%	100%	50%	100%	100%	5.5	5.5	3.0
NR Elk Antlered	Elk	M	061, 071	2020-09-01 to 2020-09-16	73	3	3	2	4%	100%	67%	50%	0%	6.3	7.3	3.7
NR Elk Antlered	Elk	M	062, 064, 066 - 068	2020-09-01 to 2020-09-16	120	1	0		1%							
NR Elk Antlered	Elk	M	072 - 074	2020-09-01 to 2020-09-16	193	7	6	5	4%	100%	83%	100%	60%	5.8	9.3	4.8

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Elk Antlered	Elk	M	076, 077, 079, 081	2020-10-22 to 2020-11-05	30	1	1	1	3%	100%	100%	100%	0%	3.0	13.0	5.0
NR Elk Antlered	Elk	M	078, 105 - 107, 109	2020-10-05 to 2020-10-21	113	1	1	1	1%	100%	100%	100%	100%	6.0	6.0	5.0
NR Elk Antlered	Elk	M	104, 108, 121	2020-10-22 to 2020-11-05	12	1	1	1	8%	100%	100%	100%	0%	4.0	4.0	4.0
NR Elk Antlered	Elk	M	111 - 115	2020-10-22 to 2020-11-05	153	4	4	3	3%	100%	75%	100%	33%	6.5	9.0	4.5
NR Elk Antlered	Elk	M	161 - 164, 171 - 173	2020-10-22 to 2020-11-05	26	2	2	2	8%	100%	100%	0%	0%	8.0	10.0	2.5
NR Elk Antlered	Elk	M	221 - 223	2020-10-22 to 2020-11-05	77	1	1	1	1%	100%	100%	100%	0%	11.0	11.0	4.0
NR Elk Antlered	Elk	M	231	2020-10-22 to 2020-11-05	28	1	1	0	4%	100%	0%			13.0	27.0	2.0
NR Elk Antlerless	Elk	ALW	061, 071	2020-09-17 to 2020-10-04	168	45	45	22	27%	100%	49%			4.8	6.5	4.3
NR Elk Antlerless	Elk	ALW	061, 071	2020-11-06 to 2021-01-05	92	25	25	6	27%	100%	24%			4.8	6.1	3.2
NR Elk Antlerless	Elk	ALW	062, 064, 066 - 068	2020-09-17 to 2020-10-04	98	10	10	6	10%	100%	60%			4.5	4.9	3.8
NR Elk Antlerless	Elk	ALW	062, 064, 066 - 068	2020-11-21 to 2021-01-05	54	3	3	1	6%	100%	33%			5.5	7.0	3.5
NR Elk Antlerless	Elk	ALW	072 - 074	2020-09-17 to 2020-10-04	102	15	15	5	15%	93%	36%			5.0	5.7	3.9
NR Elk Antlerless	Elk	ALW	072 - 075	2020-11-21 to 2021-01-05	166	15	15	1	9%	100%	7%			7.0	8.0	2.8
NR Elk Antlerless	Elk	ALW	104, 108, 121	2020-09-25 to 2020-10-04	60	10	9	5	17%	100%	56%			3.4	4.3	4.4
NR Elk Antlerless	Elk	ALW	104, 108, 121	2020-11-21 to 2021-01-05	36	2	2	2	6%	100%	100%			4.0	6.5	5.0
NR Elk Antlerless	Elk	ALW	111, 112	2020-09-25 to 2020-10-04	107	9	7	5	8%	100%	71%			2.3	3.3	4.8
NR Elk Antlerless	Elk	ALW	111, 112	2020-12-05 to 2021-01-05	110	10	9	7	9%	100%	78%			3.1	4.3	4.6
NR Elk Antlerless	Elk	ALW	108, 131, 132	2020-09-25 to 2020-10-04	26	2	1	1	8%	100%	100%			5.0	6.0	5.0
NR Elk Antlerless	Elk	ALW	161 - 164	2020-10-01 to 2020-10-20	62	7	7	4	11%	100%	57%			2.5	4.0	4.2
NR Elk Antlerless	Elk	ALW	161 - 164	2020-12-05 to 2021-01-05	79	8	8	0	10%	100%	0%			5.9	7.3	3.9
NR Elk Antlerless	Elk	ALW	231	2020-09-25 to 2020-10-04	59	6	6	4	10%	100%	67%			5.0	5.8	4.2
NR Elk Antlerless	Elk	ALW	231	2020-12-05 to 2021-01-05	59	7	7	3	12%	100%	43%			3.9	4.3	4.0
NR Elk Antlerless	Elk	AR	072 - 074	2020-08-01 to 2020-08-15	15	3	3	0	20%	100%	0%			4.7	8.0	2.0
NR Elk Antlerless	Elk	AR	076, 077, 079, 081	2020-08-01 to 2020-08-24	6	1	1	0	17%	100%	0%			5.0	5.0	4.0
NR Elk Antlerless	Elk	AR	108, 131, 132	2020-08-01 to 2020-08-24	10	1	1	0	10%	100%	0%			8.0	10.0	3.0
NR Elk Antlerless	Elk	M	072 - 074	2020-09-01 to 2020-09-16	18	1	1	0	6%	100%	0%			9.0		1.0
NR Elk Antlerless	Elk	M	076, 077, 079, 081	2020-09-17 to 2020-09-30	13	1	1	0	8%	100%	0%			3.0	3.0	3.0
NR Elk Antlerless	Elk	M	108, 131, 132	2020-09-17 to 2020-09-24	5	1	1	0	20%	100%	0%			5.0	5.0	4.0
NR Elk Incentive	Elk	ALW	061, 071	2020-10-05 to 2020-11-05			1	1		100%	100%	0%	0%	4.0	4.0	5.0
NR Elk Incentive	Elk	ALW	072 - 074	2020-10-22 to 2020-11-20			3	3		100%	100%	100%	0%	2.3	2.3	5.0
NR Elk Incentive	Elk	ALW	075	2020-10-22 to 2020-11-20			2	2		100%	100%	100%	0%	5.5	6.0	4.5
NR Elk Incentive	Elk	ALW	076, 077, 079, 081	2020-11-06 to 2020-12-04			29	25		100%	86%	92%	40%	5.1	6.8	4.6
NR Elk Incentive	Elk	ALW	104, 108, 121	2020-11-06 to 2020-11-20			1	1		100%	100%	100%	0%	5.0	7.0	4.0
NR Elk Incentive	Elk	ALW	111 - 115	2020-11-06 to 2020-12-04			4	2		100%	50%	100%	50%	5.0	6.3	4.8
NR Elk Incentive	Elk	ALW	231	2020-11-06 to 2020-12-04			4	3		100%	75%	67%	33%	5.3	6.5	4.5
NR Elk Incentive	Elk	ALW	231, 221 - 223	2020-11-06 to 2020-12-04			4	4		100%	100%	25%	25%	2.5	2.5	4.8
NR Elk Incentive	Elk	ALW	241, 242	2020-09-17 to 2020-09-24			1			0%						
NR Elk Incentive	Elk	AR	076, 077, 079, 081	2020-08-25 to 2020-09-16			11	3		91%	30%	100%	67%	11.8	13.9	3.6
NR Elk Incentive	Elk	AR	104, 108, 121	2020-08-25 to 2020-09-16			1	1		100%	100%	100%	100%	8.0	13.0	5.0
NR Elk Incentive	Elk	AR	111 - 115	2020-08-25 to 2020-09-16			8	2		88%	29%	100%	100%	9.1	10.7	3.9
NR Elk Incentive	Elk	AR	221 - 223	2020-08-25 to 2020-09-16			5	2		80%	50%	50%	100%	4.3	5.3	4.7
NR Elk Incentive	Elk	AR	231	2020-08-25 to 2020-09-16			4	0		100%	0%			13.3	16.8	3.3
NR Elk Incentive	Elk	AR	231, 221 - 223	2020-08-25 to 2020-09-16			2	1		100%	50%	100%	0%	8.5	9.5	5.0

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Elk Incentive	Elk	M	061, 071	2020-09-01 to 2020-09-16			2	1		100%	50%	100%	100%	9.0	12.5	3.5
NR Elk Incentive	Elk	M	072 - 074	2020-09-01 to 2020-09-16			8	6		100%	75%	83%	67%	4.3	4.9	4.6
NR Elk Incentive	Elk	M	075	2020-09-01 to 2020-09-16			4	4		100%	100%	100%	50%	1.5	2.3	4.8
NR Elk Incentive	Elk	M	111 - 115	2020-10-22 to 2020-11-05			1	1		100%	100%	100%	100%	10.0	15.0	5.0
NR Elk Incentive	Elk	M	231	2020-10-22 to 2020-11-05			1			0%						
NR Private Lands Antlerless Elk	Elk	ALW	231	2020-08-15 to 2021-01-05			1	0		100%	0%			5.0	5.0	4.0
NR Private Lands Antlerless Elk	Elk	ALW	231	2020-08-15 to 2020-12-31			7	4		100%	57%			2.2	2.2	3.8
Silver State Elk	Elk	ALW	Any Open Unit Except Unit 091	2020-08-01 to 2020-12-31	8,933	1	1		0.01%	0%						
NR Wildlife Heritage Elk	Elk	ALW	Any Open Unit Except Unit 091	2020-08-01 to 2020-12-31			1	1		100%	100%	100%	100%	1.0	22.0	4.0
Res Mountain Goat Either Sex	Mountain Goat	ALW	101	2020-09-01 to 2020-10-31	1,786	1	1	1	0.1%	100%	100%			3.0	7.0	
Res Mountain Goat Either Sex	Mountain Goat	ALW	102	2020-09-01 to 2020-10-31	3,490	7	7	6	0.2%	100%	86%			5.0	6.7	
Res Mountain Goat Either Sex	Mountain Goat	ALW	103	2020-09-01 to 2020-10-31	630	1	1	1	0.2%	100%	100%			2.0	4.0	
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	102	See Regulations			1	0		100%	0%			20.0	30.0	1.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	103	See Regulations			1	0		100%	0%			18.0	23.0	5.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	121	See Regulations			2	2		100%	100%	50%		6.5	6.5	4.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	015	See Regulations			1	0		100%	0%			10.0		4.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	031	See Regulations			2	1		100%	50%	100%		7.0	7.0	4.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	031 - 032	See Regulations			1	1		100%	100%	100%		5.0	5.0	3.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	035	See Regulations			1	0		100%	0%			7.0	9.0	5.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	045	See Regulations			1	0		100%	0%			20.0		1.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	051	See Regulations			2	2		100%	100%	100%		7.0	15.5	5.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	062	See Regulations			1	1		100%	100%	100%		5.0	5.0	4.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	065	See Regulations			1	0		100%	0%			5.0	5.0	1.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	131	See Regulations			1	0		100%	0%			11.0	11.0	1.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	131 - 132	See Regulations			1	0		100%	0%			3.0	6.0	3.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	132, 164	See Regulations			2	1		100%	50%	100%		7.5	11.5	1.5
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	141	See Regulations			1	1		100%	100%	100%		5.0	6.0	4.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	144	See Regulations			2	2		100%	100%	50%		4.0		5.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	152	See Regulations			1	1		100%	100%	100%		1.0	1.0	3.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	231	See Regulations			6	2		100%	33%	50%		12.2	18.8	2.2
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	241, 242	See Regulations			1	0		100%	0%			21.0	41.0	1.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	242	See Regulations			1	1		100%	100%	100%		21.0	26.0	4.0
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	245	See Regulations			1	1		100%	100%	100%		1.0	1.0	
Res Landowner Damage Comp Mule Deer	Mule Deer	SWR	272	See Regulations			1	1		100%	100%	100%		14.0	35.0	5.0
Res Mule Deer Antlered	Mule Deer	ALW	011 - 013	2020-10-05 to 2020-11-05	802	50	48	31	6%	96%	67%	48%		5.5	7.7	3.6
Res Mule Deer Antlered	Mule Deer	ALW	014	2020-10-05 to 2020-11-05	246	15	13	6	6%	100%	46%	0%		6.2	9.0	2.6
Res Mule Deer Antlered	Mule Deer	ALW	015	2020-12-11 to 2021-01-01	207	35	29	6	17%	97%	21%	60%		3.9	5.6	3.2
Res Mule Deer Antlered	Mule Deer	ALW	021	2020-12-21 to 2021-01-01	906	40	35	26	4%	97%	76%	50%		5.4	9.7	3.4
Res Mule Deer Antlered	Mule Deer	ALW	022	2020-10-05 to 2020-11-05	393	35	33	16	9%	100%	48%	56%		6.9	10.2	3.4
Res Mule Deer Antlered	Mule Deer	ALW	031	2020-10-05 to 2020-11-05	703	170	163	95	24%	96%	61%	35%		5.0	7.0	3.7
Res Mule Deer Antlered	Mule Deer	ALW	032	2020-10-05 to 2020-11-05	201	95	87	18	47%	97%	21%	19%		6.0	7.9	2.6
Res Mule Deer Antlered	Mule Deer	ALW	033	2020-10-05 to 2020-11-05	189	20	19	11	11%	100%	58%	64%		4.7	6.5	3.9
Res Mule Deer Antlered	Mule Deer	ALW	034	2020-10-05 to 2020-11-05	118	30	28	6	25%	96%	22%	0%		5.3	6.3	3.1

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Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Mule Deer Antlered	Mule Deer	ALW	035	2020-10-05 to 2020-11-05	203	75	73	30	37%	99%	42%	33%		6.7	8.4	3.3
Res Mule Deer Antlered	Mule Deer	ALW	041, 042	2020-10-05 to 2020-11-05	225	25	25	11	11%	92%	48%	27%		5.0	6.8	3.4
Res Mule Deer Antlered	Mule Deer	ALW	043 - 046	2020-10-05 to 2020-10-20	484	90	88	36	19%	98%	42%	19%		5.5	8.3	3.8
Res Mule Deer Antlered	Mule Deer	ALW	043 - 046	2020-10-21 to 2020-11-05	201	40	32	13	20%	100%	41%	38%		4.4	6.3	3.9
Res Mule Deer Antlered	Mule Deer	ALW	051	2020-10-05 to 2020-11-05	872	190	188	77	22%	98%	42%	44%		5.4	7.4	3.7
Res Mule Deer Antlered	Mule Deer	ALW	061, 062, 064, 066 - 068	2020-10-05 to 2020-10-20	2,200	950	928	304	43%	97%	34%	36%		5.1	6.8	3.3
Res Mule Deer Antlered	Mule Deer	ALW	061, 062, 064, 066 - 068	2020-10-21 to 2020-11-05	941	120	113	50	13%	98%	45%	62%		5.5	7.8	3.4
Res Mule Deer Antlered	Mule Deer	ALW	065	2020-10-05 to 2020-11-02	586	55	52	30	9%	94%	61%	28%		6.1	9.3	3.4
Res Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	2020-10-05 to 2020-10-20	2,330	850	839	389	36%	98%	47%	42%		4.8	6.4	3.8
Res Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	2020-10-21 to 2020-11-05	2,066	220	210	139	11%	99%	67%	69%		4.9	6.1	4.0
Res Mule Deer Antlered	Mule Deer	ALW	081	2020-12-11 to 2021-01-01	794	60	57	46	8%	98%	82%	78%		4.9	6.3	3.9
Res Mule Deer Antlered	Mule Deer	ALW	101 - 109	2020-10-01 to 2020-10-16	1,262	700	687	124	55%	95%	19%	30%		4.9	6.6	3.3
Res Mule Deer Antlered	Mule Deer	ALW	101 - 109	2020-10-17 to 2020-10-30	865	700	678	135	81%	97%	21%	27%		5.1	6.4	3.1
Res Mule Deer Antlered	Mule Deer	ALW	101 - 109	2020-10-31 to 2020-11-08	617	140	136	67	23%	100%	49%	45%		4.4	5.9	3.8
Res Mule Deer Antlered	Mule Deer	ALW	111 - 113	2020-10-05 to 2020-10-20	1,483	280	274	122	19%	97%	46%	23%		4.8	6.7	3.7
Res Mule Deer Antlered	Mule Deer	ALW	111 - 113	2020-10-21 to 2020-11-05	440	30	30	21	7%	100%	70%	40%		5.3	6.9	3.8
Res Mule Deer Antlered	Mule Deer	ALW	114, 115	2020-10-05 to 2020-10-20	211	60	55	31	28%	96%	58%	39%		3.5	5.8	4.2
Res Mule Deer Antlered	Mule Deer	ALW	114, 115	2020-10-21 to 2020-11-05	69	5	5	4	7%	100%	80%	50%		5.6	7.2	4.0
Res Mule Deer Antlered	Mule Deer	ALW	115	2020-12-01 to 2020-12-15	125	5	5	3	4%	100%	60%	100%		6.2	7.0	3.3
Res Mule Deer Antlered	Mule Deer	ALW	121	2020-10-05 to 2020-10-20	536	160	160	72	30%	98%	46%	18%		4.6	6.4	3.3
Res Mule Deer Antlered	Mule Deer	ALW	121	2020-10-21 to 2020-11-05	227	15	14	10	7%	93%	77%	60%		6.0	6.9	4.1
Res Mule Deer Antlered	Mule Deer	ALW	131 - 134	2020-10-05 to 2020-10-20	1,093	325	312	95	30%	96%	32%	23%		5.0	7.0	3.1
Res Mule Deer Antlered	Mule Deer	ALW	131 - 134	2020-10-21 to 2020-11-05	466	35	32	11	8%	91%	38%	64%		5.7	7.5	3.2
Res Mule Deer Antlered	Mule Deer	ALW	141 - 145	2020-10-05 to 2020-10-20	648	240	238	102	37%	97%	44%	23%		4.1	5.8	3.6
Res Mule Deer Antlered	Mule Deer	ALW	141 - 145	2020-10-21 to 2020-11-05	213	25	24	13	12%	100%	54%	38%		6.3	8.3	3.5
Res Mule Deer Antlered	Mule Deer	ALW	151 - 156	2020-10-05 to 2020-10-20	477	130	128	60	27%	96%	49%	43%		4.4	6.6	3.5
Res Mule Deer Antlered	Mule Deer	ALW	151 - 156	2020-10-21 to 2020-11-05	208	9	9	6	4%	100%	67%	50%		4.7	7.2	3.7
Res Mule Deer Antlered	Mule Deer	ALW	161 - 164	2020-10-05 to 2020-10-20	888	350	339	81	39%	95%	25%	16%		5.2	7.2	3.2
Res Mule Deer Antlered	Mule Deer	ALW	161 - 164	2020-10-21 to 2020-11-05	493	45	41	14	9%	98%	35%	64%		5.8	8.1	3.0
Res Mule Deer Antlered	Mule Deer	ALW	171 - 173	2020-10-05 to 2020-10-20	757	375	363	76	50%	97%	22%	26%		5.1	7.1	3.5
Res Mule Deer Antlered	Mule Deer	ALW	171 - 173	2020-10-21 to 2020-11-05	293	105	98	39	36%	98%	41%	51%		4.6	6.5	3.8
Res Mule Deer Antlered	Mule Deer	ALW	181 - 184	2020-10-05 to 2020-11-05	600	120	118	33	20%	96%	29%	30%		4.8	6.7	3.7
Res Mule Deer Antlered	Mule Deer	ALW	192	2020-11-05 to 2020-11-30	318	40	40	28	13%	100%	70%	25%		7.1	10.3	3.7
Res Mule Deer Antlered	Mule Deer	ALW	194, 196	2020-11-05 to 2020-11-30	3,114	80	74	65	3%	100%	88%	59%		6.1	9.7	4.1
Res Mule Deer Antlered	Mule Deer	ALW	195	2020-10-05 to 2020-11-02	327	25	24	8	8%	100%	33%	0%		6.8	9.7	3.6
Res Mule Deer Antlered	Mule Deer	ALW	201, 204	2020-11-05 to 2020-11-30	372	20	20	14	5%	100%	70%	43%		3.3	4.7	4.3
Res Mule Deer Antlered	Mule Deer	ALW	202, 205 - 208	2020-11-05 to 2020-11-30	280	35	33	17	13%	100%	52%	35%		3.2	4.6	3.8
Res Mule Deer Antlered	Mule Deer	ALW	203	2020-11-05 to 2020-11-30	203	55	55	33	27%	95%	63%	39%		4.8	6.8	4.4
Res Mule Deer Antlered	Mule Deer	ALW	211 - 213	2020-11-05 to 2020-11-30	211	50	43	25	24%	100%	58%	52%		6.2	7.4	3.9
Res Mule Deer Antlered	Mule Deer	ALW	221 - 223	2020-10-05 to 2020-10-16	1,112	250	241	80	22%	98%	34%	36%		5.0	6.9	3.2
Res Mule Deer Antlered	Mule Deer	ALW	221 - 223	2020-10-17 to 2020-10-30	490	150	146	55	31%	99%	38%	45%		5.6	7.2	3.3
Res Mule Deer Antlered	Mule Deer	ALW	221 - 223	2020-10-31 to 2020-11-08	1,042	25	25	13	2%	100%	52%	77%		5.6	9.3	2.6
Res Mule Deer Antlered	Mule Deer	ALW	231	2020-10-05 to 2020-10-31	1,966	150	145	81	8%	96%	58%	42%		5.8	8.1	4.0

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Mule Deer Antlered	Mule Deer	ALW	241 - 245	2020-10-05 to 2020-10-31	1,676	100	96	51	6%	95%	56%	78%		8.7	12.4	3.4
Res Mule Deer Antlered	Mule Deer	ALW	251 - 254	2020-10-05 to 2020-11-02	67	30	28	6	45%	93%	23%	83%		6.5	9.0	3.6
Res Mule Deer Antlered	Mule Deer	ALW	261 - 268	2020-11-05 to 2020-11-30	1,156	75	73	48	6%	99%	67%	34%		6.1	9.9	4.0
Res Mule Deer Antlered	Mule Deer	ALW	271, 272	2020-11-05 to 2020-11-30	196	25	25	9	13%	92%	39%	56%		8.8	11.9	3.1
Res Mule Deer Antlered	Mule Deer	ALW	291	2020-11-05 to 2020-11-30	616	45	45	28	7%	100%	62%	43%		4.7	7.0	4.3
Res Mule Deer Antlered	Mule Deer	AR	011 - 013	2020-08-10 to 2020-09-09	61	25	23	5	41%	100%	22%	60%		4.4	5.9	3.6
Res Mule Deer Antlered	Mule Deer	AR	014	2020-08-10 to 2020-09-09	20	10	10	1	50%	100%	10%	0%		5.9	9.2	3.4
Res Mule Deer Antlered	Mule Deer	AR	015	2020-08-10 to 2020-09-09	10	5	5	1	50%	100%	20%	100%		10.5	13.3	3.8
Res Mule Deer Antlered	Mule Deer	AR	021	2020-12-01 to 2020-12-10	78	15	15	1	19%	100%	7%	0%		5.8	9.2	4.1
Res Mule Deer Antlered	Mule Deer	AR	022	2020-08-10 to 2020-09-09	40	15	14	5	38%	100%	36%	80%		6.5	12.9	3.8
Res Mule Deer Antlered	Mule Deer	AR	031	2020-08-10 to 2020-09-09	33	10	10	2	30%	100%	20%	50%		5.9	7.8	4.3
Res Mule Deer Antlered	Mule Deer	AR	032	2020-08-10 to 2020-09-09	41	90	78	1	100%	92%	1%	0%		5.1	7.0	2.9
Res Mule Deer Antlered	Mule Deer	AR	033	2020-08-10 to 2020-09-09	15	5	4	1	33%	100%	25%	0%		5.3	5.0	2.7
Res Mule Deer Antlered	Mule Deer	AR	034	2020-08-10 to 2020-09-09	10	5	4	0	50%	100%	0%			5.0	6.7	4.0
Res Mule Deer Antlered	Mule Deer	AR	035	2020-08-10 to 2020-09-09	43	80	72	4	100%	100%	6%	0%		7.5	10.8	3.3
Res Mule Deer Antlered	Mule Deer	AR	041, 042	2020-08-10 to 2020-09-09	15	15	14	1	100%	100%	7%	0%		6.5	8.8	3.9
Res Mule Deer Antlered	Mule Deer	AR	043 - 046	2020-08-10 to 2020-09-09	72	60	59	9	83%	98%	16%	11%		6.2	9.6	3.9
Res Mule Deer Antlered	Mule Deer	AR	051	2020-08-10 to 2020-09-09	102	60	60	7	59%	98%	12%	29%		7.5	11.0	4.0
Res Mule Deer Antlered	Mule Deer	AR	061, 062, 064, 066 - 068	2020-08-10 to 2020-09-09	359	310	307	42	86%	99%	14%	41%		7.4	10.5	3.5
Res Mule Deer Antlered	Mule Deer	AR	065	2020-08-10 to 2020-09-09	47	10	9	4	21%	100%	44%	50%		7.6	11.4	4.0
Res Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	2020-08-10 to 2020-09-09	394	280	272	57	71%	97%	22%	56%		7.7	10.8	3.8
Res Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	2020-11-10 to 2020-11-20	203	30	29	11	15%	100%	38%	82%		6.9	9.2	4.4
Res Mule Deer Antlered	Mule Deer	AR	081	2020-11-10 to 2020-11-20	104	6	5	2	6%	100%	40%	100%		6.2	11.6	3.3
Res Mule Deer Antlered	Mule Deer	AR	101 - 109	2020-08-10 to 2020-09-09	341	520	448	55	100%	97%	13%	41%		7.1	9.8	3.4
Res Mule Deer Antlered	Mule Deer	AR	101 - 109	2020-11-10 to 2020-11-20	74	20	17	5	27%	94%	31%	40%		4.8	8.4	4.0
Res Mule Deer Antlered	Mule Deer	AR	111 - 113	2020-08-10 to 2020-09-09	133	30	28	7	23%	100%	25%	43%		5.6	9.0	4.0
Res Mule Deer Antlered	Mule Deer	AR	114, 115	2020-08-10 to 2020-09-09	95	70	69	9	74%	99%	13%	67%		6.5	9.7	3.9
Res Mule Deer Antlered	Mule Deer	AR	121	2020-08-10 to 2020-09-09	59	30	30	6	51%	100%	20%	17%		6.5	8.9	3.7
Res Mule Deer Antlered	Mule Deer	AR	121	2020-11-10 to 2020-11-20	38	6	6	2	16%	100%	33%	50%		8.2	10.8	3.4
Res Mule Deer Antlered	Mule Deer	AR	131 - 134	2020-08-10 to 2020-09-09	307	70	65	33	23%	98%	52%	33%		6.8	10.4	3.6
Res Mule Deer Antlered	Mule Deer	AR	141 - 145	2020-08-10 to 2020-09-09	223	250	234	46	100%	95%	21%	29%		6.9	9.5	3.8
Res Mule Deer Antlered	Mule Deer	AR	151 - 156	2020-08-10 to 2020-09-09	75	45	45	4	60%	96%	9%	0%		6.5	9.3	3.8
Res Mule Deer Antlered	Mule Deer	AR	161 - 164	2020-08-10 to 2020-09-09	241	140	131	18	58%	98%	14%	44%		6.2	8.4	3.5
Res Mule Deer Antlered	Mule Deer	AR	171 - 173	2020-08-10 to 2020-09-09	193	180	172	14	93%	99%	8%	36%		6.4	8.7	3.8
Res Mule Deer Antlered	Mule Deer	AR	181 - 184	2020-08-10 to 2020-09-09	74	60	63	13	81%	94%	22%	38%		5.4	7.5	3.9
Res Mule Deer Antlered	Mule Deer	AR	192	2020-08-10 to 2020-09-09	52	10	10	3	19%	90%	33%	67%		11.4	14.6	3.2
Res Mule Deer Antlered	Mule Deer	AR	192	2020-12-01 to 2021-01-01	43	15	14	4	35%	93%	31%	33%		7.8	11.2	3.4
Res Mule Deer Antlered	Mule Deer	AR	194, 196	2020-08-10 to 2020-09-09	213	20	18	7	9%	100%	39%	57%		10.6	16.4	4.1
Res Mule Deer Antlered	Mule Deer	AR	194, 196	2020-12-01 to 2021-01-01	166	25	23	14	15%	100%	61%	50%		8.3	12.8	4.3
Res Mule Deer Antlered	Mule Deer	AR	195	2020-08-10 to 2020-09-09	60	5	5	1	8%	60%	33%	0%		12.0	24.7	3.3
Res Mule Deer Antlered	Mule Deer	AR	201 - 202, 204 - 208	2020-08-10 to 2020-09-09	18	10	7	1	56%	86%	17%	0%		6.8	10.2	2.6
Res Mule Deer Antlered	Mule Deer	AR	201, 204	2020-12-16 to 2021-01-01	25	10	6	2	40%	100%	33%	50%		5.8	7.7	4.5
Res Mule Deer Antlered	Mule Deer	AR	202, 205 - 208	2020-12-16 to 2021-01-01	13	5	3	0	38%	100%	0%			5.0	6.3	3.3

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Mule Deer Antlered	Mule Deer	AR	203	2020-08-10 to 2020-09-09	38	25	25	9	66%	96%	38%	29%		8.8	14.5	3.7
Res Mule Deer Antlered	Mule Deer	AR	203	2020-12-16 to 2021-01-01	32	25	25	4	78%	100%	16%	25%		6.6	9.9	3.7
Res Mule Deer Antlered	Mule Deer	AR	211 - 213	2020-08-10 to 2020-09-09	15	15	15	2	100%	100%	13%	50%		5.0	8.0	3.5
Res Mule Deer Antlered	Mule Deer	AR	221 - 223	2020-08-10 to 2020-09-09	191	75	73	16	39%	97%	23%	56%		7.6	11.5	3.4
Res Mule Deer Antlered	Mule Deer	AR	231	2020-08-10 to 2020-09-09	196	45	43	11	23%	98%	26%	45%		8.9	14.2	4.2
Res Mule Deer Antlered	Mule Deer	AR	241 - 245	2020-08-10 to 2020-09-09	97	15	12	6	15%	100%	50%	50%		13.2	19.8	3.8
Res Mule Deer Antlered	Mule Deer	AR	251 - 254	2020-08-10 to 2020-09-09	11	8	7	2	73%	100%	29%	100%		7.7	15.5	2.7
Res Mule Deer Antlered	Mule Deer	AR	261 - 268	2020-08-10 to 2020-09-09	110	15	14	9	14%	93%	69%	44%		4.1	9.0	4.4
Res Mule Deer Antlered	Mule Deer	AR	271, 272	2020-08-10 to 2020-09-09	19	10	9	1	53%	100%	11%	0%		9.3	10.9	3.6
Res Mule Deer Antlered	Mule Deer	AR	291	2020-08-10 to 2020-09-09	36	15	14	3	42%	93%	23%	33%		7.9	10.7	3.8
Res Mule Deer Antlered	Mule Deer	M	011 - 013	2020-09-10 to 2020-10-04	36	5	5	0	14%	100%	0%			8.0	12.5	3.8
Res Mule Deer Antlered	Mule Deer	M	014	2020-09-10 to 2020-10-04	12	5	5	2	42%	100%	40%	0%		11.0	16.3	3.0
Res Mule Deer Antlered	Mule Deer	M	015	2020-09-10 to 2020-10-04	14	5	5	3	36%	100%	60%	67%		3.6	6.6	3.0
Res Mule Deer Antlered	Mule Deer	M	021	2020-12-11 to 2020-12-20	32	5	5	2	16%	100%	40%	100%		6.0	10.6	4.0
Res Mule Deer Antlered	Mule Deer	M	022	2020-09-10 to 2020-10-04	16	5	5	1	31%	100%	20%	0%		4.6	7.6	3.6
Res Mule Deer Antlered	Mule Deer	M	031	2020-09-10 to 2020-10-04	26	10	10	6	38%	100%	60%	33%		5.9	7.7	4.1
Res Mule Deer Antlered	Mule Deer	M	032	2020-09-10 to 2020-10-04	8	5	5	0	63%	100%	0%			5.5	7.3	3.5
Res Mule Deer Antlered	Mule Deer	M	033	2020-09-10 to 2020-10-04	11	5	5	0	45%	60%	0%			9.5	12.0	4.5
Res Mule Deer Antlered	Mule Deer	M	034	2020-09-10 to 2020-10-04	7	5	4	3	71%	100%	75%	67%		4.3	10.8	4.5
Res Mule Deer Antlered	Mule Deer	M	035	2020-09-10 to 2020-10-04	15	5	5	2	33%	100%	40%	50%		4.4	6.2	4.3
Res Mule Deer Antlered	Mule Deer	M	041, 042	2020-09-10 to 2020-10-04	22	10	8	2	45%	100%	25%	50%		4.3	6.9	1.8
Res Mule Deer Antlered	Mule Deer	M	043 - 046	2020-09-10 to 2020-10-04	39	20	20	5	51%	95%	26%	0%		4.9	7.4	3.7
Res Mule Deer Antlered	Mule Deer	M	051	2020-09-10 to 2020-10-04	44	15	15	4	34%	100%	27%	100%		4.9	8.0	3.5
Res Mule Deer Antlered	Mule Deer	M	061, 062, 064, 066 - 068	2020-09-10 to 2020-10-04	166	90	82	29	54%	94%	38%	52%		6.4	9.3	3.3
Res Mule Deer Antlered	Mule Deer	M	065	2020-09-10 to 2020-10-04	48	5	5	1	10%	100%	20%	100%		8.4	14.2	3.2
Res Mule Deer Antlered	Mule Deer	M	071 - 079, 091	2020-09-10 to 2020-10-04	227	85	82	36	37%	98%	45%	58%		6.2	8.9	3.6
Res Mule Deer Antlered	Mule Deer	M	081	2020-11-21 to 2020-12-10	232	20	19	15	9%	100%	79%	80%		5.6	7.2	4.0
Res Mule Deer Antlered	Mule Deer	M	101 - 109	2020-09-10 to 2020-09-30	119	80	79	22	67%	99%	28%	27%		4.8	6.4	3.5
Res Mule Deer Antlered	Mule Deer	M	111 - 113	2020-09-10 to 2020-10-04	73	10	10	5	14%	100%	50%	40%		5.0	7.9	4.1
Res Mule Deer Antlered	Mule Deer	M	114, 115	2020-11-10 to 2020-11-30	121	15	12	7	12%	100%	58%	71%		4.9	5.8	4.4
Res Mule Deer Antlered	Mule Deer	M	121	2020-09-10 to 2020-10-04	44	25	25	11	57%	96%	46%	27%		5.7	7.7	3.5
Res Mule Deer Antlered	Mule Deer	M	131 - 134	2020-09-10 to 2020-10-04	220	45	42	21	20%	98%	51%	48%		5.4	6.9	3.5
Res Mule Deer Antlered	Mule Deer	M	141 - 145	2020-09-10 to 2020-10-04	52	20	20	12	38%	100%	60%	33%		5.7	8.1	3.4
Res Mule Deer Antlered	Mule Deer	M	151 - 156	2020-09-10 to 2020-10-04	29	10	10	5	34%	100%	50%	0%		5.9	6.7	3.7
Res Mule Deer Antlered	Mule Deer	M	161 - 164	2020-09-10 to 2020-10-04	98	35	35	9	36%	97%	26%	11%		6.3	7.9	2.8
Res Mule Deer Antlered	Mule Deer	M	171 - 173	2020-09-10 to 2020-10-04	96	70	69	17	73%	100%	25%	35%		4.9	6.7	3.5
Res Mule Deer Antlered	Mule Deer	M	181 - 184	2020-11-10 to 2020-11-30	84	15	12	6	18%	92%	55%	50%		5.6	8.8	4.3
Res Mule Deer Antlered	Mule Deer	M	192	2020-09-10 to 2020-10-04	14	5	5	1	36%	100%	20%	0%		6.0	8.6	1.8
Res Mule Deer Antlered	Mule Deer	M	194, 196	2020-09-10 to 2020-10-04	72	5	5	1	7%	100%	20%	0%		6.0	9.8	2.5
Res Mule Deer Antlered	Mule Deer	M	195	2020-09-10 to 2020-10-04	22	5	5	1	23%	100%	20%	0%		3.4	5.2	3.2
Res Mule Deer Antlered	Mule Deer	M	201, 204	2020-12-01 to 2020-12-15	28	5	5	3	18%	100%	60%	0%		5.2	8.0	4.6
Res Mule Deer Antlered	Mule Deer	M	202, 205 - 208	2020-12-01 to 2020-12-15	20	5	5	2	25%	100%	40%	0%		4.2	4.8	4.6
Res Mule Deer Antlered	Mule Deer	M	211 - 213	2020-09-10 to 2020-10-10	15	8	8	3	53%	100%	38%	50%		4.4	8.3	3.5

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Mule Deer Antlered	Mule Deer	M	221 - 223	2020-09-10 to 2020-10-04	94	20	16	7	21%	100%	44%	71%		6.9	11.7	3.4
Res Mule Deer Antlered	Mule Deer	M	231	2020-09-10 to 2020-10-04	139	25	23	12	18%	96%	55%	82%		7.2	9.7	3.8
Res Mule Deer Antlered	Mule Deer	M	241 - 245	2020-09-10 to 2020-10-04	88	6	4	3	7%	100%	75%	100%		6.8	11.3	4.5
Res Mule Deer Antlered	Mule Deer	M	251 - 254	2020-09-10 to 2020-10-04	10	5	5	2	50%	100%	40%	50%		8.6	15.6	2.4
Res Mule Deer Antlered	Mule Deer	M	261 - 268	2020-09-10 to 2020-10-04	62	16	12	9	26%	100%	75%	44%		5.9	12.9	4.4
Res Mule Deer Antlered	Mule Deer	M	271, 272	2020-09-10 to 2020-10-04	13	10	9	1	77%	100%	11%	100%		4.4	6.8	3.9
Res Mule Deer Antlered	Mule Deer	M	291	2020-09-10 to 2020-10-04	20	5	5	1	25%	100%	20%	100%		4.4	8.2	4.0
Res Mule Deer Antlerless	Mule Deer	ALW	051	2020-10-10 to 2020-10-31	480	30	29	16	6%	97%	57%			3.7	5.7	4.3
Res Mule Deer Antlerless	Mule Deer	ALW	061, 062, 064, 066 - 068	2020-10-10 to 2020-10-31	879	225	225	114	26%	97%	52%			3.0	4.0	3.9
Res Mule Deer Antlerless	Mule Deer	ALW	062, 067 - 068	2020-11-06 to 2020-11-20	394	225	223	96	57%	99%	43%			2.8	3.9	4.0
Res Mule Deer Antlerless	Mule Deer	ALW	071 - 079, 091	2020-10-10 to 2020-10-31	746	275	275	165	37%	98%	61%			3.0	4.0	4.3
Res Mule Deer Antlerless	Mule Deer	ALW	101, 102, 109	2020-10-05 to 2020-10-20	633	240	233	93	38%	97%	41%			3.4	4.7	3.8
Res Mule Deer Antlerless	Mule Deer	ALW	114, 115 (Baker Ranch)	2020-09-17 to 2020-09-24	174	10	10	5	6%	90%	56%			3.0	3.1	3.3
Res Mule Deer Antlerless	Mule Deer	ALW	114, 115 (Baker Ranch)	2020-12-01 to 2020-12-15	132	40	40	20	30%	95%	53%			1.9	2.9	3.5
Res Mule Deer Junior	Mule Deer	SWR	201, 204	See Regulations	29	6	6	3	21%	67%	75%	67%		3.0	3.7	5.0
Res Mule Deer Junior	Mule Deer	SWR	202, 205 - 208	See Regulations	40	10	10	5	25%	90%	56%	33%		5.7	7.4	3.4
Res Mule Deer Junior	Mule Deer	SWR	203	See Regulations	29	20	20	13	69%	85%	76%	18%		5.9	11.3	4.3
Res Mule Deer Junior	Mule Deer	SWR	011 - 013	See Regulations	61	30	30	18	49%	93%	64%	47%		6.5	9.1	4.0
Res Mule Deer Junior	Mule Deer	SWR	014	See Regulations	37	20	19	11	54%	89%	65%	30%		4.9	7.1	3.7
Res Mule Deer Junior	Mule Deer	SWR	015	See Regulations	28	10	10	3	36%	100%	30%	33%		7.0	8.4	3.2
Res Mule Deer Junior	Mule Deer	SWR	021	See Regulations	134	15	15	10	11%	100%	67%	57%		3.3	5.8	4.2
Res Mule Deer Junior	Mule Deer	SWR	022	See Regulations	51	15	15	7	29%	93%	50%	43%		5.5	9.5	4.2
Res Mule Deer Junior	Mule Deer	SWR	031	See Regulations	94	75	75	57	80%	97%	78%	51%		4.7	6.5	4.5
Res Mule Deer Junior	Mule Deer	SWR	032	See Regulations	43	100	99	45	100%	99%	46%	21%		4.5	6.3	3.3
Res Mule Deer Junior	Mule Deer	SWR	033	See Regulations	18	10	10	6	56%	100%	60%	33%		4.1	5.8	4.0
Res Mule Deer Junior	Mule Deer	SWR	034	See Regulations	12	10	10	9	83%	90%	100%	33%		5.0	9.8	3.4
Res Mule Deer Junior	Mule Deer	SWR	035	See Regulations	45	45	45	28	100%	100%	62%	22%		5.6	7.7	4.0
Res Mule Deer Junior	Mule Deer	SWR	041, 042	See Regulations	33	15	15	11	45%	93%	79%	33%		3.8	7.2	4.1
Res Mule Deer Junior	Mule Deer	SWR	043 - 046	See Regulations	99	70	70	45	71%	94%	68%	28%		4.3	6.4	4.3
Res Mule Deer Junior	Mule Deer	SWR	051	See Regulations	104	75	75	44	72%	99%	59%	41%		5.3	7.6	4.5
Res Mule Deer Junior	Mule Deer	SWR	061, 062, 064, 066 - 068	See Regulations	478	450	450	260	94%	96%	60%	47%		5.6	7.5	4.1
Res Mule Deer Junior	Mule Deer	SWR	065	See Regulations	84	20	20	15	24%	90%	83%	50%		5.3	8.1	4.2
Res Mule Deer Junior	Mule Deer	SWR	071 - 079, 091	See Regulations	506	350	350	240	69%	95%	72%	56%		5.3	7.0	4.2
Res Mule Deer Junior	Mule Deer	SWR	081	See Regulations	163	30	30	18	18%	87%	69%	67%		5.4	7.8	4.3
Res Mule Deer Junior	Mule Deer	SWR	101 - 109	See Regulations	283	450	450	202	100%	92%	49%	37%		6.0	7.9	3.6
Res Mule Deer Junior	Mule Deer	SWR	111 - 113	See Regulations	219	160	161	100	73%	96%	65%	31%		4.4	5.8	4.3
Res Mule Deer Junior	Mule Deer	SWR	114, 115	See Regulations	47	30	30	18	64%	97%	62%	14%		4.5	5.4	4.4
Res Mule Deer Junior	Mule Deer	SWR	121	See Regulations	111	80	80	52	72%	95%	68%	29%		5.2	7.3	4.1
Res Mule Deer Junior	Mule Deer	SWR	131 - 134	See Regulations	265	170	170	95	64%	93%	60%	24%		5.9	7.4	3.9
Res Mule Deer Junior	Mule Deer	SWR	141 - 145	See Regulations	186	200	200	125	100%	94%	67%	29%		4.5	6.1	3.9
Res Mule Deer Junior	Mule Deer	SWR	151 - 156	See Regulations	89	70	70	51	79%	99%	74%	50%		5.5	7.7	4.0
Res Mule Deer Junior	Mule Deer	SWR	161 - 164	See Regulations	161	140	140	76	87%	96%	57%	23%		5.1	6.7	3.7
Res Mule Deer Junior	Mule Deer	SWR	171 - 173	See Regulations	152	140	140	77	92%	95%	58%	31%		4.5	5.9	4.2

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
Res Mule Deer Junior	Mule Deer	SWR	181 - 184	See Regulations	118	60	60	29	51%	93%	52%	15%		5.0	7.7	3.9
Res Mule Deer Junior	Mule Deer	SWR	192	See Regulations	46	15	15	14	33%	93%	100%	46%		6.1	10.9	4.8
Res Mule Deer Junior	Mule Deer	SWR	194, 196	See Regulations	414	10	10	7	2%	80%	88%	43%		4.8	6.9	4.0
Res Mule Deer Junior	Mule Deer	SWR	195	See Regulations	54	10	10	4	19%	90%	44%	33%		9.0	13.2	3.3
Res Mule Deer Junior	Mule Deer	SWR	211 - 213	See Regulations	29	20	20	12	69%	90%	67%	36%		6.2	9.1	4.1
Res Mule Deer Junior	Mule Deer	SWR	221 - 223	See Regulations	363	190	190	98	52%	92%	56%	22%		5.3	6.9	3.7
Res Mule Deer Junior	Mule Deer	SWR	231	See Regulations	273	85	85	63	31%	96%	77%	35%		6.0	7.6	4.4
Res Mule Deer Junior	Mule Deer	SWR	241 - 245	See Regulations	263	30	29	20	11%	97%	71%	45%		5.1	8.0	4.1
Res Mule Deer Junior	Mule Deer	SWR	251 - 254	See Regulations	22	20	20	8	91%	90%	44%	75%		4.9	6.7	4.0
Res Mule Deer Junior	Mule Deer	SWR	261 - 268	See Regulations	209	35	34	26	17%	97%	79%	44%		5.7	8.3	4.5
Res Mule Deer Junior	Mule Deer	SWR	271, 272	See Regulations	40	10	10	6	25%	100%	60%	33%		6.5	10.2	3.0
Res Mule Deer Junior	Mule Deer	SWR	291	See Regulations	82	20	20	14	24%	95%	74%	71%		4.3	7.5	4.8
Res PIW Mule Deer Antlered	Mule Deer	SWR	Any Open Unit	2020-08-10 to 2021-01-01	5,405	22	22	15	0.4%	100%	68%	93%		12.8	19.1	3.8
Res Wildlife Heritage Mule Deer	Mule Deer	ALW	Any Open Unit	2020-08-01 to 2020-12-31			1	0		100%	0%			21.0	41.0	2.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	073	See Regulations			3	3		100%	100%	100%		7.3	8.0	5.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	101	See Regulations			5	3		100%	60%	100%		5.8	6.8	3.7
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	102	See Regulations			8	6		100%	75%	50%		8.3	8.5	3.5
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	103	See Regulations			4	1		75%	33%	100%		4.0	4.3	2.7
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	121	See Regulations			1	0		100%	0%			5.0	5.0	2.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	114, 115	See Regulations			4	3		100%	75%	100%		2.3	3.8	4.3
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	115	See Regulations			2	2		100%	100%	100%		2.5	3.0	5.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	012	See Regulations			2	1		50%	100%	100%		1.0	1.0	5.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	013	See Regulations			4	2		100%	50%	100%		3.7	5.0	3.3
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	022	See Regulations			1	1		100%	100%	100%		5.0	7.0	5.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	031	See Regulations			16	9		100%	56%	67%		8.1	9.8	3.6
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	031 - 032	See Regulations			2	2		100%	100%	0%		4.5	5.5	3.5
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	032	See Regulations			2	2		100%	100%	100%		2.0	2.0	3.5
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	034	See Regulations			8	7		100%	88%	86%		5.8	7.5	3.6
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	035	See Regulations			2	1		100%	50%	0%		8.0	10.5	2.5
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	051	See Regulations			13	12		100%	92%	83%		5.9	8.5	4.6
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	062	See Regulations			5	3		100%	60%	100%		6.2	6.2	1.2
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	081	See Regulations			2	0		50%	0%			3.0	3.0	4.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	131	See Regulations			2	0		50%	0%			14.0	14.0	4.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	131 - 132	See Regulations			1	1		100%	100%	100%		1.0	3.0	4.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	132	See Regulations			1	1		100%	100%	0%		1.0	1.0	5.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	132, 164	See Regulations			1	1		100%	100%	100%		4.0	4.0	
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	133	See Regulations			2	2		100%	100%	100%		4.5	7.0	4.5
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	143	See Regulations			4	1		100%	25%	100%		4.8	4.8	4.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	144	See Regulations			6	3		83%	60%	100%		10.5	12.8	3.5
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	152	See Regulations			3	2		100%	67%	100%		3.0	4.5	5.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	161	See Regulations			1	0		100%	0%			9.0	10.0	1.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	172	See Regulations			1			0%						
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	223	See Regulations			2	0		100%	0%			8.0	9.5	2.0

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Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	231	See Regulations			48	24		94%	53%	79%		10.0	12.6	3.8
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	231, 242	See Regulations			5	2		100%	40%	100%		9.8	10.8	3.8
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	241	See Regulations			3	0		100%	0%			12.7	12.7	1.7
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	241, 242	See Regulations			3	3		100%	100%	100%		2.3	10.0	4.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	242	See Regulations			5	4		100%	80%	100%		5.2	7.4	3.8
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	245	See Regulations			2	1		100%	50%	0%		10.0	10.0	3.5
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	132, 221	See Regulations			1	1		100%	100%	100%		4.0	4.0	4.0
NR Landowner Damage Comp Mule Deer	Mule Deer	SWR	223, 242	See Regulations			2	1		100%	50%	100%		12.0	13.0	4.5
NR Mule Deer Antlered	Mule Deer	ALW	011 - 013	2020-10-05 to 2020-11-05	257	4	4	4	2%	100%	100%	50%		3.5	5.3	4.5
NR Mule Deer Antlered	Mule Deer	ALW	014	2020-10-05 to 2020-11-05	30	2	2	2	7%	100%	100%	0%		5.0	10.5	3.0
NR Mule Deer Antlered	Mule Deer	ALW	015	2020-12-11 to 2021-01-01	212	3	3	3	1%	100%	100%	33%		6.3	9.3	3.3
NR Mule Deer Antlered	Mule Deer	ALW	021	2020-12-21 to 2021-01-01	225	3	3	3	1%	100%	100%	67%		4.0	11.3	5.0
NR Mule Deer Antlered	Mule Deer	ALW	022	2020-10-05 to 2020-11-05	54	4	4	3	7%	100%	75%	0%		9.3	12.3	3.0
NR Mule Deer Antlered	Mule Deer	ALW	031	2020-10-05 to 2020-11-05	289	15	14	7	5%	100%	50%	57%		5.2	7.2	3.9
NR Mule Deer Antlered	Mule Deer	ALW	032	2020-10-05 to 2020-11-05	66	7	7	2	11%	86%	33%	0%		7.0	9.4	2.0
NR Mule Deer Antlered	Mule Deer	ALW	033	2020-10-05 to 2020-11-05	67	2	2	2	3%	100%	100%	100%		4.5	5.5	4.0
NR Mule Deer Antlered	Mule Deer	ALW	034	2020-10-05 to 2020-11-05	39	3	3	2	8%	67%	100%	0%		10.0	12.5	4.0
NR Mule Deer Antlered	Mule Deer	ALW	035	2020-10-05 to 2020-11-05	44	4	4	3	9%	75%	100%	67%		5.3	5.3	4.0
NR Mule Deer Antlered	Mule Deer	ALW	041, 042	2020-10-05 to 2020-11-05	28	3	3	0	11%	100%	0%			10.0	14.7	3.3
NR Mule Deer Antlered	Mule Deer	ALW	043 - 046	2020-10-05 to 2020-10-20	39	6	4	1	15%	100%	25%	0%		5.3	7.8	3.3
NR Mule Deer Antlered	Mule Deer	ALW	043 - 046	2020-10-21 to 2020-11-05	32	3	2	0	9%	50%	0%			6.0	6.0	3.0
NR Mule Deer Antlered	Mule Deer	ALW	051	2020-10-05 to 2020-11-05	194	15	15	6	8%	93%	43%	83%		5.6	5.9	3.1
NR Mule Deer Antlered	Mule Deer	ALW	061, 062, 064, 066 - 068	2020-10-05 to 2020-10-20	455	75	71	30	16%	92%	46%	53%		5.9	7.6	3.2
NR Mule Deer Antlered	Mule Deer	ALW	061, 062, 064, 066 - 068	2020-10-21 to 2020-11-05	262	10	10	8	4%	100%	80%	75%		6.7	7.6	3.3
NR Mule Deer Antlered	Mule Deer	ALW	065	2020-10-05 to 2020-11-02	70	5	5	4	7%	100%	80%	50%		6.2	9.0	2.6
NR Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	2020-10-05 to 2020-10-20	590	70	68	40	12%	100%	59%	63%		5.5	7.2	3.6
NR Mule Deer Antlered	Mule Deer	ALW	071 - 079, 091	2020-10-21 to 2020-11-05	816	20	20	14	2%	100%	70%	86%		5.1	6.0	4.0
NR Mule Deer Antlered	Mule Deer	ALW	081	2020-12-11 to 2021-01-01	1,025	5	4	1	0.5%	75%	33%	100%		7.0	7.7	3.3
NR Mule Deer Antlered	Mule Deer	ALW	101 - 109	2020-10-01 to 2020-10-16	218	45	44	13	21%	95%	31%	46%		4.2	5.4	3.2
NR Mule Deer Antlered	Mule Deer	ALW	101 - 109	2020-10-17 to 2020-10-30	163	45	45	14	28%	98%	32%	50%		5.5	6.5	2.8
NR Mule Deer Antlered	Mule Deer	ALW	101 - 109	2020-10-31 to 2020-11-08	261	9	9	7	3%	100%	78%	86%		6.8	8.4	2.8
NR Mule Deer Antlered	Mule Deer	ALW	111 - 113	2020-10-05 to 2020-10-20	216	20	17	8	9%	100%	47%	63%		5.2	6.5	3.1
NR Mule Deer Antlered	Mule Deer	ALW	111 - 113	2020-10-21 to 2020-11-05	100	2	2	0	2%	100%	0%			5.0	9.0	1.0
NR Mule Deer Antlered	Mule Deer	ALW	114, 115	2020-10-05 to 2020-10-20	38	4	3	3	11%	100%	100%	67%		4.0	7.3	3.0
NR Mule Deer Antlered	Mule Deer	ALW	114, 115	2020-10-21 to 2020-11-05	55	2	2	2	4%	100%	100%	100%		5.5	7.0	4.0
NR Mule Deer Antlered	Mule Deer	ALW	115	2020-12-01 to 2020-12-15	160	2	2	2	1%	100%	100%	100%		10.5	11.5	4.0
NR Mule Deer Antlered	Mule Deer	ALW	121	2020-10-05 to 2020-10-20	60	15	14	12	25%	93%	92%	42%		3.8	5.6	4.3
NR Mule Deer Antlered	Mule Deer	ALW	121	2020-10-21 to 2020-11-05	70	2	2	0	3%	50%	0%			5.0	7.0	2.0
NR Mule Deer Antlered	Mule Deer	ALW	131 - 134	2020-10-05 to 2020-10-20	224	25	22	8	11%	100%	36%	38%		6.9	7.8	2.5
NR Mule Deer Antlered	Mule Deer	ALW	131 - 134	2020-10-21 to 2020-11-05	427	3	3	1	1%	100%	33%	100%		7.7	7.7	3.3
NR Mule Deer Antlered	Mule Deer	ALW	141 - 145	2020-10-05 to 2020-10-20	90	15	12	5	17%	100%	42%	20%		8.4	10.0	3.9
NR Mule Deer Antlered	Mule Deer	ALW	141 - 145	2020-10-21 to 2020-11-05	37	2	2	2	5%	100%	100%	50%		10.0	11.5	3.5
NR Mule Deer Antlered	Mule Deer	ALW	151 - 156	2020-10-05 to 2020-10-20	66	9	8	4	14%	100%	50%	50%		6.6	7.4	4.1

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Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Mule Deer Antlered	Mule Deer	ALW	151 - 156	2020-10-21 to 2020-11-05	31	2	2	1	6%	100%	50%	100%		5.0	6.5	4.0
NR Mule Deer Antlered	Mule Deer	ALW	161 - 164	2020-10-05 to 2020-10-20	169	30	27	11	18%	85%	48%	55%		5.2	7.3	4.1
NR Mule Deer Antlered	Mule Deer	ALW	161 - 164	2020-10-21 to 2020-11-05	85	4	4	2	5%	75%	67%	100%		10.5	19.5	5.0
NR Mule Deer Antlered	Mule Deer	ALW	171 - 173	2020-10-05 to 2020-10-20	124	30	30	12	24%	100%	40%	33%		5.0	6.6	3.9
NR Mule Deer Antlered	Mule Deer	ALW	171 - 173	2020-10-21 to 2020-11-05	57	8	8	5	14%	100%	63%	60%		5.1	5.5	3.8
NR Mule Deer Antlered	Mule Deer	ALW	181 - 184	2020-10-05 to 2020-11-05	97	9	8	4	9%	100%	50%	25%		4.7	6.8	4.0
NR Mule Deer Antlered	Mule Deer	ALW	192	2020-11-05 to 2020-11-30	49	3	3	1	6%	67%	50%	0%		8.5	9.5	3.0
NR Mule Deer Antlered	Mule Deer	ALW	194, 196	2020-11-05 to 2020-11-30	758	7	7	7	1%	100%	100%	86%		5.3	6.0	4.2
NR Mule Deer Antlered	Mule Deer	ALW	195	2020-10-05 to 2020-11-02	8	2	2	1	25%	100%	50%	0%		3.5	3.5	3.0
NR Mule Deer Antlered	Mule Deer	ALW	201, 204	2020-11-05 to 2020-11-30	63	2	2	0	3%	100%	0%			3.0	3.0	5.0
NR Mule Deer Antlered	Mule Deer	ALW	202, 205 - 208	2020-11-05 to 2020-11-30	53	2	2	2	4%	100%	100%	50%		7.0	8.5	3.5
NR Mule Deer Antlered	Mule Deer	ALW	203	2020-11-05 to 2020-11-30	30	4	4	4	13%	100%	100%	75%		4.5	6.5	4.8
NR Mule Deer Antlered	Mule Deer	ALW	211 - 213	2020-11-05 to 2020-11-30	115	5	3	3	4%	100%	100%	67%		5.7	7.0	4.0
NR Mule Deer Antlered	Mule Deer	ALW	221 - 223	2020-10-05 to 2020-10-16	215	20	17	6	9%	100%	35%	83%		6.2	6.9	2.9
NR Mule Deer Antlered	Mule Deer	ALW	221 - 223	2020-10-17 to 2020-10-30	128	10	9	6	8%	89%	75%	67%		7.8	9.9	2.0
NR Mule Deer Antlered	Mule Deer	ALW	221 - 223	2020-10-31 to 2020-11-08	1,208	2	2	1	0.2%	100%	50%	100%		6.5	8.0	3.0
NR Mule Deer Antlered	Mule Deer	ALW	231	2020-10-05 to 2020-10-31	756	15	13	9	2%	85%	82%	56%		8.0	8.8	2.4
NR Mule Deer Antlered	Mule Deer	ALW	241 - 245	2020-10-05 to 2020-10-31	2,077	10	9	5	0.5%	67%	83%	100%		7.5	10.5	4.6
NR Mule Deer Antlered	Mule Deer	ALW	251 - 254	2020-10-05 to 2020-11-02	28	5	5	1	18%	100%	20%	100%		6.0	7.3	3.3
NR Mule Deer Antlered	Mule Deer	ALW	261 - 268	2020-11-05 to 2020-11-30	110	5	4	2	5%	100%	50%	100%		8.0	11.3	3.0
NR Mule Deer Antlered	Mule Deer	ALW	271, 272	2020-11-05 to 2020-11-30	88	2	2	2	2%	100%	100%	50%		6.0	6.5	3.5
NR Mule Deer Antlered	Mule Deer	ALW	291	2020-11-05 to 2020-11-30	43	4	4	2	9%	100%	50%	0%		5.0	6.7	4.7
NR Mule Deer Antlered	Mule Deer	AR	011 - 013	2020-08-10 to 2020-09-09	28	3	3	1	11%	100%	33%	100%		7.5	13.5	5.0
NR Mule Deer Antlered	Mule Deer	AR	014	2020-08-10 to 2020-09-09	10	2	2	0	20%	100%	0%			5.5	5.5	2.5
NR Mule Deer Antlered	Mule Deer	AR	015	2020-08-10 to 2020-09-09	11	2	2	0	18%	100%	0%			5.5	5.5	2.5
NR Mule Deer Antlered	Mule Deer	AR	021	2020-12-01 to 2020-12-10	39	2	2	0	5%	100%	0%			6.0	7.0	1.0
NR Mule Deer Antlered	Mule Deer	AR	022	2020-08-10 to 2020-09-09	7	2	2	0	29%	100%	0%			13.5	17.5	1.0
NR Mule Deer Antlered	Mule Deer	AR	031	2020-08-10 to 2020-09-09	20	2	2	0	10%	100%	0%			5.0	5.0	3.0
NR Mule Deer Antlered	Mule Deer	AR	032	2020-08-10 to 2020-09-09	16	7	17	2	44%	94%	13%	50%		7.0	8.6	3.5
NR Mule Deer Antlered	Mule Deer	AR	033	2020-08-10 to 2020-09-09	11	2	1	0	18%	100%	0%			3.0	4.0	3.0
NR Mule Deer Antlered	Mule Deer	AR	034	2020-08-10 to 2020-09-09	3	2	2	0	67%	100%	0%			3.0	3.0	5.0
NR Mule Deer Antlered	Mule Deer	AR	035	2020-08-10 to 2020-09-09	10	9	10	1	90%	100%	10%	100%		4.0	5.3	3.6
NR Mule Deer Antlered	Mule Deer	AR	041, 042	2020-08-10 to 2020-09-09	2	2	2	0	100%	100%	0%			5.5	7.0	4.0
NR Mule Deer Antlered	Mule Deer	AR	043 - 046	2020-08-10 to 2020-09-09	9	6	6	1	67%	100%	17%	0%		4.5	6.2	3.5
NR Mule Deer Antlered	Mule Deer	AR	051	2020-08-10 to 2020-09-09	29	6	6	1	21%	100%	17%	100%		5.6	6.2	2.7
NR Mule Deer Antlered	Mule Deer	AR	061, 062, 064, 066 - 068	2020-08-10 to 2020-09-09	82	35	30	6	43%	93%	21%	50%		5.3	6.8	4.0
NR Mule Deer Antlered	Mule Deer	AR	065	2020-08-10 to 2020-09-09	20	2	2	1	10%	100%	50%	100%		3.5	5.0	4.0
NR Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	2020-08-10 to 2020-09-09	163	30	24	10	18%	100%	42%	60%		7.8	10.6	4.2
NR Mule Deer Antlered	Mule Deer	AR	071 - 079, 091	2020-11-10 to 2020-11-20	79	3	3	2	4%	100%	67%	50%		6.0	6.3	5.0
NR Mule Deer Antlered	Mule Deer	AR	081	2020-11-10 to 2020-11-20	91	2	2	2	2%	100%	100%	100%		6.0	6.0	5.0
NR Mule Deer Antlered	Mule Deer	AR	101 - 109	2020-08-10 to 2020-09-09	173	60	125	19	35%	98%	16%	53%		6.0	7.4	3.6
NR Mule Deer Antlered	Mule Deer	AR	101 - 109	2020-11-10 to 2020-11-20	34	2	1	0	6%	100%	0%			7.0	7.0	1.0
NR Mule Deer Antlered	Mule Deer	AR	111 - 113	2020-08-10 to 2020-09-09	42	4	3	1	10%	100%	33%	100%		5.7	8.0	4.3

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Mule Deer Antlered	Mule Deer	AR	114, 115	2020-08-10 to 2020-09-09	42	8	5	4	19%	100%	80%	50%		5.6	10.0	4.2
NR Mule Deer Antlered	Mule Deer	AR	121	2020-08-10 to 2020-09-09	11	6	5	2	55%	100%	40%	50%		4.8	7.8	3.6
NR Mule Deer Antlered	Mule Deer	AR	121	2020-11-10 to 2020-11-20	18	2	2	0	11%	100%	0%			5.5	6.0	3.0
NR Mule Deer Antlered	Mule Deer	AR	131 - 134	2020-08-10 to 2020-09-09	181	8	5	1	4%	100%	20%	100%		6.8		3.8
NR Mule Deer Antlered	Mule Deer	AR	141 - 145	2020-08-10 to 2020-09-09	43	30	33	9	70%	100%	27%	44%		6.3	7.9	3.8
NR Mule Deer Antlered	Mule Deer	AR	151 - 156	2020-08-10 to 2020-09-09	21	5	5	1	24%	100%	20%	0%		6.8	8.0	4.3
NR Mule Deer Antlered	Mule Deer	AR	161 - 164	2020-08-10 to 2020-09-09	65	15	15	4	23%	87%	31%	100%		7.0	7.7	4.1
NR Mule Deer Antlered	Mule Deer	AR	171 - 173	2020-08-10 to 2020-09-09	36	20	18	0	56%	100%	0%			6.6	8.3	3.7
NR Mule Deer Antlered	Mule Deer	AR	181 - 184	2020-08-10 to 2020-09-09	13	6	1		46%	100%						
NR Mule Deer Antlered	Mule Deer	AR	192	2020-08-10 to 2020-09-09	15	2	2	0	13%	100%	0%			2.0	1.5	5.0
NR Mule Deer Antlered	Mule Deer	AR	192	2020-12-01 to 2021-01-01	12	2	2	1	17%	100%	50%	0%		6.0	7.5	5.0
NR Mule Deer Antlered	Mule Deer	AR	194, 196	2020-08-10 to 2020-09-09	30	2	2	0	7%	100%	0%			10.0	14.0	1.0
NR Mule Deer Antlered	Mule Deer	AR	194, 196	2020-12-01 to 2021-01-01	127	3	1	1	2%	100%	100%	100%		1.0	3.0	4.0
NR Mule Deer Antlered	Mule Deer	AR	195	2020-08-10 to 2020-09-09	5	2	2	1	40%	100%	50%	0%		3.0	4.0	5.0
NR Mule Deer Antlered	Mule Deer	AR	201 - 202, 204 - 208	2020-08-10 to 2020-09-09	6	2	3	2	33%	100%	67%	0%		5.3	7.0	4.5
NR Mule Deer Antlered	Mule Deer	AR	201, 204	2020-12-16 to 2021-01-01	7	2	1	0	29%	100%	0%			7.0	7.0	5.0
NR Mule Deer Antlered	Mule Deer	AR	202, 205 - 208	2020-12-16 to 2021-01-01	10	2	2	1	20%	100%	50%	0%		4.0	3.0	3.0
NR Mule Deer Antlered	Mule Deer	AR	203	2020-08-10 to 2020-09-09	5	3	3	0	60%	100%	0%			3.0	4.5	4.0
NR Mule Deer Antlered	Mule Deer	AR	203	2020-12-16 to 2021-01-01	7	3	3	1	43%	100%	33%	100%		3.3	3.7	4.0
NR Mule Deer Antlered	Mule Deer	AR	211 - 213	2020-08-10 to 2020-09-09	3	2	2	1	67%	100%	50%	0%		9.0	10.5	5.0
NR Mule Deer Antlered	Mule Deer	AR	221 - 223	2020-08-10 to 2020-09-09	70	8	8	2	11%	88%	29%	100%		7.3	8.9	4.8
NR Mule Deer Antlered	Mule Deer	AR	231	2020-08-10 to 2020-09-09	330	5	5	3	2%	100%	60%	100%		5.8	8.6	3.0
NR Mule Deer Antlered	Mule Deer	AR	241 - 245	2020-08-10 to 2020-09-09	326	2	2	1	1%	100%	50%	100%		6.0	9.0	1.0
NR Mule Deer Antlered	Mule Deer	AR	251 - 254	2020-08-10 to 2020-09-09	14	2	2	0	14%	100%	0%			5.0	6.0	3.0
NR Mule Deer Antlered	Mule Deer	AR	261 - 268	2020-08-10 to 2020-09-09	10	2	0		20%							
NR Mule Deer Antlered	Mule Deer	AR	271, 272	2020-08-10 to 2020-09-09	6	2	1	0	33%	100%	0%			1.0	2.0	2.0
NR Mule Deer Antlered	Mule Deer	AR	291	2020-08-10 to 2020-09-09	5	2	2		40%	50%						
NR Mule Deer Antlered	Mule Deer	M	011 - 013	2020-09-10 to 2020-10-04	17	2	2	0	12%	100%	0%			7.0	8.0	3.5
NR Mule Deer Antlered	Mule Deer	M	014	2020-09-10 to 2020-10-04	8	2	2	1	25%	100%	50%	100%		7.5	12.0	1.0
NR Mule Deer Antlered	Mule Deer	M	015	2020-09-10 to 2020-10-04	17	2	2	2	12%	100%	100%	50%		6.0	12.0	3.0
NR Mule Deer Antlered	Mule Deer	M	021	2020-12-11 to 2020-12-20	45	2	1	1	4%	100%	100%	0%		4.0	6.0	4.0
NR Mule Deer Antlered	Mule Deer	M	022	2020-09-10 to 2020-10-04	8	2	2	1	25%	100%	50%	0%		5.0	7.0	4.5
NR Mule Deer Antlered	Mule Deer	M	031	2020-09-10 to 2020-10-04	10	2	2	2	20%	100%	100%	0%		2.5	4.5	5.0
NR Mule Deer Antlered	Mule Deer	M	032	2020-09-10 to 2020-10-04	6	2	2	1	33%	50%	100%	0%		9.0	12.0	2.0
NR Mule Deer Antlered	Mule Deer	M	033	2020-09-10 to 2020-10-04	6	2	2	1	33%	100%	50%	0%		3.5	4.0	2.5
NR Mule Deer Antlered	Mule Deer	M	034	2020-09-10 to 2020-10-04	3	2	2	1	67%	100%	50%	100%		6.0	8.0	2.5
NR Mule Deer Antlered	Mule Deer	M	035	2020-09-10 to 2020-10-04	9	2	2	0	22%	100%	0%			5.0	6.0	2.0
NR Mule Deer Antlered	Mule Deer	M	041, 042	2020-09-10 to 2020-10-04	2	2	2	2	100%	100%	100%	0%		5.0	5.0	3.5
NR Mule Deer Antlered	Mule Deer	M	043 - 046	2020-09-10 to 2020-10-04	4	2	2	2	50%	100%	100%	50%		2.0	2.5	5.0
NR Mule Deer Antlered	Mule Deer	M	051	2020-09-10 to 2020-10-04	15	2	2	0	13%	100%	0%			8.5	20.0	5.0
NR Mule Deer Antlered	Mule Deer	M	061, 062, 064, 066 - 068	2020-09-10 to 2020-10-04	44	10	9	5	23%	100%	56%	40%		6.2	8.4	3.5
NR Mule Deer Antlered	Mule Deer	M	065	2020-09-10 to 2020-10-04	11	2	2	1	18%	100%	50%	0%		7.5	9.5	4.0
NR Mule Deer Antlered	Mule Deer	M	071 - 079, 091	2020-09-10 to 2020-10-04	60	9	9	7	15%	100%	78%	43%		3.3	5.2	3.7

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Mule Deer Antlered	Mule Deer	M	081	2020-11-21 to 2020-12-10	281	2	2	1	1%	100%	50%	100%		6.5	10.5	3.0
NR Mule Deer Antlered	Mule Deer	M	101 - 109	2020-09-10 to 2020-09-30	36	9	8	5	25%	100%	63%	60%		6.3	6.8	3.4
NR Mule Deer Antlered	Mule Deer	M	111 - 113	2020-09-10 to 2020-10-04	12	2	0		17%							
NR Mule Deer Antlered	Mule Deer	M	114, 115	2020-11-10 to 2020-11-30	78	2	2	1	3%	50%	100%	100%		4.0	4.0	2.0
NR Mule Deer Antlered	Mule Deer	M	121	2020-09-10 to 2020-10-04	10	2	1	1	20%	100%	100%	0%		10.0	14.0	3.0
NR Mule Deer Antlered	Mule Deer	M	131 - 134	2020-09-10 to 2020-10-04	67	5	5	2	7%	100%	40%	50%		4.6	4.8	2.3
NR Mule Deer Antlered	Mule Deer	M	141 - 145	2020-09-10 to 2020-10-04	12	2	2	1	17%	100%	50%	100%		2.0	2.0	5.0
NR Mule Deer Antlered	Mule Deer	M	151 - 156	2020-09-10 to 2020-10-04	7	2	2	1	29%	100%	50%	0%		6.0	8.5	4.0
NR Mule Deer Antlered	Mule Deer	M	161 - 164	2020-09-10 to 2020-10-04	15	4	4	2	27%	100%	50%	100%		3.7	7.0	3.0
NR Mule Deer Antlered	Mule Deer	M	171 - 173	2020-09-10 to 2020-10-04	21	6	5	2	29%	100%	40%	100%		4.3	5.5	3.8
NR Mule Deer Antlered	Mule Deer	M	181 - 184	2020-11-10 to 2020-11-30	11	2	2	1	18%	100%	50%	0%		3.5		3.0
NR Mule Deer Antlered	Mule Deer	M	192	2020-09-10 to 2020-10-04	4	2	2	0	50%	100%	0%			5.5	6.5	2.0
NR Mule Deer Antlered	Mule Deer	M	194, 196	2020-09-10 to 2020-10-04	16	2	1	0	13%	100%	0%			2.0	2.0	5.0
NR Mule Deer Antlered	Mule Deer	M	195	2020-09-10 to 2020-10-04	8	2	2	2	25%	100%	100%	100%		1.0	1.5	5.0
NR Mule Deer Antlered	Mule Deer	M	201, 204	2020-12-01 to 2020-12-15	11	2	1	1	18%	100%	100%	0%		15.0	18.0	5.0
NR Mule Deer Antlered	Mule Deer	M	202, 205 - 208	2020-12-01 to 2020-12-15	22	2	1	0	9%	100%	0%			3.0	4.0	2.0
NR Mule Deer Antlered	Mule Deer	M	211 - 213	2020-09-10 to 2020-10-10	8	2	2	0	25%	100%	0%			20.0	20.0	4.0
NR Mule Deer Antlered	Mule Deer	M	221 - 223	2020-09-10 to 2020-10-04	34	2	2	0	6%	100%	0%			7.0	7.0	3.0
NR Mule Deer Antlered	Mule Deer	M	231	2020-09-10 to 2020-10-04	59	2	1	0	3%	100%	0%			14.0	18.0	2.0
NR Mule Deer Antlered	Mule Deer	M	241 - 245	2020-09-10 to 2020-10-04	115	2	2	1	2%	100%	50%	100%		14.0	29.5	3.5
NR Mule Deer Antlered	Mule Deer	M	251 - 254	2020-09-10 to 2020-10-04	7	2	2	1	29%	100%	50%	100%		3.0	15.0	3.5
NR Mule Deer Antlered	Mule Deer	M	261 - 268	2020-09-10 to 2020-10-04	9	2	0		22%							
NR Mule Deer Antlered	Mule Deer	M	271, 272	2020-09-10 to 2020-10-04	8	2	1	0	25%	100%	0%			9.0	24.0	
NR Mule Deer Antlered	Mule Deer	M	291	2020-09-10 to 2020-10-04	6	2	2	1	33%	100%	50%	0%		5.0	7.0	3.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	011 - 013	2020-10-05 to 2020-11-05	11	2	2	1	18%	50%	100%	100%		4.0	5.0	
NR Mule Deer Guided Antlered	Mule Deer	ALW	014	2020-10-05 to 2020-11-05	1	1	0		100%							
NR Mule Deer Guided Antlered	Mule Deer	ALW	015	2020-12-11 to 2021-01-01	1	1	0		100%							
NR Mule Deer Guided Antlered	Mule Deer	ALW	021	2020-12-21 to 2021-01-01	12	1	0		8%							
NR Mule Deer Guided Antlered	Mule Deer	ALW	022	2020-10-05 to 2020-11-05	7	1	1	1	14%	100%	100%	100%		3.0	5.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	031	2020-10-05 to 2020-11-05	8	6	5	4	75%	100%	80%	75%		3.6	4.4	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	033	2020-10-05 to 2020-11-05	9	1	1	0	11%	100%	0%			7.0	14.0	1.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	034	2020-10-05 to 2020-11-05	1	1	1	0	100%	100%	0%			7.0	7.0	3.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	035	2020-10-05 to 2020-11-05	7	4	3	2	57%	100%	67%	0%		3.0	3.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	041, 042	2020-10-05 to 2020-11-05	1	1	1	1	100%	100%	100%	100%		2.0	2.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	043 - 046	2020-10-05 to 2020-10-20	4	4	4	0	100%	75%	0%			5.0	10.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	043 - 046	2020-10-21 to 2020-11-05	2	1	1	1	50%	100%	100%	100%		2.0	2.0	2.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	051	2020-10-05 to 2020-11-05	15	7	7	4	47%	100%	57%	75%		2.8		4.3
NR Mule Deer Guided Antlered	Mule Deer	ALW	061, 062, 064, 066 - 068	2020-10-05 to 2020-10-20	40	31	31	15	78%	100%	48%	100%		3.9	4.2	3.3
NR Mule Deer Guided Antlered	Mule Deer	ALW	061, 062, 064, 066 - 068	2020-10-21 to 2020-11-05	31	3	2	1	10%	100%	50%	100%		5.0	5.0	1.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	065	2020-10-05 to 2020-11-05	10	2	2	1	20%	100%	50%	0%		5.0	5.0	4.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	071 - 079, 091	2020-10-05 to 2020-10-20	107	24	24	19	22%	100%	79%	74%		3.8	4.3	3.9
NR Mule Deer Guided Antlered	Mule Deer	ALW	071 - 079, 091	2020-10-21 to 2020-11-05	263	6	6	4	2%	100%	67%	100%		3.0	3.8	4.8
NR Mule Deer Guided Antlered	Mule Deer	ALW	081	2020-12-11 to 2021-01-01	97	2	2	1	2%	100%	50%	100%		3.0		5.0

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Hunt	Species	Weapon	Unit Group	Season	Apps	2020 Quota	Hunters Afield	Successful Hunters	Draw Rate	Survey Rate	Success Rate	Points or Greater	Length or Greater	Hunt Days	Effort Days	Hunter Satisfaction
NR Mule Deer Guided Antlered	Mule Deer	ALW	101 - 109	2020-10-01 to 2020-10-16	21	29	21	9	100%	100%	43%	22%		4.5	5.1	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	101 - 109	2020-10-17 to 2020-10-30	28	28	27	20	100%	96%	77%	40%		3.7	4.1	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	101 - 109	2020-10-31 to 2020-11-08	23	6	5	1	26%	100%	20%	100%		4.8	5.0	4.2
NR Mule Deer Guided Antlered	Mule Deer	ALW	111 - 113	2020-10-05 to 2020-10-20	19	10	9	4	53%	100%	44%	50%		3.5	4.0	3.1
NR Mule Deer Guided Antlered	Mule Deer	ALW	111 - 113	2020-10-21 to 2020-11-05	2	1	1		50%	100%						
NR Mule Deer Guided Antlered	Mule Deer	ALW	114, 115	2020-10-05 to 2020-10-20	4	2	2	2	50%	100%	100%	100%		3.0	3.5	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	114, 115	2020-10-21 to 2020-11-05	5	1	1	0	20%	100%	0%			8.0	8.0	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	121	2020-10-05 to 2020-10-20	4	4	4	2	100%	100%	50%	50%		4.3	4.3	4.3
NR Mule Deer Guided Antlered	Mule Deer	ALW	121	2020-10-21 to 2020-11-05	4	1	1	1	25%	100%	100%	0%		7.0	7.0	2.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	131 - 134	2020-10-05 to 2020-10-20	27	12	6	4	44%	100%	67%	100%		4.7	5.3	3.4
NR Mule Deer Guided Antlered	Mule Deer	ALW	131 - 134	2020-10-21 to 2020-11-05	20	1	1	0	5%	100%	0%			6.0	6.0	
NR Mule Deer Guided Antlered	Mule Deer	ALW	141 - 145	2020-10-05 to 2020-10-20	13	13	13	6	100%	92%	50%	67%		3.8	4.5	4.4
NR Mule Deer Guided Antlered	Mule Deer	ALW	141 - 145	2020-10-21 to 2020-11-05	9	1	1	1	11%	100%	100%	100%		4.0	4.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	151 - 156	2020-10-05 to 2020-10-20	5	5	5	5	100%	100%	100%	20%		2.6	3.2	4.2
NR Mule Deer Guided Antlered	Mule Deer	ALW	151 - 156	2020-10-21 to 2020-11-05	1	1	1	1	100%	100%	100%	100%		6.0	6.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	161 - 164	2020-10-05 to 2020-10-20	21	14	14	4	67%	93%	31%	25%		4.2	5.2	2.7
NR Mule Deer Guided Antlered	Mule Deer	ALW	161 - 164	2020-10-21 to 2020-11-05	5	2	2	2	40%	100%	100%	50%		3.0	3.0	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	171 - 173	2020-10-17 to 2020-10-30	5	4	3	2	80%	100%	67%	100%		5.0	5.0	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	181 - 184	2020-10-05 to 2020-11-05	4	4	4	4	100%	100%	100%	75%		3.3	3.3	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	192	2020-11-05 to 2020-11-30	1	1	0		100%							
NR Mule Deer Guided Antlered	Mule Deer	ALW	194, 196	2020-11-05 to 2020-11-30	35	2	1	1	6%	100%	100%	100%		8.0	8.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	202, 205 - 208	2020-11-05 to 2020-11-30	4	2	2	2	50%	100%	100%	100%		2.0	3.0	5.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	203	2020-11-05 to 2020-11-30	3	2	2	2	67%	100%	100%	50%		2.5	5.0	4.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	211 - 213	2020-11-05 to 2020-11-30	14	2	1	1	14%	100%	100%	0%		4.0		
NR Mule Deer Guided Antlered	Mule Deer	ALW	221 - 223	2020-10-05 to 2020-10-16	33	10	9	5	30%	100%	56%	80%		5.0	5.1	3.2
NR Mule Deer Guided Antlered	Mule Deer	ALW	221 - 223	2020-10-17 to 2020-10-30	47	6	5	2	13%	100%	40%	100%		5.2	5.2	2.8
NR Mule Deer Guided Antlered	Mule Deer	ALW	221 - 223	2020-10-31 to 2020-11-08	133	1	1	0	1%	100%	0%			8.0	8.0	1.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	231	2020-10-05 to 2020-10-31	65	8	6	1	12%	100%	17%	100%		7.5	7.5	3.3
NR Mule Deer Guided Antlered	Mule Deer	ALW	241 - 245	2020-10-05 to 2020-10-31	761	5	5	3	1%	80%	75%	100%		6.0	6.0	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	251 - 254	2020-10-05 to 2020-11-02	1	2	1	0	100%	100%	0%			7.0	17.0	4.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	261 - 268	2020-11-05 to 2020-11-30	7	3	2	2	43%	100%	100%	100%		1.0	1.5	4.5
NR Mule Deer Guided Antlered	Mule Deer	ALW	271, 272	2020-11-05 to 2020-11-30	11	1	1	1	9%	100%	100%	100%		11.0	11.0	1.0
NR Mule Deer Guided Antlered	Mule Deer	ALW	291	2020-11-05 to 2020-11-30	1	1	1	1	100%	100%	100%	100%		4.0	4.0	4.0
NR PIW Mule Deer Antlered	Mule Deer	SWR	Any Open Unit	2020-08-10 to 2021-01-01	3,837	3	3	3	0.1%	100%	100%	100%		13.3	13.3	5.0
Silver State Mule Deer	Mule Deer	ALW	Any Open Unit	2020-08-01 to 2020-12-31	9,473	1	1	1	0.01%	100%	100%	100%		15.0	15.0	5.0
NR Wildlife Heritage Mule Deer	Mule Deer	ALW	Any Open Unit	2020-08-01 to 2020-12-31			1	0		100%	0%			21.0	42.0	3.0
Dream Mule Deer	Mule Deer	SWR	Any Open Unit	2020-08-10 to 2021-01-01			1	1		100%	100%	100%		4.0	7.0	5.0
Res Rocky Mountain Bighorn Any Ram	Rocky Bighorn	ALW	074	2020-09-01 to 2020-10-31	2,458	1	1	1	0.04%	100%	100%			4.0	8.0	
Res Rocky Mountain Bighorn Any Ram	Rocky Bighorn	ALW	114	2020-08-15 to 2020-10-31	2,406	2	2	0	0.1%	100%	0%			20.0	24.5	
Res Rocky Mountain Bighorn Any Ram	Rocky Bighorn	ALW	114	2020-12-20 to 2021-02-20	624	1	1	1	0.2%	100%	100%			21.0	21.0	
Res Rocky Mountain Bighorn Any Ram	Rocky Bighorn	ALW	115	2020-12-20 to 2021-02-20	714	2	2	0	0.3%	100%	0%			12.0	20.0	

TABLE 1. 2020 BIG GAME HARVEST BY SPECIES, RESIDENCY, SEX, WEAPON, AND UNIT GROUP

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 Afield	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 2020 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.
Hunter Satisfaction	Average hunter satisfaction reported for a given hunt. Hunters were asked to rate their overall experience on a scale of 1-5: 1 - very dissatisfied, 2 - somewhat dissatisfied, 3 - neutral, 4 - somewhat satisfied, and 5 - very satisfied.

TABLE 2. 2020 MULE DEER POINT CLASS BY UNIT GROUP

Unit Group of Harvest	Fawns		Adult	Bucks by Antler Points						Unit Group	% 4+	TOTAL
	Does	Bucks	Does	0	1	2	3	4	5+	Buck Total	Pts	DEER
011 - 013	0	0	3	0	1	9	18	28	4	60	53%	63
014	0	0	1	0	0	6	12	3	1	22	18%	23
015	0	0	0	1	0	3	5	9	0	18	50%	18
021	0	0	3	0	1	5	13	19	4	42	55%	45
022	0	0	0	0	0	4	13	16	2	35	51%	35
031	1	0	7	1	5	36	60	68	8	178	43%	186
032	1	1	15	2	3	21	16	9	3	54	22%	71
033	0	0	0	0	1	4	5	11	0	21	52%	21
034	0	0	0	0	0	7	9	9	3	28	43%	28
035	0	0	10	0	2	12	29	17	1	61	30%	71
041, 042	0	0	5	0	0	8	8	5	2	23	30%	28
043 - 046	0	1	12	0	3	34	39	23	1	100	24%	113
051	0	2	19	0	5	26	44	62	16	153	51%	174
061, 062, 064, 066 - 068	7	15	255	8	22	196	153	270	38	687	45%	964
065	1	0	1	0	1	15	18	19	2	55	38%	57
071 - 079, 091	5	7	183	4	24	205	204	427	79	943	54%	1,138
081	0	0	0	0	0	2	18	53	16	89	78%	89
101 - 109	7	7	154	6	24	163	211	196	34	634	36%	802
111 - 113	2	1	27	2	14	87	65	64	7	239	30%	269
114 - 115	1	1	27	0	2	16	23	36	10	87	53%	116
121	0	1	10	1	12	53	52	39	6	163	28%	174
131 - 134	0	0	19	0	10	88	77	70	13	258	32%	277
141 - 145	0	3	22	3	25	111	73	82	10	304	30%	329
151 - 156	0	1	11	1	4	24	45	48	8	130	43%	142
161 - 164	0	0	29	1	13	74	48	53	5	194	30%	223
171 - 173	1	4	30	0	18	60	56	64	11	209	36%	244
181 - 184	0	1	8	0	6	27	23	23	2	81	31%	90
192	0	0	1	1	3	13	18	13	3	51	31%	52
194, 196	0	0	0	1	2	8	32	52	14	109	61%	109
195	0	0	1	1	1	5	7	3	0	17	18%	18
201, 204	0	0	0	0	1	6	9	8	1	25	36%	25
202, 205 - 208	0	0	2	0	1	10	7	10	0	28	36%	30
203	0	0	2	2	5	16	18	17	6	64	36%	66
211 - 213	0	0	1	1	2	7	15	16	5	46	46%	47
221 - 223	0	1	33	0	7	69	71	96	15	258	43%	292
231	0	0	9	1	4	47	49	78	19	198	49%	207
241 - 245	0	0	0	0	0	9	17	49	29	104	75%	104
251 - 254	0	0	0	0	0	2	2	14	2	20	80%	20
261 - 268	0	0	1	1	3	14	38	32	7	95	41%	96
271, 272	0	0	0	0	1	5	4	11	1	22	55%	22
291	0	0	0	0	0	11	14	22	3	50	50%	50
TOTAL	**26**	**46**	**901**	**38**	**226**	**1,518**	**1,638**	**2,144**	**391**	**5,955**	**43%**	**6,928**

SPECIALTY TAGHOLDER HARVEST BY UNIT GROUP

Unit Group of Harvest	#
021	2
051	1
071 - 079, 091	2
081	3

Unit Group	#
101 - 109	1
111 - 113	1
121	1
194, 196	6

Unit Group	#
241 - 245	2
271, 272	1

TABLE 3. % FOUR-POINT OR GREATER MULE DEER HARVEST BY UNIT GROUP, 2011-2020

Unit Group	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
011- 013	56%	40%	38%	38%	43%	46%	47%	50%	50%	53%
014	48%	54%	41%	40%	25%	32%	18%	27%	28%	18%
015	59%	47%	42%	36%	42%	33%	58%	65%	28%	50%
021	56%	47%	45%	46%	65%	57%	43%	62%	60%	55%
022	73%	67%	57%	51%	52%	52%	42%	32%	59%	51%
031	36%	39%	48%	50%	48%	43%	46%	38%	45%	43%
032	24%	27%	32%	34%	24%	23%	32%	28%	26%	22%
033	49%	26%	36%	44%	33%	63%	45%	41%	40%	52%
034	56%	45%	64%	45%	43%	49%	68%	32%	50%	43%
035	40%	39%	45%	30%	34%	41%	25%	29%	42%	30%
041, 042	43%	21%	27%	55%	46%	53%	37%	18%	23%	30%
043 - 046	34%	32%	33%	35%	33%	32%	31%	29%	39%	24%
051	29%	27%	38%	40%	40%	46%	41%	46%	46%	51%
061,062,064,066-068	49%	46%	40%	39%	39%	40%	42%	40%	41%	45%
065	71%	58%	58%	51%	54%	54%	66%	65%	49%	38%
071 - 079, 091	40%	40%	33%	33%	40%	51%	54%	56%	61%	54%
081	78%	65%	71%	87%	81%	79%	88%	88%	84%	78%
101 - 108	37%	30%	28%	27%	29%	32%	37%	34%	35%	36%
111 - 113	31%	24%	26%	25%	31%	32%	34%	33%	36%	30%
114, 115	59%	40%	41%	45%	44%	50%	55%	62%	64%	53%
121	32%	22%	36%	32%	31%	36%	36%	27%	27%	28%
131 - 134	56%	45%	43%	42%	44%	43%	51%	43%	45%	32%
141 - 145	35%	27%	30%	28%	23%	33%	30%	31%	30%	30%
151, 152, 154, 155	42%	32%	31%	37%	28%	41%	40%	37%	34%	43%
161 - 164	35%	34%	39%	30%	39%	44%	33%	36%	34%	30%
171 - 173	36%	26%	33%	28%	33%	25%	29%	29%	30%	36%
181 - 184	39%	37%	32%	36%	40%	41%	35%	42%	44%	31%
192	17%	41%	54%	38%	41%	44%	35%	35%	29%	31%
194, 196	68%	64%	61%	60%	72%	74%	72%	65%	58%	61%
195	38%	66%	25%	74%	36%	53%	60%	43%	35%	18%
201, 204	25%	42%	19%	23%	30%	21%	33%	32%	33%	36%
202, 205-208	53%	27%	49%	46%	28%	28%	29%	40%	28%	36%
203	35%	33%	42%	39%	38%	29%	33%	36%	38%	36%
211, 212	30%	39%	44%	55%	29%	28%	52%	35%	47%	46%
221 - 223	48%	42%	43%	37%	40%	49%	47%	48%	58%	43%
231	65%	55%	55%	54%	61%	58%	65%	60%	62%	49%
241 - 245	74%	62%	62%	65%	69%	64%	75%	75%	82%	75%
251 - 253	65%	56%	53%	74%	67%	81%	41%	47%	56%	80%
261 - 268	27%	35%	27%	40%	57%	47%	43%	43%	58%	41%
271, 272	44%	54%	45%	65%	62%	46%	65%	33%	55%	55%
291	23%	22%	46%	34%	36%	33%	40%	38%	33%	50%
Statewide	**42%**	**37%**	**37%**	**37%**	**38%**	**41%**	**43%**	**41%**	**45%**	**43%**

*Includes harvest from all hunts and weapon classes combined

TABLE 4. 2020 PRONGHORN HARVEST COMPOSITION BY UNIT GROUP

Unit Group of Harvest	Fawns		Adult Does	Yrlg Bucks	Adult Bucks	Total Bucks	Total Harvest
	Doe	Buck					
011	0	0	1	0	53	53	54
012 - 014	0	0	0	0	114	114	114
015	0	0	1	0	46	46	47
021, 022	0	0	0	0	36	36	36
031	2	0	16	5	66	71	89
032, 034	0	2	10	0	35	35	47
033	0	0	0	0	48	48	48
035	0	2	8	2	26	28	38
041, 042	0	0	15	2	104	106	121
043 - 046	0	1	1	0	121	121	123
051	0	0	0	0	58	58	58
061, 062, 064, 071, 073	3	11	91	23	133	156	261
065, 142, 144[A]	1	1	27	1	64	65	94
066	0	1	10	1	30	31	42
067, 068	2	2	38	9	97	106	148
072, 074, 075	2	0	16	2	41	43	61
076, 077, 079, 081, 091	1	0	14	2	42	44	59
078, 105 - 107, 121	0	0	31	3	81	84	115
101 - 104, 108, 109, 144[B]	1	0	22	2	65	67	90
111 - 114	0	3	26	4	75	79	108
115, 231, 242	0	0	0	0	65	65	65
131, 145, 163, 164	0	0	20	2	80	82	102
132 - 134, 245	0	0	0	0	35	35	35
141, 143, 151 - 156	6	19	280	37	237	274	579
161, 162	0	0	0	0	49	49	49
171 - 173	0	0	0	0	42	42	42
181 - 184	0	3	19	4	55	59	81
202, 204	0	0	0	0	5	5	5
203, 291	0	0	0	0	6	6	6
205 - 208	0	0	0	0	19	19	19
211 - 213	0	0	0	0	8	8	8
221 - 223, 241	0	0	0	0	46	46	46
251	0	0	0	0	36	36	36
TOTAL	**18**	**45**	**646**	**99**	**2,018**	**2,117**	**2,826**

SPECIALTY TAGHOLDER HARVEST BY UNIT GROUP

Unit Group of Harvest	Specialty Tag	#
012 - 014	PIW	1
033	Dream	1
051	Heritage	1
131, 145, 163 - 164	Silver State	1
141, 143, 151 - 156	Heritage	1
161, 162	PIW	1
205 - 208	PIW	1
221 - 223, 241	PIW	1

TABLE 5. PRONGHORN HORN TRENDS - % OF BUCKS 15+ INCHES BY UNIT GROUP, 2011-2020

Unit Group	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
011	39%	32%	22%	28%	30%	31%	30%	22%	24%	34%
012 - 014	38%	32%	15%	31%	35%	36%	26%	30%	22%	24%
015	37%	31%	10%	21%	25%	28%	26%	41%	31%	33%
021, 022	53%	41%	32%	55%	39%	46%	52%	43%	45%	42%
031	20%	27%	20%	18%	27%	19%	19%	34%	21%	9%
032, 034	37%	29%	27%	19%	18%	34%	13%	20%	10%	23%
033	55%	36%	19%	44%	48%	34%	30%	46%	37%	23%
035	27%	14%	16%	6%	18%	23%	22%	15%	26%	44%
041, 042	34%	40%	31%	26%	39%	41%	28%	25%	32%	25%
043 - 046	50%	40%	10%	24%	13%	33%	25%	33%	18%	27%
051	40%	20%	24%	21%	30%	21%	16%	32%	33%	24%
061, 062, 064, 071, 073	30%	26%	23%	31%	39%	32%	32%	33%	27%	23%
065, 142, 144	54%	33%	42%	39%	38%	32%	36%	25%	26%	27%
066	67%	29%	48%	36%	46%	58%	28%	40%	33%	10%
067, 068	30%	27%	24%	31%	33%	44%	40%	37%	34%	33%
072, 074, 075	33%	21%	28%	35%	35%	37%	26%	21%	25%	24%
076, 077, 079, 081, 091	40%	43%	50%	54%	60%	50%	55%	62%	57%	52%
078, 105 - 107, 121	35%	26%	8%	27%	19%	25%	27%	38%	24%	27%
101 - 104, 108, 109, 144	27%	21%	25%	34%	45%	31%	42%	29%	36%	35%
111 - 114	15%	13%	14%	8%	10%	17%	17%	14%	21%	22%
115, 231, 242	11%	40%	20%	22%	24%	24%	30%	24%	30%	29%
131, 145, 163, 164	35%	20%	27%	38%	29%	37%	33%	25%	28%	22%
132 - 134, 245	41%	32%	38%	37%	40%	36%	24%	44%	28%	26%
141, 143, 151 - 156	29%	31%	28%	24%	17%	28%	27%	27%	27%	18%
161, 162	23%	32%	35%	20%	41%	29%	35%	19%	39%	49%
171 - 173	36%	12%	27%	14%	21%	20%	12%	38%	40%	33%
181 - 184	29%	13%	19%	21%	21%	27%	27%	36%	40%	22%
202, 204	0%	0%	0%	0%	33%	20%	40%	100%	50%	0%
203, 291	0%	0%		25%	0%	20%	40%	0%	14%	33%
205, 206, 207, 208	7%	17%	13%	20%	25%	8%	22%	21%	21%	26%
211, 212		50%	0%	100%	67%	29%	0%	0%	17%	13%
221 - 223, 241	24%	12%	14%	31%	33%	28%	23%	23%	14%	26%
251	76%	53%	46%	60%	42%	74%	33%	52%	50%	50%
Statewide	**34%**	**28%**	**24%**	**27%**	**30%**	**32%**	**28%**	**30%**	**29%**	**27%**

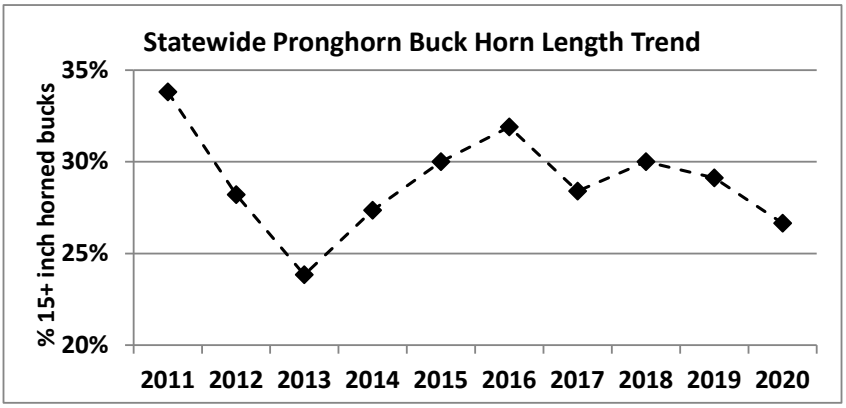


TABLE 6. ELK 2020 HARVEST COMPOSITION BY UNIT GROUP

Unit Group of Harvest	Calves		Adult	Bulls by Antler Points								Unit Group Bull Total	% 6+ Pts*	Total Harvest
	Cow	Bull	Cow	0	1	2	3	4	5	6	7+			
051	0	0	2	0	0	0	0	0	0	1	1	2	100%	4
061, 071	6	7	148	0	9	2	3	2	17	40	7	80	64%	241
062, 064, 066 - 068	1	1	22	0	5	0	0	0	5	11	2	23	72%	47
065	0	0	0	0	0	0	0	0	0	1	0	1	100%	1
072 - 074	0	2	60	1	6	0	2	13	40	73	14	149	60%	211
075	0	0	6	0	0	0	1	0	2	16	2	21	86%	27
076, 077, 079, 081	5	2	65	1	10	1	0	3	21	84	16	136	80%	208
078, 105 - 107, 109	0	0	30	0	2	1	1	1	3	18	5	31	79%	61
091	1	0	7	0	0	0	0	0	0	8	1	9	100%	17
101 - 103	0	1	11	0	2	0	0	4	13	22	1	42	55%	54
104, 108[A], 121	2	1	93	2	0	1	0	2	9	38	7	59	76%	155
108[B], 131, 132	1	0	16	1	1	3	0	1	9	21	1	37	59%	54
111 - 115	8	2	221	1	3	1	3	5	28	113	22	176	77%	407
144, 145	0	0	1	0	0	0	0	0	2	4	0	6	67%	7
161 - 164, 171 - 173	1	1	37	0	0	0	1	3	20	20	3	47	49%	86
221 - 223	4	1	81	0	2	2	2	9	21	71	6	113	68%	199
231	5	0	87	1	1	1	4	2	21	42	5	77	61%	169
241, 242	1	0	5	0	0	0	0	0	1	4	0	5	80%	11
251	0	0	0	0	0	0	0	1	0	2	0	3	67%	3
262	0	0	0	0	0	0	0	0	2	1	0	3	33%	3
TOTAL	**35**	**18**	**892**	**7**	**41**	**12**	**17**	**46**	**214**	**590**	**93**	**1,020**	**69%**	**1,965**

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

SPECIALTY TAGHOLDER HARVEST BY UNIT GROUP

Unit Group of Harvest	Specialty Tag	#
221 - 223	Dream, Heritage	2
076, 077, 079, 081	PIW	1
111 - 115	PIW, Heritage	2
161 - 164, 171 - 173	PIW	1
?	Silver State	?

TABLE 7. ELK 2020 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	0	1	1	2	100%	0%	0%	50%	50%	53
061, 071	5	31	24	12	72	97%	7%	43%	33%	17%	41
062, 064, 066 - 068	1	8	4	6	19	100%	5%	42%	21%	32%	44
065	0	0	0	1	1	100%	0%	0%	0%	100%	53
072 - 074	8	64	41	30	143	99%	6%	45%	29%	21%	42
075	4	8	4	5	21	100%	19%	38%	19%	24%	39
076, 077, 079, 081	1	41	37	44	123	98%	1%	33%	30%	36%	46
078, 105 - 107, 109	1	6	6	16	29	100%	3%	21%	21%	55%	47
091	0	2	3	4	9	100%	0%	22%	33%	44%	48
101 - 103	2	18	7	14	41	98%	5%	44%	17%	34%	43
104, 108[A], 121	5	16	10	26	57	97%	9%	28%	18%	46%	44
108[B], 131, 132	4	9	9	14	36	97%	11%	25%	25%	39%	44
111 - 115	15	42	47	71	175	99%	9%	24%	27%	41%	45
144, 145	0	2	2	2	6	100%	0%	33%	33%	33%	45
161 - 164, 171 - 173	1	19	10	15	45	96%	2%	42%	22%	33%	44
221 - 223	6	35	32	40	113	100%	5%	31%	28%	35%	45
231	9	20	20	25	74	97%	12%	27%	27%	34%	43
241, 242	0	1	3	1	5	100%	0%	20%	60%	20%	44
251	0	2	0	1	3	100%	0%	67%	0%	33%	44
262	0	0	3	0	3	100%	0%	0%	100%	0%	46
Statewide	**62**	**324**	**263**	**328**	**977**	**98%**	**6%**	**33%**	**27%**	**34%**	**44**

TABLE 8. ELK COMPOSITION OF 50-IN BEAMS IN HARVEST, 2011-2020

Note: Historic main beam data has been updated to exclude spike hunt results from 2014-2020

Unit Group	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
051					100%	100%	29%	17%	50%	50%
061, 071	17%	12%	10%	11%	21%	21%	22%	8%	19%	17%
062, 064, 066 - 068	55%	24%	27%	37%	30%	25%	39%	37%	16%	32%
065				50%			0%	0%		100%
072 - 074	31%	32%	23%	30%	26%	26%	20%	23%	22%	21%
075	11%	37%	13%	12%	28%	23%	10%	26%	17%	24%
076, 077, 079, 081	27%	23%	18%	33%	22%	23%	17%	26%	24%	36%
078, 105 - 107, 109	58%	40%	42%	42%	44%	35%	45%	68%	48%	55%
091	100%	33%	0%	67%	25%	71%	60%	33%	63%	44%
101 - 103	23%	14%	15%	5%	11%	4%	16%	17%	10%	34%
104, 108[A], 121	48%	34%	38%	42%	29%	34%	42%	29%	45%	46%
108[B], 131, 132	38%	20%	16%	70%	30%	19%	39%	39%	42%	39%
111 - 115	39%	40%	46%	48%	48%	40%	44%	45%	49%	41%
144, 145		30%	20%	33%	11%	0%	17%	100%	0%	33%
161 - 164, 171 - 173	40%	40%	40%	44%	32%	44%	25%	29%	40%	33%
221 - 223	28%	32%	34%	47%	43%	39%	39%	25%	39%	35%
231*	36%	42%	40%	39%	35%	29%	30%	16%	34%	34%
241, 242						100%	50%	20%	20%	20%
251								0%	100%	33%
262	0%	33%	0%	20%	20%	0%	67%	25%	25%	0%
Statewide	**32%**	**29%**	**26%**	**35%**	**32%**	**30%**	**29%**	**28%**	**32%**	**34%**

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

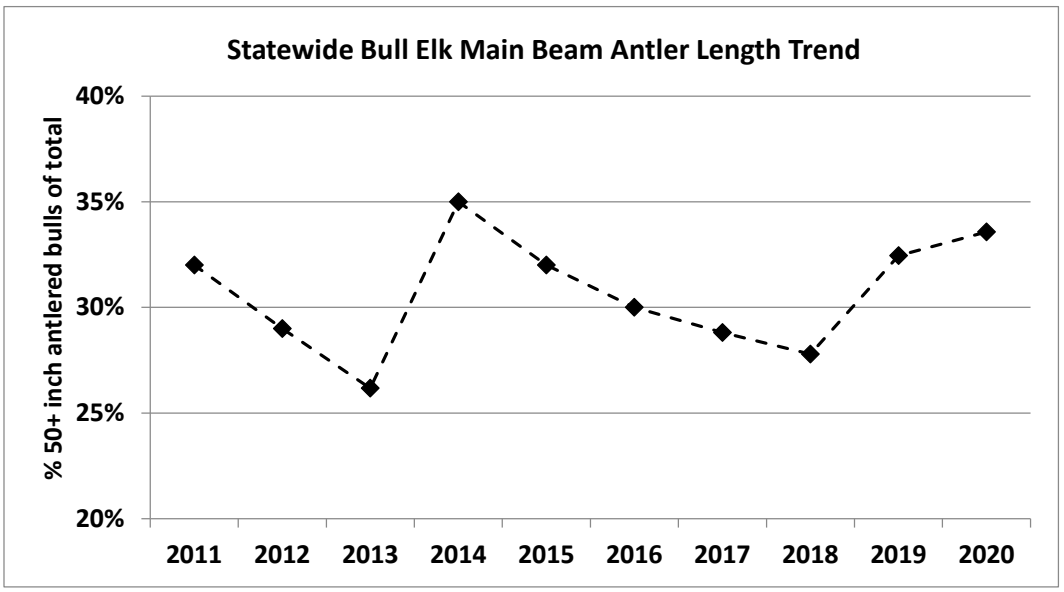


TABLE 9. ELK 2020 AGE BY UNIT GROUP

Unit Group	aged teeth	avg age	age +/- 95% CI	avg length	length + /- 95% CI	response %	length variance	avg age adj	*2015 age adj*
051	2	10*	-- --	53.0	-- --	100%	0.0	10*	*9.0*
061, 071	35	5.0	4.4 - 5.6	43.2	40.8 - 45.6	44%	1.8	4.9	*4.3*
062, 064, 066 - 068	11	5.1	3.1 - 7.1	41.3	34.4 - 48.2	48%	-2.3	5.3	*4.4*
065	1	9*	-- --	52.9	-- --	100%	0.0	9*	--
072 - 074	54	5.4	4.8 - 5.9	42.1	40.6 - 43.7	36%	0.2	5.4	*5.2*
075	6	5.7	3.4 - 7.9	46.2	40.9 - 51.5	29%	7.6	4.8	*4.5*
076, 077, 079, 081	61	5.6	5.0 - 6.2	46.0	44.2 - 47.9	45%	-0.2	5.7	*4.4*
078, 105 - 107, 109	13	5.5	4.1 - 6.8	47.5	43.6 - 51.4	42%	0.1	5.4	*5.7*
091	7	6.7	5.3 - 8.2	48.0	44.7 - 51.3	78%	-0.1	6.9	--
104, 108[A], 121	20	6.6	5.2 - 7.9	46.9	43.0 - 50.7	34%	2.7	6.2	*4.7*
108[B], 131, 132	15	7.6	5.9 - 9.3	47.6	44.3 - 51.0	41%	3.9	6.7	*6.2*
111 - 115	79	6.4	5.8 - 7.0	47.8	46.3 - 49.3	45%	2.6	5.9	*6.4*
161 - 164, 171 - 173	22	5.9	5.1 - 6.7	43.9	40.7 - 47.2	47%	0.2	5.7	*5.9*
221 - 223	42	6.5	5.8 - 7.3	47.4	45.4 - 49.3	37%	2.8	5.9	*6.7*
231	34	6.7	5.8 - 7.5	47.0	44.9 - 49.1	44%	4.1	6.1	*6.6*
241 , 242	2	6*	-- --	49.0	-- --	40%	4.9	4.4*	--
262	2	10*	-- --	45.0	-- --	67%	-1.0	10*	--
Statewide	**406**	**6.1**	**5.8 - 6.3**	**45.8**	**45.2 - 46.5**	**42%**	**1.8**	**5.8**	***5.4***

***** Age should be intrepreted with caution due to small sample size

-- Insufficient data to estimate value

aged teeth-total sets of incisor teeth from bull elk with aging results

avg age-average age of bulls calculated from incisor teeth submitted by hunters

avg length-average length of main beam measured by hunters and submitted with incisor teeth

response %-proportion of all bulls harvested in unit group with aging results

length variance-difference in average length of main beam submitted with incisor teeth compared to overall length of main beam calculated from hunt surveys

avg age adj-average age adjusted for overall contribution of antler length class from hunt surveys.

2015 age adj-average age adjusted for overall contribution of antler length class from hunt surveys in 2015

TABLE 10. 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	Maximum Horn Length
2001	143	87%	5.7	6.2	150 5/8	178 2/8	
2002	140	81%	6.4	6.3	148 4/8	183 2/8	
2003	133	90%	6.2	6.4	150 7/8	173	38
2004	138	92%	6.1	6.1	150 3/8	174 6/8	39 3/8
2005	149	91%	4.7	6.5	153 1/8	176 5/8	37 6/8
2006	154	92%	5.5	6.7	152 3/8	177 6/8	39 7/8
2007	172	87%	6.1	6.4	149 5/8	172 7/8	37
2008	173	88%	5.8	6.3	152 3/8	178 5/8	39 4/8
2009	193	91%	5.2	6.2	153 3/8	177 4/8	39
2010	216	86%	5.6	6.5	153 5/8	189 6/8	41
2011	222	87%	4.9	6.6	153 6/8	181 6/8	39 7/8
2012	281	85%	5.6	6.5	154	182 2/8	39 6/8
2013	275	91%	5.7	6.3	153 2/8	182 3/8	43 4/8
2014	287	90%	4.5	6.4	152 1/8	183 3/8	40 2/8
2015	307	92%	4.7	6.4	152 5/8	181 1/8	41 1/8
2016	310	92%	4.3	6.5	153 7/8	182 7/8	41 3/8
2017	334	94%	4.5	6.6	154 4/8	178 7/8	39 5/8
2018	309	91%	5.4	6.4	151 5/8	179 7/8	40 6/8
2019	311	89%	5.6	6.9	154 1/8	185	41
2020	315	95%	4.6	6.8	153 6/8	179 1/8	40 4/8
Total/Avg/Max	**4,562**	**90%**	**5.2**	**6.5**	**152 7/8**	**189 6/8**	**43 4/8**

* Includes Rocky Mtn Rams harvested in Unit 131

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

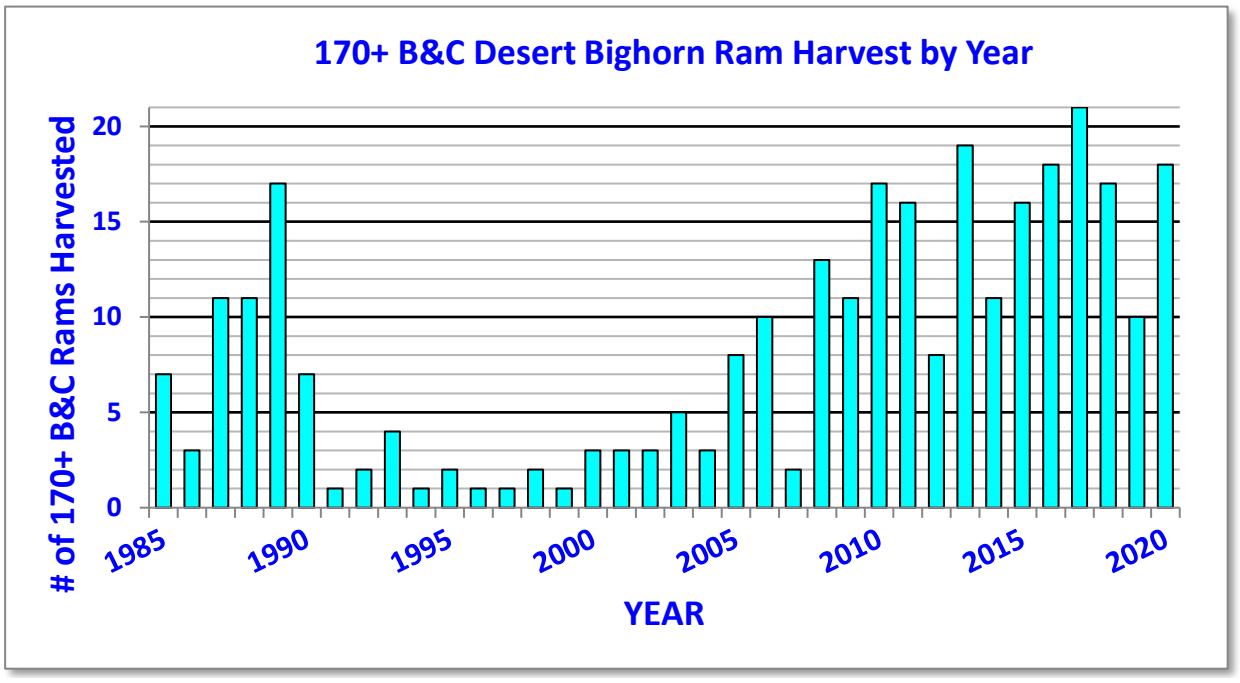


TABLE 10. BIGHORN SHEEP RAM HARVEST HISTORY

CURRENT COMPARISON - DESERT BIGHORN BY UNIT GROUP 2018 - 2020

Unit	# Tags Issued	Percent Success	Average Ram Age	Max Horn Length	Maximum Horn Base	Average B&C Score	Max B&C Score
045, 153	28	88%	5.7	35 3/8	15 7/8	147 1/8	169 2/8
131*, 164*	9	67%	6.3	35 7/8	15 1/8	149 4/8	168 2/8
132	11	88%	5.1	32 5/8	15	138 6/8	150
134	15	87%	6.5	33 6/8	15 6/8	152 7/8	164 5/8
161	47	96%	6.1	34 6/8	16	151	173 4/8
162, 163	27	93%	5.8	37 5/8	16	151 2/8	173 5/8
173 N	13	50%	6.0	35 1/8	15 1/8	144 3/8	162 1/8
173 S	4	100%	6.8	34 4/8	14 4/8	158 3/8	164 4/8
181	58	98%	6.2	36	16 3/8	156 5/8	175 2/8
044, 182	56	96%	6.0	37 4/8	16	154 2/8	174 6/8
183	28	100%	5.7	34 4/8	15 2/8	154 1/8	170 6/8
184	15	100%	5.7	34	15 5/8	149	163
202	17	100%	5.5	35 2/8	15 7/8	150 5/8	167 7/8
204	5	100%	5.8	32 6/8	15	150 2/8	156 5/8
205	39	87%	6.2	37	15 5/8	155 3/8	171
206, 208	11	80%	6.1	33 6/8	15	150 4/8	156 4/8
207	18	100%	5.6	35 4/8	15	144 1/8	167 5/8
211	37	92%	6.7	37 7/8	14 5/8	149 5/8	170 1/8
212	45	95%	7.8	35 4/8	15 2/8	150	165 4/8
213	48	93%	5.9	34 2/8	14 5/8	140 2/8	155 2/8
223, 241	8	83%	7.2	35 2/8	15 1/8	152 5/8	169 2/8
241	8	88%	6.3	33 4/8	15 1/8	160 5/8	165 6/8
243	14	69%	7.1	40 1/8	16 1/8	160 6/8	177 2/8
244	18	100%	7.9	37 2/8	15 4/8	155 4/8	176 4/8
245, 133	11	100%	5.3	32 5/8	16	141 3/8	163 3/8
252	13	77%	7.7	37 4/8	16	160 6/8	174 7/8
253	21	100%	7.2	36 4/8	15 7/8	159 1/8	167 4/8
254	9	89%	6.3	33 7/8	15 2/8	142 5/8	166 4/8
261	14	77%	7.9	34 4/8	15 2/8	150 4/8	175
262	17	88%	7.5	41	15 2/8	161 7/8	178 3/8
263	29	100%	7.5	40 4/8	16	164 6/8	179 1/8
264, 265	3	100%	8.3	35 2/8	14 2/8	151 7/8	152 6/8
266	3	100%	5.7	33 6/8	15	149 4/8	153 5/8
267	29	100%	7.6	37 7/8	14 2/8	156 6/8	170 4/8
268	91	97%	7.5	40 6/8	16	160	185
271, 242	30	87%	7.7	38 2/8	15 4/8	162 3/8	179 7/8
272	4	25%	4.0	30 1/8	14 6/8	147 7/8	147 7/8
280	14	71%	9.0	39 4/8	15 1/8	158 6/8	173 2/8
281	19	79%	7.9	39 4/8	15 4/8	157	172 3/8
282	12	83%	8.8	39 4/8	16	168 2/8	179 2/8
283, 284	17	75%	6.4	37 4/8	15 5/8	147	169 7/8
286	15	93%	7.5	36 7/8	15 1/8	160 1/8	172 6/8

TABLE 10. 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
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	116	85%	6.4	6.8	163 1/8	195 4/8

CURRENT COMPARISON - ROCKY MOUNTAIN BIGHORN BY UNIT GROUP 2018 - 2020

Unit	# Tags Issued	Percent Success	Average Ram Age	Max Horn Length	Maximum Horn Base	Average B&C Score	Max B&C Score
074	2	50%	5.0	30 3/8	14 5/8	141 5/8	141 5/8
091	1	100%	10.0	33 6/8	14 4/8	166 2/8	166 2/8
114	10	70%	5.4	32 3/8	15 3/8	141 1/8	166 2/8
115	5	60%	4.3	28 4/8	15 4/8	127 4/8	152 4/8

TABLE 10. BIGHORN SHEEP RAM HARVEST HISTORY

CALIFORNIA BIGHORN BY YEAR

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	58	95%	6.2	7.0	153 6/8	173 2/8
2012	61	95%	6.1	7.0	148 3/8	169 4/8
2013	67	92%	6.4	7.2	153 5/8	171 7/8
2014	66	92%	6.1	7.0	153 1/8	173 4/8
2015	63	89%	5.3	6.8	153	172 7/8
2016	57	95%	6.4	6.8	152 1/8	172 3/8
2017	57	95%	8.6	6.7	151 1/8	177 4/8
2018	61	98%	7.7	6.4	149	175 6/8
2019	59	88%	7.5	6.9	150 7/8	172
2020	68	83%	9.1	7.0	152 6/8	171 5/8
Total/Avg	1,035	91%	6.7	6.9	151 4/8	184 7/8

CURRENT COMPARISON - CALIFORNIA BIGHORN BY UNIT GROUP 2018 - 2020

Unit	# Tags Issued	Percent Success	Average Ram Age	Max Horn Length	Maximum Horn Base	Average B&C Score	Max B&C Score
012	13	100%	6.5	36.3	15 7/8	148 1/8	163 7/8
014	6	83%	5.4	31.8	14	137	145 7/8
022	7	100%	7.5	34.0	15 2/8	151 1/8	167 6/8
031	19	95%	7.1	34.5	16	158 2/8	169 4/8
032	37	97%	6.0	35.0	15	141 7/8	164 3/8
033	8	86%	6.5	33.0	15 4/8	150 2/8	160 7/8
034	26	85%	7.2	34.3	14 7/8	150 5/8	159 4/8
035	21	95%	7.1	36.0	15 4/8	156	169 6/8
041	3	100%	5.7	33.3	15	148 2/8	164 1/8
051	10	100%	6.6	35.3	15 1/8	151 1/8	175 6/8
066	2	100%	8.0	32.5	14	151 5/8	155 6/8
068	27	100%	7.2	38.0	15 6/8	157 7/8	172

TABLE 11. MAXIMUM RAM HORN BASE AND LENGTH BY UNIT GROUP 2017-2020

	HORN BASE				HORN LENGTH			
Unit Group	2017	2018	2019	2020	2017	2018	2019	2020
DESERT BIGHORN								
045, 153	15.0	15.1	15.9	15.4	35.5	32.3	32.4	35.4
131, 164	15.1	15.1	14.0	14.3	32.1	35.9	29.9	33.0
132	14.3	14.9	15.0	14.6	30.0	32.6	30.1	30.0
134	14.5	15.1	15.4	15.8	32.4	32.5	33.0	33.8
161	15.9	15.1	16.0	15.3	34.4	34.8	34.8	33.8
162, 163	16.1	15.5	15.4	16.0	35.3	37.6	35.4	35.0
173 N	15.3	15.1	13.5	14.3	33.0	33.3	30.3	35.1
173 S	15.9	14.0	13.8	14.5	36.5	34.3	34.0	34.5
181	15.3	16.0	16.4	15.8	37.9	35.8	35.0	36.0
182, 044	15.3	16.0	15.6	15.1	35.8	35.5	37.5	35.5
183	16.0	15.0	15.3	15.0	35.4	34.5	34.3	33.8
184	14.6	15.0	15.6	14.9	31.3	34.0	33.5	33.3
202	14.9	15.9	15.3	15.0	33.9	34.0	35.3	33.0
204		15.0	14.5	14.5		28.6	31.0	32.8
205	15.9	15.6	15.6	15.0	36.9	36.6	35.3	37.0
206, 208	14.7	15.0	14.3	14.6	31.6	29.9	28.8	33.8
207	15.0	15.0	14.6	15.0	33.0	31.3	34.1	35.5
211	15.6	14.5	14.5	14.6	35.0	37.9	35.5	34.4
212	15.0	14.1	14.8	15.3	34.6	34.3	35.5	34.0
213	15.0	14.3	14.1	14.6	33.8	30.8	31.5	34.3
223, 241	15.5	14.5	15.1	15.1	36.8	32.5	34.5	35.3
241 SE	15.4	14.0	15.1	14.8	34.5	32.6	33.5	33.5
243	14.5	14.6	14.8	16.1	31.0	40.2	36.3	37.1
244	15.9	15.5	15.3	15.5	36.6	37.3	34.4	36.3
245, 133	14.8	14.0	16.0	14.4	33.8	29.9	32.6	31.8
252	15.0	16.0	15.0	15.4	36.4	34.4	34.3	37.5
253	15.3	15.9	14.8	14.3	36.6	36.5	36.0	36.5
254	13.9	15.3	13.8	15.1	32.0	33.0	32.0	33.9
261	15.0	14.6	14.0	15.3	35.5	34.5	32.3	34.4
262	15.0	15.0	15.3	15.0	38.9	36.4	41.0	35.5
263	15.3	15.1	14.9	16.0	39.0	36.9	36.9	40.5
264, 265	15.1	14.3	14.1	14.1	31.0	35.3	33.6	32.5
266		13.8	15.0	14.3		32.0	28.3	33.8
267	15.0	14.3	14.3	14.1	37.3	37.4	36.0	37.9
268	15.3	15.5	16.0	15.6	38.4	40.8	39.5	38.5
271	15.4	15.5	14.5	15.3	38.0	38.3	36.3	36.9

Cells Gray if 15.5" or bigger **Cells Gray if 36" or longer**

TABLE 11. MAXIMUM RAM HORN BASE AND LENGTH BY UNIT GROUP 2017-2020

	HORN BASE				HORN LENGTH			
Unit Group	2017	2018	2019	2020	2017	2018	2019	2020
DESERT BIGHORN								
272	14.8	14.8			34.5	30.1		
280	14.0	14.5	15.1	14.5	37.0	36.3	37.9	39.5
281	14.6	14.0	15.1	15.5	36.4	36.0	39.5	35.1
282	16.1	16.0	15.0	15.0	39.6	39.5	35.0	37.1
283, 284	15.0	15.6	15.3	14.6	34.8	33.5	37.5	35.6
286	14.8	15.0	15.1	15.0	37.3	36.5	36.9	36.3
CALIFORNIA BIGHORN								
012	14.5	15.9	14.3	14.3	32.1	35.0	33.5	36.3
014	14.0	13.8	14.0	13.3	33.5	31.8	27.0	31.4
022	16.0	14.0	15.3	14.1	33.0	29.1	34.0	30.4
031	14.9	16.0	15.5	15.4	32.6	34.5	32.9	33.3
032	15.3	15.0	14.8	14.6	34.8	33.0	35.0	31.0
033	15.4	15.3	15.5	14.9	34.3	32.5	32.3	33.0
034	15.3	14.8	14.9	14.9	33.4	32.8	33.8	34.3
035	14.6	15.4	15.5	15.5	34.1	33.4	34.9	36.0
041	14.8	14.3	14.6	15.0	35.8	28.9	33.3	32.0
051	16.3	15.1	15.1	14.6	37.8	35.3	31.1	31.0
066		13.8		14.0		32.5		32.3
068	14.5	15.0	14.5	15.8	37.5	35.1	38.0	36.6
ROCKY MOUNTAIN BIGHORN								
074				14.6				30.4
091	14.1		14.5		33.8		33.8	
114	15.9	15.3	15.4	13.9	35.0	30.9	30.4	32.4
115		15.5	13.8			28.5	24.8	

Cells Gray if 15.5" or bigger

Cells Gray if 36" or longer

TABLE 12. BIGHORN SHEEP RAM MAXIMUM BOONE AND CROCKETT MAXIMUM SCORE TRENDS, 2013 - 2020

Unit Group	2013	2014	2015	2016	2017	2018	2019	2020
DESERT BIGHORN								
045, 153	138 2/8	165 6/8	156 4/8	161	156 7/8	157 3/8	157 6/8	169 2/8
131, 164	162 5/8	159 3/8	170 1/8	157 2/8	162 4/8	168 2/8	139 3/8	148 4/8
132	158 1/8	155		148 3/8	145 2/8	150	145 4/8	146 6/8
134, 251	155 2/8	158	156	156 3/8	161 5/8	160 2/8	163 6/8	164 5/8
161	165 7/8	162 6/8	156 2/8	164 7/8	162 3/8	160 7/8	173 4/8	161 2/8
162, 163	160 7/8	164	164	164	164 6/8	173 5/8	168 5/8	169 4/8
173 N	172 1/8	156 4/8	155 3/8	135 6/8	159	158 6/8	148 2/8	162 1/8
173 S	162 5/8	155 7/8	161 7/8	161 6/8	165 4/8	164 4/8	161 5/8	159 1/8
181	168 3/8	167 1/8	170 5/8	172	170 7/8	166 5/8	166 5/8	175 2/8
182, 044	160 3/8	168	172 7/8	163 2/8	164	168 6/8	174 6/8	165 3/8
183	165 3/8	161 3/8	165 4/8	165 2/8	170 2/8	168	170 6/8	161 7/8
184	162 7/8	161 3/8	152 1/8	146 2/8	158 4/8	161 2/8	163	157 2/8
202	162 3/8	155 7/8	165	157	151	163 2/8	167 7/8	158 4/8
204	136 4/8	147 7/8				155 4/8	154 1/8	156 5/8
205	166 4/8	166 6/8	163 6/8	177 2/8	169 1/8	170 5/8	169 2/8	171
206, 208	164 6/8	163 4/8	160 5/8	156 4/8	153 6/8	152 4/8	149 7/8	156 4/8
207	160	155 3/8	159 1/8	156 2/8	161 5/8	147 4/8	162	167 5/8
211	152 1/8	165 6/8	159 2/8	163 6/8	171 1/8	170 1/8	159 1/8	165 4/8
212	167 5/8	154	167 2/8	160 4/8	159 7/8	161 6/8	158 5/8	165 4/8
213	154 3/8	155 3/8	158 4/8	157 4/8	159 3/8	154 5/8	151 6/8	155 2/8
223, 241	143 5/8		157	156 3/8	175 6/8	154 2/8	169 2/8	168 6/8
241 SE		174 1/8	176 5/8	156 6/8	165 6/8	160 7/8	158	165 6/8
243	182 3/8	157 6/8	170 3/8	161 3/8	153	177 2/8	166 6/8	172 6/8
244	166 2/8	172 1/8	168 4/8	165 5/8	166 3/8	176 4/8	164 5/8	163 2/8
245, 133	164 7/8	156 6/8	153 6/8	165 2/8	162 2/8	153 1/8	163 3/8	153 6/8
252	162 3/8	173 4/8	173 7/8	164 4/8	164 6/8	172 4/8	162 6/8	174 7/8
253	177 1/8	172 1/8	176 5/8	180 4/8	172 2/8	167 4/8	166 2/8	165 5/8
254	143 5/8	146 2/8	161 3/8	167 6/8	150 6/8	165 2/8	154 4/8	166 4/8
261	167 7/8	168 3/8	157 4/8	160 7/8	164	158 1/8	151 1/8	175
262	174 4/8	177	163 4/8	175	178 7/8	172 7/8	178 3/8	172 5/8
263	171 6/8	165 2/8	181 1/8	173	178 6/8	168 7/8	169 2/8	179 1/8
264, 265	169 3/8	166 3/8	168 5/8	161	154 3/8	151 2/8	152 6/8	151 5/8
266	159 6/8	149 4/8	174 2/8			146 4/8	148 3/8	153 5/8
267	174 1/8	172 7/8	160 3/8	168 5/8	170 4/8	170 4/8	164 1/8	169 6/8
268	180 5/8	183 3/8	170 2/8	175 6/8	173 1/8	175 2/8	185	171 7/8

Cells are gray if B&C Score is 168 or higher

TABLE 12. BIGHORN SHEEP RAM MAXIMUM BOONE AND CROCKETT MAXIMUM SCORE TRENDS, 2013 - 2020

Unit Group	2013	2014	2015	2016	2017	2018	2019	2020
DESERT BIGHORN								
271	168 1/8	165 7/8	171 1/8	168 5/8	172 7/8	179 7/8	166 7/8	171 6/8
272	156	170 6/8	161 5/8		164	147 7/8		
280	167 6/8	161 4/8	150	162 4/8	162 4/8	164 2/8	173 2/8	172
281	166 7/8	157 2/8	169 7/8	165 3/8	165 5/8	162 2/8	172 3/8	160 3/8
282	157 4/8	170 3/8	174 1/8	174 5/8	176	179 2/8	174 4/8	175 3/8
283, 284	166	164	169	171 2/8	163 5/8	167 6/8	169 7/8	163 5/8
286	159	164 7/8	153 4/8	182 7/8	175 4/8	166 6/8	172 6/8	164
CALIFORNIA BIGHORN								
012	161 3/8	158 4/8	156 3/8	161	151 2/8	163 4/8	163 7/8	158 5/8
014	165 6/8	141	148	157 1/8	151 7/8	145 3/8	145 4/8	145 7/8
022	156 1/8	160 2/8	166 6/8	152 3/8	164 4/8	151 5/8	167 6/8	150 3/8
031	170 4/8	173 4/8	172 7/8	166 4/8	162 4/8	169 4/8	164 1/8	164 6/8
032	171 7/8	168 1/8	164 1/8	163 6/8	162 7/8	164 3/8	159	154 1/8
033	160 6/8	152 4/8	159 3/8	139 7/8	166 2/8	146 5/8	160 7/8	157 4/8
034	168	163	154 2/8	166 2/8	154 3/8	156 6/8	159 4/8	159 1/8
035	163 6/8	152 7/8	160 1/8	161	158 5/8	163 1/8	163 3/8	169 6/8
041			168 1/8	172 3/8	163 2/8	133 6/8	164 1/8	146 6/8
051	161	155 7/8	161	165 3/8	177 4/8	175 6/8	155 5/8	149 6/8
066			163 4/8	150		155 6/8		147 4/8
068	149 5/8	149 5/8	156 7/8	165 4/8	164 6/8	162 4/8	172	171 5/8

Cells are gray if B&C Score is 168 or higher

ROCKY MOUNTAIN BIGHORN								
074	161 2/8	154 6/8						141 5/8
091	141		146 5/8		162 6/8		166 2/8	
114	170	146		155 6/8	167 6/8	166 2/8	147 7/8	146 2/8
115	152 6/8	153 2/8		147 4/8		152 4/8	129 2/8	

Cells are gray if B&C Score is 168 or higher

TABLE 13. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2011 - 2020

Year	Tags	Harvest	Average Days Hunted	Average Age	Average Left Horn	Average Right Horn
Unit 101 - East Humboldt Range						
2011	3	3	2.0	3.0	8.3	8.3
2012	2	2	3.0	5.5	8.3	8.2
2013	2	1	6.0	4.0	8.3	8.4
2014	5	5	1.8	7.0	8.4	8.6
2015	6	6	2.2	6.2	8.0	8.2
2016	4	3	10.5	5.3	8.2	7.8
2017	1	1	1.0	7.0	9.4	9.3
2018	1	1	4.0	10.0	9.0	9.0
2019	1	1	8.0	7.0	9.3	9.1
2020	1	1	3.0	4.0	8.6	8.4
Totals/Average	**26**	**24**	**4.0**	**5.8**	**8.3**	**8.4**
Unit 102 - Ruby Mountains						
2011	**7**	7	3.9	4.7	8.8	8.9
2012	**3**	3	6.7	4.7	8.7	8.6
2013	**4**	4	4.0	6.3	8.5	7.3
2014	**6**	6	3.2	5.5	8.6	7.0
2015	**5**	5	7.4	5.0	8.1	8.8
2016	**8**	7	5.4	6.1	8.8	9.1
2017	**7**	5	8.3	4.8	8.7	8.3
2018	**6**	5	5.5	5.8	7.1	7.6
2019	**6**	4	6.3	6.0	7.4	8.2
2020	**7**	6	4.2	5.3	8.6	8.9
Totals/Average	**59**	**52**	**5.4**	**5.4**	**8.4**	**8.3**
Unit 103 - Pearl Peak Area, Southern Ruby Mountains						
2011	**1**	1	3.0	5.0	9.0	9.0
2012	**1**	1	7.0	6.0	9.9	9.9
2013	**1**	1	2.0	5.0	9.0	9.3
2014	**1**	1	15.0	7.0	8.6	8.5
2015	**1**	1	6.0	2.0	7.3	7.5
2016	**1**	1	6.0	6.0	8.5	8.1
2017	**1**	1	2.0	2.0	8.5	9.0
2018	**1**	0	10.0			
2019	**1**	1	7.0	12.0	10.3	10.3
2020	**1**	1	2.0	4.0	9.3	9.1
Totals/Average	**10**	**9**	**6.0**	**5.4**	**8.9**	**9.0**

TABLE 13. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2011 - 2020

ALL UNITS

Year	Tags	Harvest	Hunter Success	# of Billies	# of Nannies	% Nannies
2011	11	11	100%	8	3	27%
2012	6	6	100%	4	2	33%
2013	7	6	86%	4	2	33%
2014	12	12	100%	9	3	25%
2015	12	12	100%	11	1	8%
2016	13	11	85%	8	3	27%
2017	9	7	78%	4	3	43%
2018	8	6	75%	4	2	33%
2019	8	6	75%	5	1	17%
2020	9	8	89%	5	3	38%
Total	**95**	**85**		**62**	**23**	
Average	**10**	**9**	**89%**	**6**	**2**	**27%**

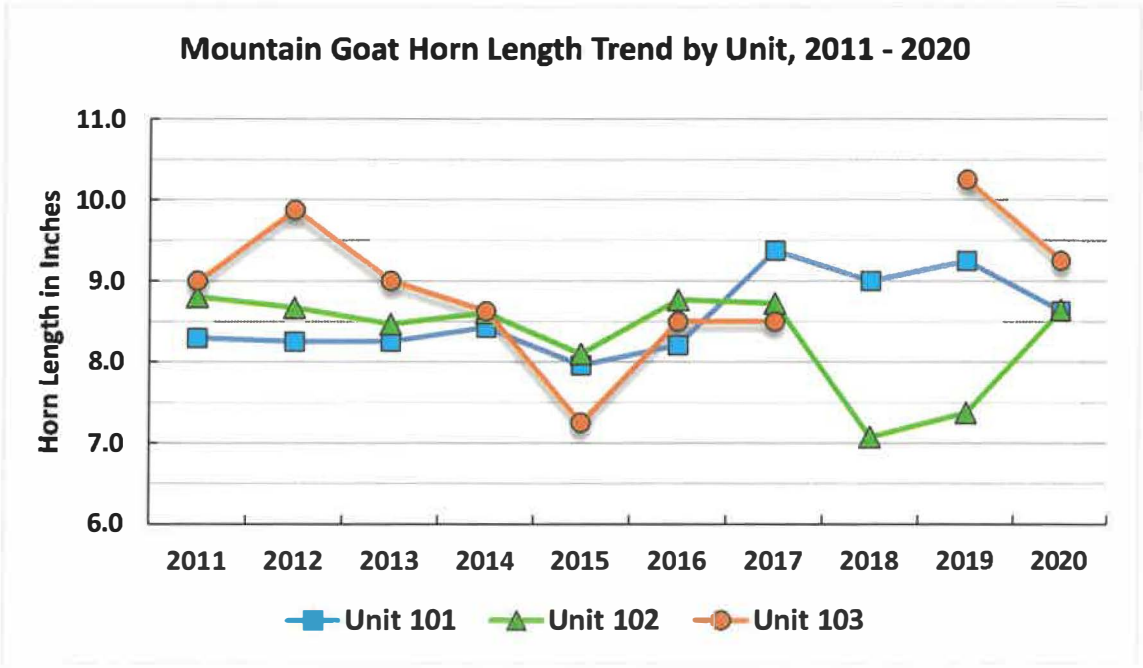


TABLE 14. 2020 BLACK BEAR DRAW AND HUNT RESULTS

Unit Group	Apps	Tags	Tags Avail	Demand	# Returns	% Returns	# Did not Hunt	# Succ. Hunters	% Hunter Success
RESIDENT BLACK BEAR HUNT									
Statewide	3,202	45	41	72 to 1	40	98%	7	12	30%
NONRESIDENT BLACK BEAR HUNT									
Statewide	258	5	5	52 to 1	5	100%	2	1	20%
BLACK BEAR DREAM TAG HUNT									
Statewide	na	1	1	-- --	1	100%	0	0	0%

BLACK BEAR HARVEST COMPOSITION

Year	Gender	Harvest	Mean Age	3-yr Average Age	Average Days Hunted by Successful Tagholders
2020	Males	6	9.3	7.7	6.3
	Females	7	5.9	5.2	

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	0	0	0
194	0	2	2
196	0	0	0
201	2	1	3
202	0	1	1
203	0	0	0
204	0	0	0
291	4	3	7
TOTAL	6	7	**13**

TABLE 15. FALL 2020 AND SPRING 2021 MULE DEER SURVEY COMPOSITION

UNIT GROUP	2020 FALL BUCKS	2020 FALL DOES	2020 FALL FAWNS	2020 FALL TOTAL	2020 Bucks: 100 Does	2020 Fawns: 100 Does	2020 Fawns: 100 Adults	2021 Spring Adults	2021 Spring Fawns	2021 Spring TOTAL	2021 Fawns: 100 Adults	*Spring 2020 Fawns: 100 Adults*
011 - 013, 033				0	--	--	**--**	223	55	278	**25**	*37*
014				0	--	--	**--**	21	9	30	**43**	*30*
015				0	--	--	**--**	102	28	130	**27**	*34*
021				0	--	--	**--**	524	178	702	**34**	*41*
022				0	--	--	**--**	66	17	83	**26**	*34*
031	58	230	97	385	25	42	**34**	728	254	982	**35**	*32*
032, 034	35	127	58	220	28	46	**36**	272	108	380	**40**	*38*
035	22	66	28	116	33	42	**32**	167	59	226	**35**	*29*
041, 042				0	--	--	**--**			--	**--**	--
043 - 046				0	--	--	**--**	476	124	600	**26**	*26*
051	51	114	54	219	45	47	**33**	613	287	900	**47**	*35*
061,062,064, 066-068	371	1,198	831	2,400	31	69	**53**	2,728	1,166	3,894	**43**	--
065	--	--	--	0	--	--	**--**	--	--	--	**--**	--
071 - 079, 091	--	--	--	0	--	--	**--**	1,930	616	2,546	**32**	*34*
101 - 109	536	1,629	868	3,033	33	53	**40**	4,259	1,482	5,741	**35**	--
111 - 113	255	983	452	1,690	26	46	**37**	1,210	380	1,590	**31**	*21*
114 - 115	--	--	--	0	--	--	**--**	--	--	--	**--**	*23*
121	76	505	254	835	15	50	**44**	710	257	967	**36**	*17*
131 - 134	--	--	--	0	--	--	**--**	482	121	603	**25**	*27*
141 - 145	--	--	--	0	--	--	**--**	1,357	377	1,734	**28**	*26*
151, 152, 154-156	81	258	148	487	31	57	**44**	547	162	709	**30**	*26*
161 - 164				0	--	--	**--**	227	52	279	**23**	--
171 - 173	120	360	138	618	33	38	**29**	271	76	347	**28**	--
181 - 184				0	--	--	**--**	105	33	138	**31**	*32*
192	22	50	28	100	44	56	**39**	204	68	272	**33**	*24*
194, 196	31	124	40	195	25	32	**26**	425	74	499	**17**	*18*
201 - 206				0	--	--	**--**			--	**--**	--
221 - 223	120	549	206	875	22	38	**31**	664	137	801	**21**	--
231	144	527	200	871	27	38	**30**	912	173	1,085	**19**	--
241 - 244	53	177	83	313	30	47	**36**	325	74	399	**23**	--
2020-21 TOTALS	**1,975**	**6,897**	**3,485**	**12,357**	**29**	**51**	**39**	**19,548**	**6,367**	**25,915**	**33**	
2019-20	1,712	6,063	2,730	*10,505*	*28*	*45*	*35*	*8,847*	*2,357*	*11,204*		*27*

Spring fawn/100 adults ratios that are higher than its fall ratio are assumed to be biased high.

Units with (--) were not surveyed.

TABLE 16. LATE SUMMER/FALL/WINTER 2020 PRONGHORN SURVEY COMPOSITION

UNIT GROUP	BUCKS	DOES	FAWNS	TOTAL	2020 BUCKS: 100 DOES	2020 FAWNS: 100 DOES	*2019 FAWNS: 100 DOES*
011	65	221	49	335	29	**22**	*23*
012 - 014	73	280	87	440	26	**31**	*31*
015	78	241	103	422	32	**43**	*39*
021 - 022	6	19	6	31	32	**32**	*--*
031	3	12	7	22	25	**58**	*30*
032, 034, 035	33	107	18	158	31	**17**	*29*
033	109	384	124	617	28	**32**	*24*
041, 042	68	195	38	301	35	**20**	*35*
043-046	145	349	127	621	42	**36**	*37*
051	13	20	8	41	65	**40**	*25*
061 - 064, 071, 073	193	526	315	1,034	37	**60**	*48*
065, 142, 144	68	290	75	433	23	**26**	*28*
066	--	--	--	--	--	**--**	*--*
067 - 068	132	401	162	695	33	**40**	*31*
072, 074, 075	38	169	76	283	23	**45**	*31*
076, 077, 079, 081, 091	95	155	55	305	61	**36**	*15*
078, 105 - 107, 121	94	357	46	497	26	**13**	*17*
101 - 104, 108	95	206	46	347	46	**22**	*20*
111 - 114	157	554	112	823	28	**20**	*14*
115, 231, 242				--	--	**--**	*40*
131, 145, 163, 164	52	302	28	382	17	**9**	*17*
132 - 134, 245	61	278	39	378	22	**14**	*20*
141, 143, 151 - 155	201	304	205	710	66	**67**	*25*
161, 162	24	71	21	116	34	**30**	*24*
171 - 173	40	205	51	296	20	**25**	*25*
181 - 184	46	131	35	212	35	**27**	*38*
202, 204	19	43	12	74	44	**28**	*50*
203, 291	18	23	8	49	78	**35**	*--*
205, 206	15	63	15	93	24	**24**	*--*
211 - 213				--	--	**--**	*26*
221 - 223, 241				--	--	**--**	*46*
251	71	152	32	255	47	**21**	*39*
2020 TOTALS	**2,012**	**6,058**	**1,900**	**9,970**	**33**	**31**	
2019 TOTALS	*2,371*	*6,649*	*1,870*	*10,890*	*36*		*28*

Units with (--) were not surveyed.

TABLE 17. LATE SUMMER/FALL 2020 DESERT BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2020 RAMS: 100 EWES	2020 LAMBS: 100 EWES	*2019 LAMBS: 100 EWES*	*2018 LAMBS: 100 EWES*
045, 153	18	44	14	76	41	**32**	*39*	*37*
131, 164				--	--	**--**	*38*	*--*
132				--	--	**--**	*35*	*--*
134				--	--	**--**	*22*	*--*
161				--	--	**--**	*35*	*--*
162				--	--	**--**	*--*	*36*
163	43	102	24	169	42	**24**	*--*	*27*
173 S	17	28	6	51	61	**21**	*--*	*--*
173 N				--	--	**--**	*39*	*56*
181	131	254	45	430	52	**18**	*40*	*24*
182, 044	24	56	12	92	43	**21**	*28*	*37*
183	45	116	24	185	39	**21**	*5*	*16*
184	35	73	19	127	48	**26**	*32*	*44*
195	39	62	8	109	63	**13**	*0*	*11*
202	17	40	8	65	43	**20**	*32*	*--*
204	8	19	3	30	42	**16**	*--*	*--*
205, 207	57	117	6	180	49	**5**	*39*	*33*
206, 208	29	64	4	97	45	**6**	*44*	*--*
211				--	--	**--**	*36*	*--*
212				--	--	**--**	*26*	*26*
213	112	154	31	297	73	**20**	*--*	*24*
221, 223, 241	47	112	42	201	42	**38**	*--*	*22*
241 SE				--	--	**--**	*8*	*29*
243				--	--	**--**	*25*	*--*
244	30	43	21	94	70	**49**	*--*	*34*
245, 133	23	66	24	113	35	**36**	*--*	*35*
252	18	67	2	87	27	**3**	*--*	*12*
253				--	--	**--**	*--*	*4*
254	40	98	20	158	41	**20**	*--*	*10*
261	36	53	28	117	68	**53**	*--*	*33*
262				--	--	**--**	*--*	*32*
263				--	--	**--**	*--*	*10*
264				--	--	**--**	*--*	*0*
265				--	--	**--**	*33*	*--*
266				--	--	**--**	*40*	*--*
267				--	--	**--**	*21*	*--*
268				--	--	**--**	*50*	*--*
269	56	134	8	198	42	**6**	*--*	*7*
271				--	--	**--**	*38*	*26*
272				--	--	**--**	*31*	*--*
280	31	66	8	105	47	**12**	*--*	*28*
281	38	47	24	109	81	**51**	*--*	*22*
282	40	41	16	97	98	**39**	*54*	*14*
283, 284*				--	--	**--**	*26*	*32*
286				--	--	**--**	*45*	*42*
2020 TOTALS	**934**	**1,856**	**397**	**3,187**	**50**	**21**		
2019 TOTALS	*1,226*	*2,357*	*793*	*4,376*	*52*	*34*		

TABLE 18. LATE SUMMER/FALL 2020 CALIFORNIA BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2020 RAMS/ 100 EWES	2020 LAMBS/ 100 EWES	*2019 LAMBS/ 100 EWES*
011, 013				--	--	--	*46*
012	26	64	26	116	41	41	*41*
014	12	28	11	51	43	39	*40*
021, 022				--	--	--	*33*
031	22	29	19	70	76	66	52
032	18	38	20	76	47	53	30
033				--	--	--	31
034	10	50	30	90	20	60	64
035	20	67	25	112	30	37	45
041				--	--	--	75
051	41	56	37	134	73	66	28
066	13	18	5	36	72	28	*50*
068	21	46	34	101	46	74	*66*
2020 TOTALS	**183**	**396**	**207**	**786**	**46**	**52**	
2019 TOTALS	*220*	*641*	*275*	1,136	34	43	

TABLE 19. SUMMER/WINTER/EARLY SPRING 2020 - 2021 ROCKY MOUNTAIN BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2020-21 RAMS/ 100 EWES	2020-21 LAMBS/ 100 EWES	*2019-20 LAMBS/ 100 EWES*
074	7	13	3	23	54	23	*44*
091	11	23	6	40	48	26	*25*
101	*3*	*16*	*2*	21	19	13	*50*
102	*16*	*10*	*6*	32	160	60	*50*
114	6	17	8	31	35	47	*40*
115	11	11	7	29	100	64	*50*
2020-21 TOTALS	**54**	**90**	**32**	**176**	**60**	**36**	
2019-20 TOTALS	*38*	*71*	*28*	*137*	*54*	*39*	

Units with (--) were not surveyed.

TABLE 20. JANUARY 2021 MOUNTAIN GOAT SURVEY COMPOSITION

UNIT GROUP	ADULTS	KIDS	TOTAL	2021 KIDS/ 100 ADULTS	*2020* KIDS/ 100 ADULTS
101	34	4	38	12	8
102	100	33	**133**	33	20
103	18	3	**21**	17	--
2021 TOTALS	**152**	**40**	**192**	**26**	
2020 TOTALS	*113*	*19*	*132*	*17*	

TABLE 21. WINTER 2020-2021 ROCKY MOUNTAIN ELK SURVEY COMPOSITION

UNIT GROUP	BULLS	COWS	CALVES	TOTAL	2020-2021 BULLS/ 100 COWS	2020-2021 CALVES/ 100 COWS	*2019-20 CALVES/ 100 COWS*
051	3	21	16	40	14	76	*73*
061, 071	397	1329	517	2,243	30	39	*42*
062, 064, 066-068	78	298	116	492	26	39	*24*
065	--	--	--	--	--	--	*40*
072 - 074	140	217	140	497	65	65	*36*
075	43	59	28	130	73	48	*49*
076, 077, 079, 081	184	783	297	1,264	24	38	*38*
078,104, 105-107	122	251	105	478	49	42	*29*
091	--	--	--	--	--	--	--
104,108,121	88	260	113	461	34	44	*18*
108,131 - 132	34	81	23	138	42	28	*22*
111 - 115	388	786	304	1,478	49	39	*27*
221 - 223	165	288	125	578	57	43	*25*
161 - 164				--	--	--	*27*
171 - 173				--	--	--	--
231				--	--	--	*40*
241, 242				--	--	--	*33*
262	1	16	1	18	6	6	*20*
2020-2021 Totals	**1,643**	**4,389**	**1,785**	**7,817**	**37**	**41**	
2019-2020 Totals	*2,287*	*4,974*	*1,606*	*8867*	*46*	*32*	

Units with (--) were not surveyed.

TABLE 22. 2021 MULE DEER POPULATION ESTIMATES

UNIT GROUP	2021 ESTIMATE*	*2020 ESTIMATE**
011 - 013	1,400	*1,200*
014	500	*550*
015**	230	*230*
021**	500	*500*
022	550	*550*
031	2,000	*2,100*
032***	950	*1,100*
033	400	*400*
034***	240	*290*
035	750	*1,000*
041, 042	700	*700*
043 - 046	1,700	*1,800*
051	2,100	*2,300*
061,062,064, 066 - 068	7,300	*9,200*
065	650	*800*
071 - 079, 091	11,100	*11,400*
081	900	*900*
101 - 108	13,000	*14,000*
111 - 113	3,600	*4,200*
114 - 115	1,100	*1,200*
121	2,100	*2,800*
131 - 134	4,300	*4,900*
141 - 145	3,900	*4,200*
151, 152 ,154, 155	2,000	*2,000*
161 - 164	3,600	*4,000*
171 - 173	3,400	*3,700*
181 - 184	1,250	*1,300*
192**	540	*500*
194, 196**	875	*1,000*
195	500	*500*
201, 204**	570	*550*
202, 205 - 208**	380	*450*
203	600	*500*
211, 213	400	*400*
221 - 223	3,800	*4,200*
231	3,300	*3,600*
241 - 245	1,300	*1,200*
251 - 254	400	*400*

TABLE 22. 2021 MULE DEER POPULATION ESTIMATES

261 - 268	500	*500*
271, 272	240	*240*
291	600	*600*
TOTAL	**84,000**	***92,000***
Percent Change	**-9%**	

*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 23. 2021 ROCKY MOUNTAIN ELK POPULATION ESTIMATES

UNIT GROUP	**2021 ESTIMATE***	*2020 ESTIMATE**
051	90	*90*
061, 071**	1,700	*1,900*
062, 064, 066 - 068**	400	*350*
065	60	*60*
072 - 075**	1,100	*1,300*
076, 077, 079, 081**	1,100	*1,100*
078, 105 - 107, 109	600	*450*
091	450	*360*
104, 108, 121	900	*950*
108, 131, 132	230	*260*
111 - 115	2,700	*2,800*
221 - 223	1,800	*1,700*
145	30	*30*
161 - 164	750	*750*
171 - 173	100	*100*
231	500	*500*
241, 242	110	*110*
262	160	*170*
TOTAL	**13,000**	*13,000*
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.

TABLE 24. 2021 PRONGHORN POPULATION ESTIMATES

UNIT GROUP	2021 ESTIMATE*	*2020 ESTIMATE**
011	700	900
012-014	1,900	1,800
015	1,050	900
021, 022	600	650
031	1,300	1,400
032, 034, 035	1,650	1,900
033**	1,200	1,200
041, 042	1,400	1,700
043 - 046	1,400	1,200
051	700	700
061, 062, 064, 071, 073	1,500	1,400
065, 142, 144	700	850
066	400	400
067, 068	1,050	1,100
072, 074, 075	1,100	1,100
076, 077, 079, 081, 091	600	650
078, 105 - 107, 121	700	900
101 - 104, 108, 109, 144	900	950
111 - 114	1,100	1,300
115, 231, 242	500	500
131, 145, 163, 164	600	850
132 - 134, 245	450	600
141, 143, 151 - 156	3,900	3,400
161, 162	400	450
171 - 173	380	360
181 - 184	800	850
202, 204	100	110
203, 291	90	90
205 - 208	300	300
211 - 213	110	90
221 - 223, 241	400	450
251	350	300
TOTAL	***28,500***	***29,500***
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 25. 2021 DESERT BIGHORN POPULATION ESTIMATES

UNIT GROUP	2021 ESTIMATE*	*2020 ESTIMATE**
045	120	*270*
131, 164	80	*100*
132	130	*130*
134, 251	170	*180*
153	20	*20*
161	550	*550*
162	50	*50*
163	270	*270*
173	170	*180*
181	600	*600*
182, 044	550	*600*
183	270	*320*
184	160	*170*
195	130	*110*
202	150	*170*
204	50	*60*
205, 207	450	*550*
206, 208	240	*240*
211	450	*450*
212	400	*360*
213	400	*400*
221, 223, 241	240	*190*
243	180	*180*
244	140	*130*
245, 133	130	*140*
252	120	*150*
253	130	*140*
254	160	*130*
261	140	*150*
262	140	*140*
263	170	*190*
264, 265, 266	140	*140*
267, 268	900	*950*
269	210	*200*
271	300	*300*
272	90	90
280	140	160
281	210	200
282	160	150
283, 284	220	220
286	170	170
TOTAL	***9,500***	*9,900*
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%.

TABLE 26. 2021 CALIFORNIA BIGHORN POPULATION ESTIMATES

UNIT GROUP	2021 ESTIMATE*	*2020 ESTIMATE**
011, 013	90	*80*
012	190	*180*
014	120	*120*
021, 022	90	*90*
031	150	*140*
032	350	*330*
033	120	*120*
034	340	*310*
035	310	*290*
041	40	*50*
051	120	*130*
066	35	*40*
068	150	*150*
TOTAL	**2,100**	*2,000*
Percent Change	**5%**	

TABLE 27. 2021 ROCKY MOUNTAIN BIGHORN POPULATION ESTIMATES

UNIT GROUP	2021 ESTIMATE*	*2020 ESTIMATE**
074	30	*40*
091	40	*40*
101	40	*40*
102	50	*50*
114	100	*90*
115	60	*50*
TOTAL	**320**	**310**
Percent Change	**3%**	

TABLE 28. 2021 MOUNTAIN GOAT POPULATION ESTIMATES

UNIT GROUP	2021 ESTIMATE*	*2020 ESTIMATE**
101	50	*50*
102	200	*200*
103	40	*40*
TOTAL	**290**	*290*
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%.

TABLE 29. BIG GAME POPULATION ESTIMATE HISTORY, 1987 - 2021

YEAR	MULE DEER	ANTELOPE	ELK	DESERT BIGHORN	CALIFORNIA BIGHORN	ROCKY MOUNTAIN BIGHORN	MOUNTAIN GOAT
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
2021	84,000	28,500	13,000	9,500	2,100	320	290
10-YR AVG	*98,000*	*29,000*	*15,000*	*10,000*	*2,000*	*260*	*320*
%Diff to AVG	**-14%**	**-2%**	**-13%**	**-5%**	**5%**	**23%**	**-9%**

TABLE 30. BIG GAME TAG SALES AND HARVEST HISTORY BY SPECIES, 1988 - 2020

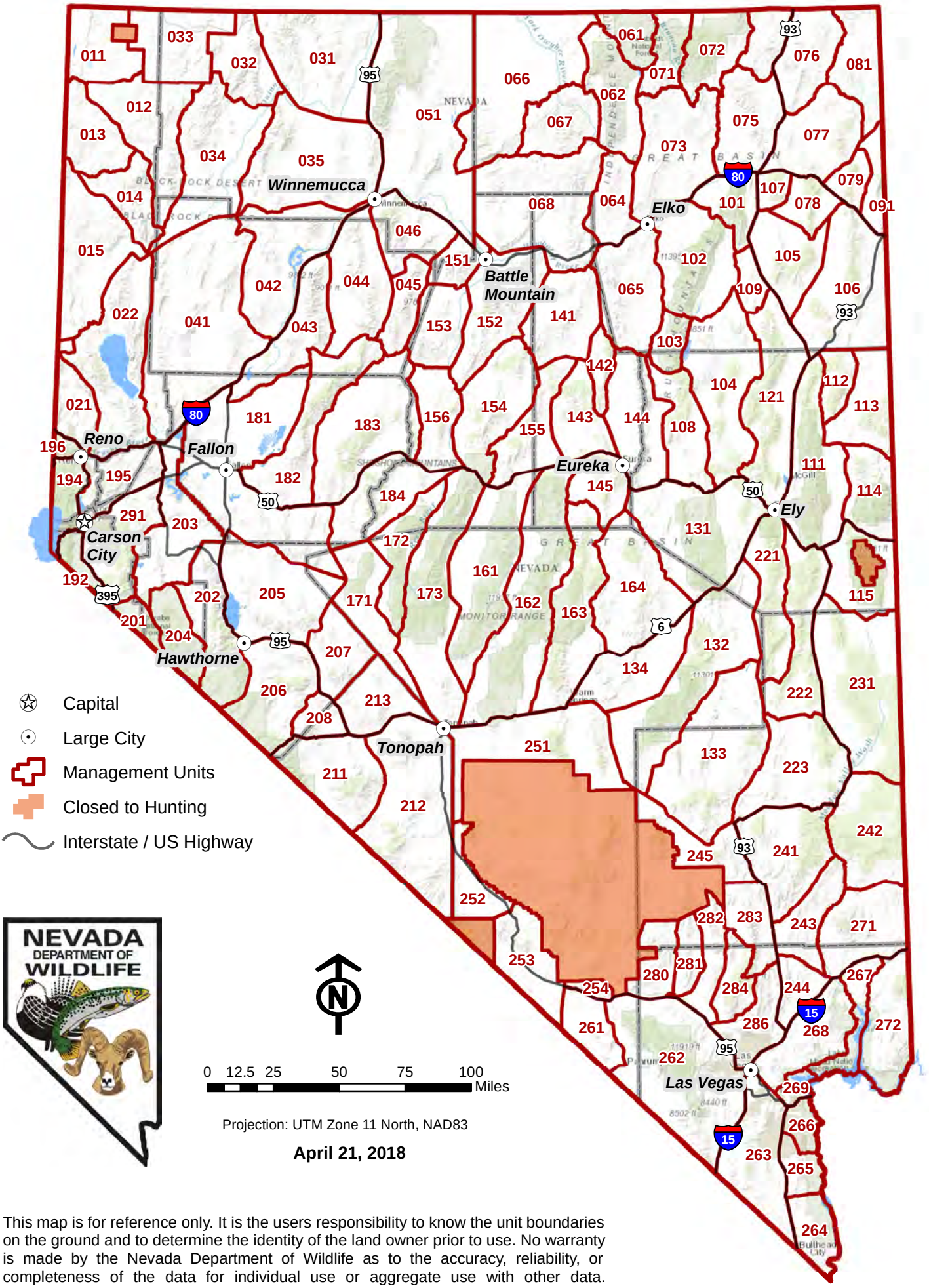
	DEER		ANTELOPE		ELK		DESERT BIGHORN RAM		CALIFORNIA BIGHORN RAM		ROCKY MTN BIGHORN		MOUNTAIN GOAT	
YEAR	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST	TAGS	HARVEST
1988	51,011	26,784	1,342	949	182	91	136	114	4	3	2	2	2	1
1989	34,847	17,782	1,378	980	200	103	133	111	3	3	2	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
2020	17,660	6,928	4,326	2,826	5,379	1,984	315	288	68	54	6	2	9	8
10-YR AVG	19,261	8,003	4,141	2,635	8,343	2,645	296	264	62	55	6	4	10	9
%Diff to AVG	-8%	-13%	4%	7%	-36%	-25%	6%	9%	11%	-3%	3%	-49%	-5%	-6%

TABLE 31. NEVADA MOUNTAIN LION TAG SALES, SPORT HARVEST, AND HUNTER SUCCESS, 1980 - 2020

	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 2021



NEVADA DEPARTMENT OF WILDLIFE

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.