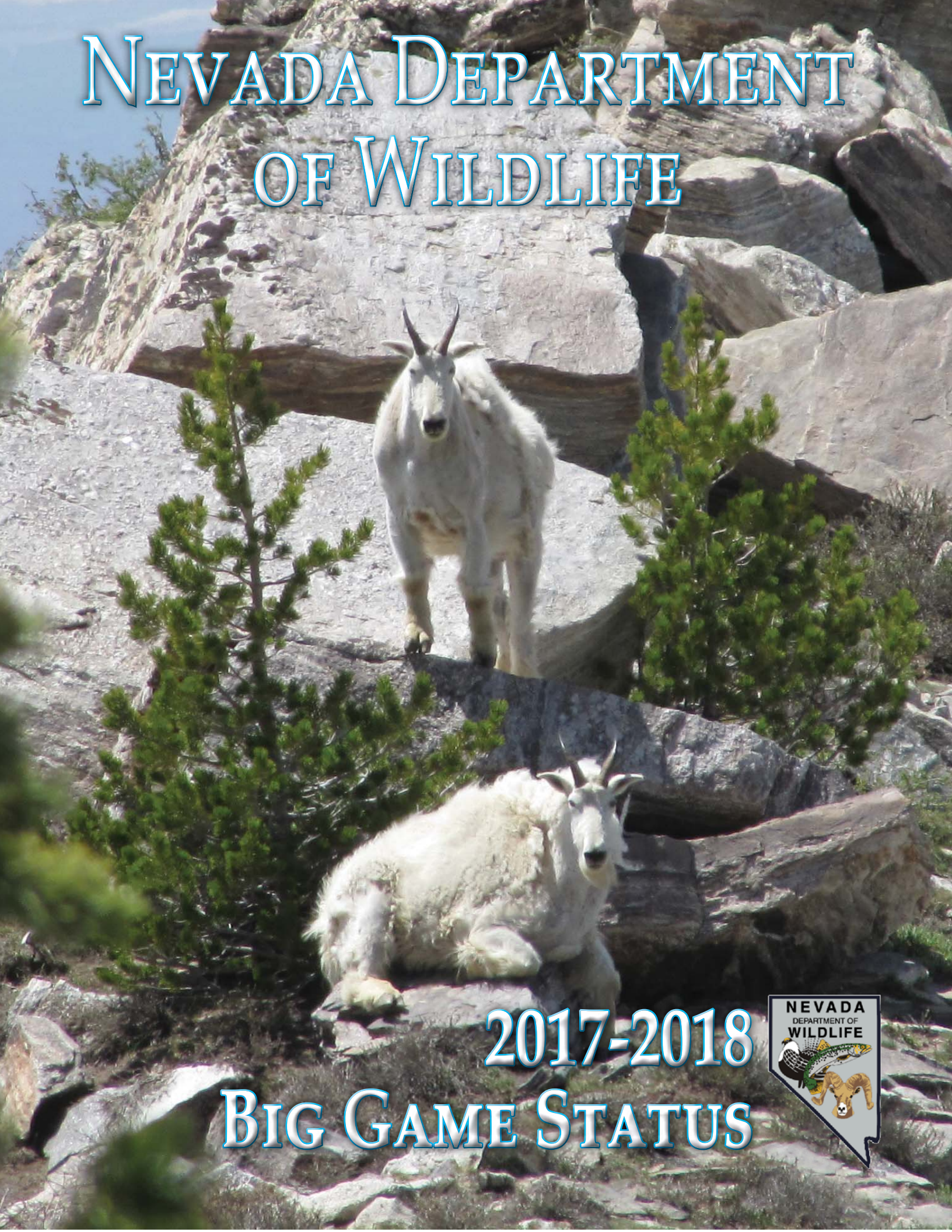

Nevada Department of Wildlife

2017-2018 Big Game Status

STATE OF NEVADA
Brian Sandoval, Governor

DEPARTMENT OF WILDLIFE
Tony Wasley, Director

GAME DIVISION
Brian F. Wakeling, Chief

Mike Cox, Big Game Staff Biologist
Pat Jackson, Carnivore Staff Biologist
Cody McKee, Elk Staff Biologist
Cody Schroeder, Mule Deer Staff Biologist
Peregrine Wolff, Wildlife Health Specialist

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

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NEVADA DEPARTMENT OF WILDLIFE

2017-2018 BIG GAME STATUS

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

Compiled and Edited by:

Mike Cox, Big Game Staff Biologist
Cody McKee, Elk Staff Biologist
Cody Schroeder, Mule Deer Staff Biologist
Pat Jackson, Carnivore Staff Biologist
Brian Wakeling, Game Division Chief

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

Federal Aid Project

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BIG GAME STATUS STATEWIDE SUMMARY

MULE DEER

Nevada hunters purchased 16,069 mule deer tags in 2017, which was down from the 18,111 sold in 2016. The decrease in tag sales was reflective of a decrease in the 2017 quotas approved by the Nevada Board of Wildlife Commission. Total harvest for 2017 was about 7,300 mule deer including bucks and does. Hunt return questionnaires indicated a statewide success rate of 49% for all deer hunters, which was higher than the reported 46% during 2016. Total buck harvest was about 6,234 and of those bucks harvested about 43% had 4 (or greater) antler points on one side.

The 2017 post-season aerial survey resulted in about 25,685 mule deer classified statewide compared to 31,770 in 2016. Statewide fawn production was slightly lower during 2017 with 45 fawns:100 does counted during post-season surveys (compared to 48 fawns:100 does during 2016). The 2018 spring deer surveys classified 22,760 mule deer, with a ratio of 35 fawns:100 adults statewide, which is equal to the long-term average. The statewide observed buck ratio was 33 bucks:100 does for 2017.The state of Nevada uses 30 bucks:100 does as a statewide management objective for standard hunts, while up to 8 alternative Hunt Units are managed for 35 bucks:100 does and a higher percentage of 4 points or greater available for harvest.

Nevada's mule deer populations have been stable the past several years. The 2018 population is estimated at about 92,000 mule deer. Many of Nevada's northern water basins experienced above average precipitation during 2017-2018; however, snowpack measurements for many SNOTEL sites were well below long term averages indicating the potential for poor forage quality and reduced water availability for some regions.

ANTELOPE

The 2017 antelope season provided excellent hunting opportunity and success rates for Nevada hunters. There were 4,463 antelope tags available to hunters in the 2017 draw, of which 1,341 were for horns-shorter-than-ear hunts. Over 31,500 people applied for antelope tags in the 2017 main big game draw, not including specialty tag draws such as the PIW and Silver State. Over 2,000 adult bucks and 1,302 antelope from the horns-shorter-than-ear hunt were harvested in 2017. Overall, hunter success rate was about 69% for all antelope hunts during 2017. The percentage of antelope bucks with horn lengths of 15 inches or greater was about 28% statewide for 2017, which is slightly below the 10 year average of 30%.

In 2017, Nevada Department of Wildlife game biologists classified about 11,800 antelope during composition surveys with an observed buck and fawn ratio of 47 bucks:100 does:37 fawns. These surveys were conducted in the fall and early winter months. The Department uses a management criteria of about 20-30 bucks:100 does (for bucks 2 years old and older) when making quota recommendations for the following hunt year. The 2018 statewide population estimate for antelope is 30,000. The Nevada Department of Wildlife translocated 150 antelope to Washington State during fall 2017. The translocation efforts were reported to be highly successful for both release sites in Washington.

ROCKY MOUNTAIN ELK

In 2014, the Nevada Department of Wildlife (Department) substantially increased elk tags in response to a rapidly increasing elk population. Tags issued for elk hunts subsequently exceeded 11,000 for 3 successive years (2014-2016) and effectively reduced the statewide elk population. Consequently, the 9,776 tags issued during the 2017-2018 season were the fewest since 2013. The harvest of 1,150 bulls in 2017, including those taken during spike-only hunts, was consistent with long-term trends. The harvest of antlerless elk in 2017 dropped about 17% to 1,543, reflective of tag reductions that primarily affected antlerless hunts. Reported hunter success for all sex and weapon classes was 31% and is 3% greater than reported in 2016. Combined success for bull hunters was 49% with 29% of successful hunters reporting

antler lengths of 50 in or greater. Hunters of antlerless elk reported a success rate of 30%, which is a 3% increase over 2016.

Biologists with the Department classified 8,130 elk from 14 of 18 unit groups in Nevada during aerial surveys in 2018. Ratios representative of the statewide composition were 47 bulls:100 cows:41 calves. The bull ratio remains well-above the 10-yr average of 39 bulls:100 cows and the calf ratio is equal to the 10-yr average of 41 calves:100 cows.

Data collected from hunters and during aerial surveys indicate fewer elk available for harvest in Nevada. The 2018 population estimate is down 10% to 13,500 elk. The availability of bulls for harvest remains high, however, and hunters should expect similar quotas to 2017 as the Department attempts to reduce the observed bull ratio to appropriate levels. Conversely, 88% of local herds are at or below population objectives. Substantial harvest of antlerless elk is no longer required to reduce densities in most areas of Nevada and quota recommendations will be intended to maintain herds at their population objective.

DESERT BIGHORN SHEEP

The 2017 desert ram hunting season was record-setting in almost every category and metric. There were 334 ram tags, the most ever and 23 more than in 2016. It was the first time ever that ram harvest surpassed 300 at 302. The hunter success rate dropped slightly to 90% but was above the long-term average of 87%. Average days hunted was only 4.5 days, the second lowest on record. The 2017 statewide average age of harvested rams of 6.7 years is the highest since Nevada went to any ram regulation in 1996. The average B&C score of 154 4/8 was the highest since 1989. There were 21 170+ B&C rams harvested from 12 different units, the most ever for both categories. The fourth desert bighorn ewe hunt resulted in 94 animals harvested. The current population objective was met for Lone and Bare Mountain herds through the ewe hunts and recent removals of source stock animals for translocations. Nineteen of the 149 tag holders reported as “did not hunts” and contributed to the hunter success rates dropping to 63% statewide. Of note is that the number of desert bighorn ewe applicants dramatically increased from 210 in 2016 to 532 in 2017.

The 2017 statewide aerial desert bighorn surveys resulted in another strong and representative sample of the statewide population classifying over 5,300 animals. The observed lamb ratio was 35 lambs:100 ewes, slightly higher than 2016 of 34. This lamb recruitment level coincides with a stable statewide population at approximately 10,100, no change from 2016. Unfortunately hidden in this statewide estimate are several herds struggling with chronic low lamb survival for 4-5 consecutive years primarily caused by pneumonia that attacks lambs during their first few months of life when their immune systems are not yet fully functional.

As part of the ongoing statewide disease surveillance program, 109 desert bighorn were captured and sampled for pathogens in 2017. Samples were screened for bacteria, virus, parasites, trace minerals, and genetic material. All 20 samples from the Muddy Mountain in 2017 were negative for *Mycoplasma ovipneumoniae.* Based on these test results we believe the 2 positive samples from 2016 were false positives and that the Muddy Mountain herd continues to avoid exposure to that virulent pathogen.

Two new herds sampled for the first time in 2017 were the Stillwater/East Range (n = 17) and Desatoya Mountains (n = 8). All samples in the Stillwater Range were negative for *Mycoplasma ovipneumoniae* but 4 of the 8 blood samples in the Desatoya’s were positive for titers to *Mycoplasma ovipneumoniae* indicating past exposure to this herd.

The Department continues to collaborate with California Department of Fish and Wildlife (CDFW) to conduct “border” disease surveillance and describe bighorn herd responses to multiple strains of *Mycoplasma ovipneumoniae* and pathogen transmission with our adjacent Nevada herds. From past advice, CDFW in 2017 sampled the Clark, Mesquite, and Kingston herds directly tied to the Spring Mountains herd and the Funeral Mountains (Death Valley National Park). Preliminary results show *Mycoplasma ovipneumoniae*. was detected in all these California herds along with very few lambs observed. This further validates disease transmission across state lines. Also, the Last Chance Range in southern Nye

County was confirmed to have the same "Mojave" *Mycoplasma ovipneumoniae* strain as the Clark County herds. This adds another piece to the overall puzzle of pathogen transmission along the 2 state lines with the Funeral Mountains only separated by the Amargosa Valley from the Last Chance Range.

The North Range Nevada Test and Training Range (NTTR) and Bare Mountain were again sampled in October 2017 as in 2015 and 2016 to further understand the spatial and temporal dynamics of severe low lamb recruitment and disease transmission with known ram movement between BLM and Department of Defense lands. A ewe that was in extremely poor health was euthanized and found to have both pneumonia and paranasal sinus tumor that has been previously detected in other southern Nevada bighorn herds. Pathogen test results indicated that *Mycoplasma ovipneumoniae* continues to be circulated within the larger metapopulation by 15-20% of adult bighorn that are "shedding" *Mycoplasma ovipneumoniae* and reinfecting others that have previously cleared the organism. This coincides with 4 consecutive years of extremely poor lamb survival in the various North Range NTTR bighorn herds.

Ongoing collaboration with Washington State University has been intensified to strain type both current and past samples testing positive for *Mycoplasma ovipneumoniae* found in our bighorn herds. Research indicates that *Mycoplasma ovipneumoniae* strains have variable virulence which may affect the severity of an initial disease event as well as the time line for prolonged lamb mortality and herd recovery. Infected bighorn herds usually only have 1 strain type.

Due to past and present chronic poor lamb survival caused by pneumonia in several desert bighorn herds, beginning in 2018 and likely continuing for several years, there will be substantial reductions in ram hunting opportunities because of the lack of mature rams resulting from lamb deaths 5-10 years ago.

Concerns exists over water availability for several desert bighorn herds on the South Range NTTR, USFWS Desert National Wildlife Refuge, and Mormon Mountains wilderness area with water developments that are in need of serious maintenance and upgrades to storage capacity. Also, the growing and unmanaged number of feral horses and burros on BLM lands are having a severe impact to natural seeps and springs that bighorn are heavily dependent on especially during the summer months. Due to the dominance of the larger and more aggressive nonnative ungulate, many springs that had historic use by bighorn are no longer used and this level of impact is resulting in localized bighorn herd declines.

CALIFORNIA BIGHORN SHEEP

In 2017, 57 California bighorn ram tags were issued, the same as in 2016. The 2017 hunter success rate was 93%, above the long-term average of 91%. Most other hunt metrics indicate that California bighorn hunting is more challenging than in the past. Average age and score has been slowly dropping since 2010 from 7.4 to 6.7 for age and 156 to 151 for Boone & Crockett score. The decline was partly due to a conscious effort by the Department to increase tag opportunity but still be well above the goal of 6.0 for average age of ram harvested set in the statewide bighorn sheep management plan. The average hunter days increased dramatically in 2017 to 8.6 from 6.7 in 2016 and from 6.4 the long-term average. This increase was driven by 4 hunters that were afield during their hunts for over 20 days. On a positive note, the harvest of an 8-year old ram scoring 177 4/8 in 2017 was the largest California bighorn ram taken since 2001.

Approximately 1,100 California bighorns were classified during the 2017 aerial surveys slightly above that from last year. The lamb ratio declined to 40 lambs:100 ewes compared to 45 in 2016. The 2016 year was the first year in 3 previous years the lamb ratio was above 40, showing the result of the 1st good year of moisture since the multiple year drought that northwestern Nevada experienced beginning in 2012. Prior to the drought period the 3-year average lamb ratio from 2008-2010 was 48. With 2017 having one of the best water years on record, hope was the lamb ratio would have rose even above 45. Certainly other factors such as late spring snowstorms, predation, disease, and even density dependence play a role in lamb survival. The 2017 statewide California bighorn population estimate remains at 1,900.

The Department, Oregon Department of Fish and Wildlife, and Oregon State University (OSU) continued their collaborative multi-year research project in 2017 to characterize the spread and consequences of

respiratory disease in California bighorn along the Nevada and Oregon borders. The Rattlesnake and Ten-mile bighorn herds in Oregon experienced very poor lamb survival in 2017 due to pneumonia. An additional 24 rams and ewes in January 2018 were captured, sampled and a subset collared from the 5 major sub-herds that exist in the Santa Rosa Range to allow for OSU graduate student and Department technician to monitor lamb survival through the summer and ram movements between the 2 states and among the sub-herds. Predator management projects were initiated in northern Washoe County herds with 10 bighorn being captured and collared in November 2017 to closely monitor their survival and movements and allow quick investigation of mortality events. A new "Risk of Contact to Domestic Sheep" project was initiated in collaboration with the Winnemucca BLM District Office in the Granite Range and Calico Hills with 22 rams and ewes captured, disease surveillance conducted, and collared to evaluate the risk adjacent domestic sheep trailing and grazing pose to these bighorn herds.

Spring and summer 2017 lamb surveys conducted on the Snowstorms indicated the removal of super-shedder ewes in early 2017 may have contributed to a sharp increase in lamb recruitment. As of early 2018, 6 lambs and 15 ewes or 46 lambs:100 ewes were found in 3 sub-herds on the Snowstorms.. This is the highest lamb to ewe ratio recorded since 2009. Continued monitoring will occur of the sub-herds over the next few years to make sure 2017 lamb recruitment was not simply an anomaly.

ROCKY MOUNTAIN BIGHORN SHEEP

Four of 6 tag holders were successful in 2017 with an average age of 7.0 and B&C score of 166 3/8. Hunters continued to place a great deal of effort in search of their ram with the last 4 years averaging over 12 hunt days per hunter including 12.7 days in 2017.

The following herds are still impacted from past pneumonia events that caused both adult and lamb mortality: Hunt Unit 074 with the most recent die-off event in 2014; Hunt Unit 101 in 2010 and 2015, Hunt Unit 102 in 2010 and Hunt Unit 091 from likely periodic "spillover" of virulent pathogens from adjacent domestic or wild sheep from the mid-1990s and early 2010s.

Statewide population of Rocky Mountain bighorn is only 230 with the largest population being the Mt Moriah (North Snake Range) herd at 80. The remaining 5 herds only average an estimated 30 adults as they did last year. Management tools to recover these herds are limited. There are no vaccines available that are effective nor is there an effective way to administer it to every animal in the herd. Past predator management projects have been applied to various mountain ranges with some success in assisting the small herds to build a larger core herd.

One experiment that could be considered was that applied to the Snowstorm Mountains California bighorn herd. It is a labor-intensive and costly test and cull operation to eliminate those bighorn that are still actively shedding the primary pathogen associated with the chronic lamb mortality. We may be seeing this play out naturally in the Ruby Mountains. We have documented high lamb recruitment from 2016 -2018. This may be in part to many of the ewes that survived the 2010 die-off are aging and dying, and we may have randomly lost the 1 or 2 remaining chronic shedders die of old age. So short-term we are optimistic and hopeful for recovery, but long-term with high risk to reinfection of pathogens from adjacent domestic sheep and goats, how will a new strain of bacteria be dealt with by the immune system of adults and the always weak immune system of lambs during their first 3 months of life.

MOUNTAIN GOAT

Seven of 9 mountain goat tag holders in 2017 were successful. All tag holders continue to be encouraged to take the non-mandatory Mountain Goat Hunting Orientation on the Department's website to help hunters determine sex of mountain goats in the field. Unfortunately, 3 of the 7 (43%) harvested mountain goats were nannies, which is significantly higher than the long-term average of 20% nannies in the harvest. The average age of all harvested mountain goats was 4.7 years old.

During the Hunt Unit 101 mountain goat aerial survey in August 2017, a total of 40 adults and 14 kids were observed. This observed kid ratio is the first reason for optimism since the 2009-2010 disease event. Kid

survival has been dismal since 2009 due to the persistent circulation of *Mycoplasma ovipneumoniae* in this mountain goat herd. The average kid ratio from 2011-2017 was only 7 kids:100 adults compared to an average 30 kids:100 adults ratio from 2001 – 2009.

No formal survey was conducted in Unit 102 this year. Anecdotal winter and spring observations did note a promising level of recruitment, specifically in Lamoille Canyon. The average kid ratio for Hunt Unit 102 from 2011-2017 was 15 kids:100 adults compared to an average of 37 kids:100 adults from 2001–2009.

No formal survey was conducted in Hunt Unit 103 this year. Comparing Hunt Unit 103 kid ratios before and after the 2009-2010 disease events that occurred in Hunt Units 101 and 102, there was almost no difference with 24 kids:100 adults before and 25 kids:100 adults after.

The 2018 population estimate for all 3 herds is 310, which is the same as the 2017 estimate. The static nature of these herds is attributed to the moderate recruitment rates being coupled with the absence of multiple cohorts following the disease events and the advanced average age of the Hunt Unit 101 and Hunt Unit 102 herds. Multiple years of above average recruitment will be needed to curb the long term population decline and the limited hunting opportunities in Hunt Unit 101.

MOUNTAIN LION

Mountain lion harvest limits for the 2017-2018 season were 87 for the eastern region, 57 for the western region, and 18 for the southern region. The statewide harvest limit of 245 was not reached. Lions were removed for livestock protection, public safety and on the Nevada Department of Wildlife's projects in the eastern and western regions.

BLACK BEAR

Forty-five resident and 5 nonresident tags were issued for the 2017 black bear season; 9 male and 4 female bears were harvested. Unique harvest limits and female harvest limits were set for Areas 19, 20, and 291. Only the overall harvest limit for Area 19 (6 bears) was reached. Various bear sightings have been reported around the state, a good indicator that black bears are naturally recolonizing native black bear habitat.

WEATHER AND CLIMATE EFFECTS

This year's summary of Nevada weather and climate data was obtained from Natural Resources and Conservation Service's (NRCS) SNOTEL sites throughout northern Nevada from October 2017 through April 2018. Water basin measurements from SNOTEL sites for snow water equivalent (SWE) data (snowpack) through 18 April 2017 ranged between 45% in the Eastern Nevada to 81% in the Carson River Basin (Figure 1). Total precipitation for the water year 2018 (October–April) was well above the long-term average and generally ranged between 120% of average in Eastern Nevada to over 250% of average in the Carson River Basin (Figure 2). Unfortunately, despite the above average precipitation, many of Nevada's ranges and water sources are trending back to drought conditions due to mild winter conditions and below average snow-water equivalent for most basins. According to the U.S. Drought Monitor, as of 17 April 2018 about 84% of Nevada was "Abnormally Dry" while approximately 31% of the state was considered to have "Moderate Drought" conditions. Last year, during the same time period, drought conditions were listed as "Abnormally Dry" for about 6% of the state. Reduced moisture and lack of a sustained snowpack through summer is expected to have negative impacts for some wildlife populations.

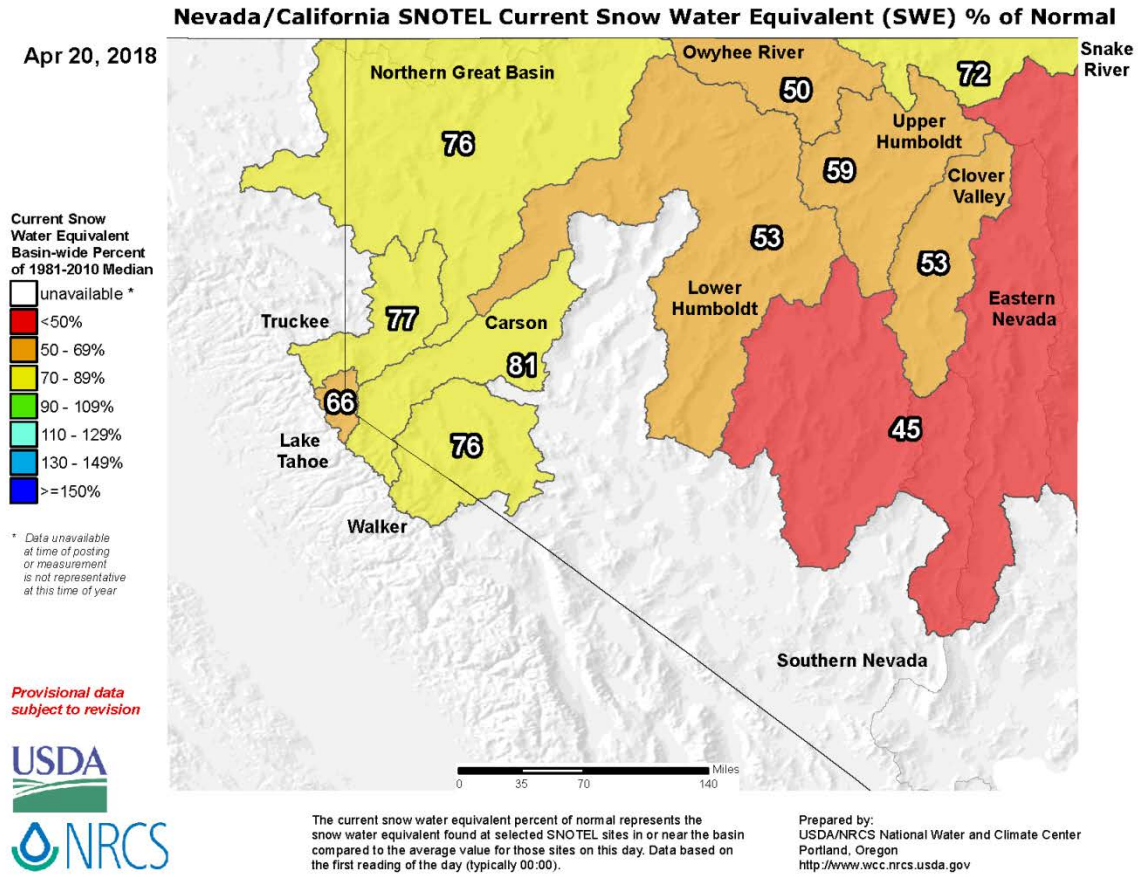
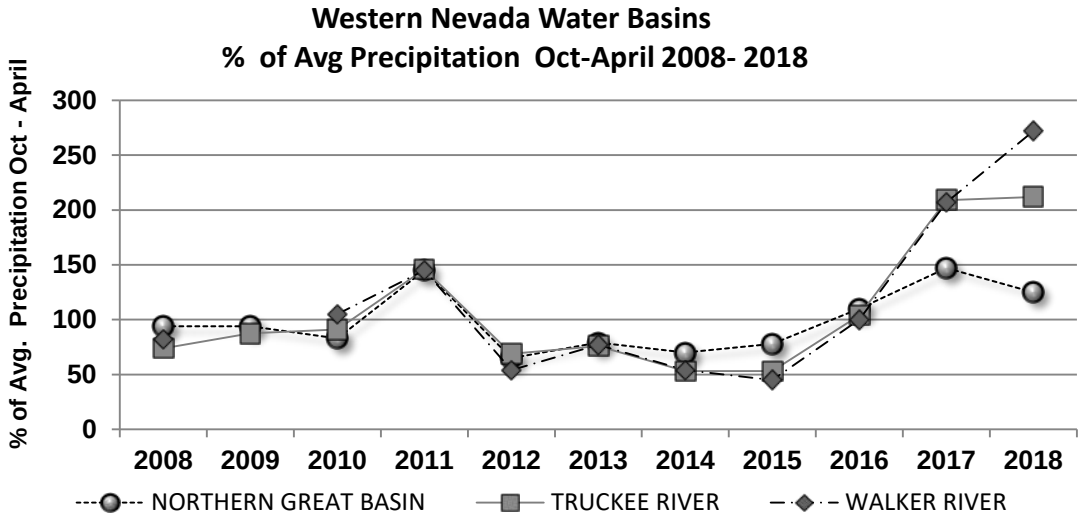
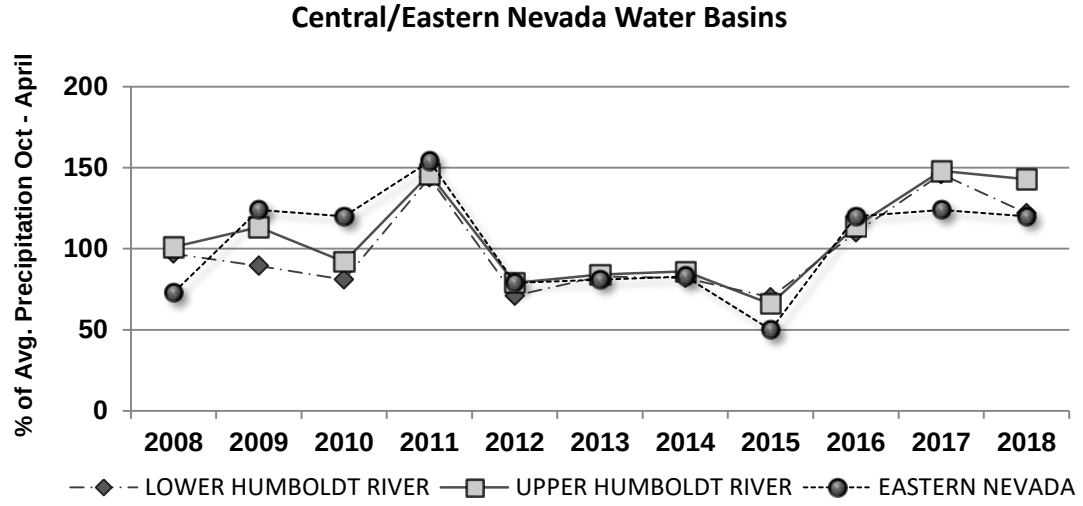


Figure 1. Percent of normal snow water equivalent (SWE) for the state of Nevada and portions of California. Data was generated on 20 April 2018 from the USDA website: http://www.wcc.nrcs.usda.gov.





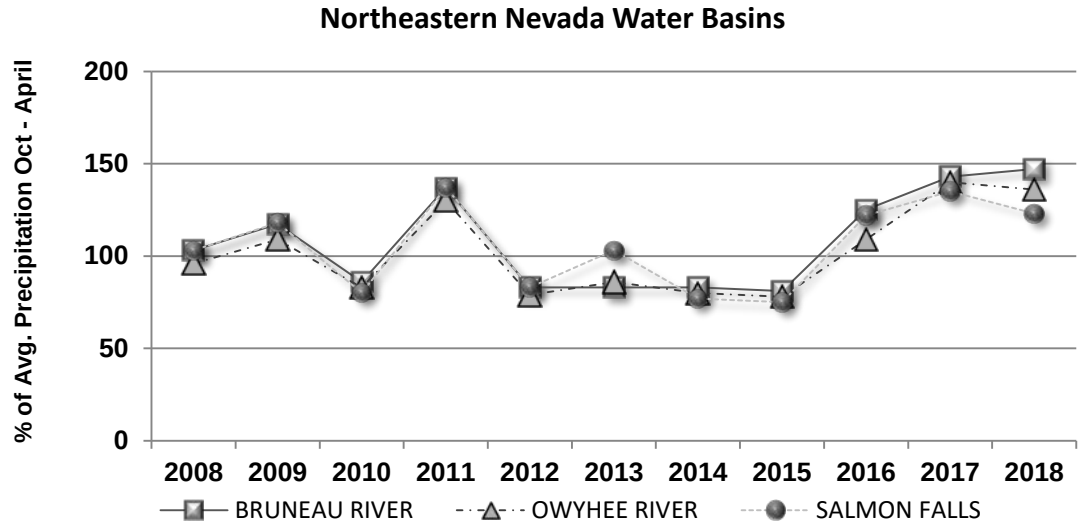


Figure 2. Trends in percent of average October – April precipitation for Nevada water basins from 2008 – 2018 (SNOTEL sites, Natural Resources Conservation Service).

BIG GAME HERD STATUS REPORTS

MULE DEER

Units 011 – 013; Northern Washoe and Western Humboldt Counties

Report by: Chris Hampson

Harvest

Hunter success rates for early season rifle hunters in the northwestern corner of the state increased by a single percentage point to 41% in 2017. The late season tag holders saw a 56% success rate down from a very high success rate of 79% in 2016. Junior hunters once again had the highest success rate at 67% and the animals harvested were made up of 77% bucks.

The 4-point or greater in the harvest category also improved 1 percentage point to 47% when compared with the previous 2016 level of 46%. This represents the highest 4-point or greater in the harvest since 2011. The lower tag quotas over the past several years influence this figure.

Survey Data

Post-season surveys were conducted in November 2017 and 353 mule deer were classified within the Hunt Unit group 011-013. The resulting composition ratio for the sample was 41 bucks:100 does:63 fawns. Both the buck and fall fawn ratios are strong figures for this unit group and show that this herd is responding to the improved habitat conditions. Despite this, the population levels remain low.

The spring mule deer surveys in Hunt Unit group 011-013 were once again flown in early March. Mule deer were scattered due to the mild winter conditions and many areas had little to no snow. A sample of 187 deer was classified on the spring survey as 51 fawns and 136 adults and resulted in a composition ratio of 38 fawns:100 adults. In 2016, the ratio was 35 fawns per 100 adults and 174 deer were classified during the spring survey.

In 2017-2018, mule deer in Hunt Unit group 011-013 were captured and fitted with telemetry collars in order to document movement patterns and important seasonal ranges. Deer were also tested for diseases and additional data was collected to assess the overall health of the deer herds. This information will be collected over the next few years and will be valuable data to help manage these deer herds into the future.

Habitat

Due to the significant moisture received during March 2018, what looked like to be a well below-average water year rebounded, and as of late March most of the basins in northwestern Nevada currently measure between just 10-40% below the average levels. The improved moisture outlook should allow for most springs, seeps and important upper elevation lakebeds to provide some water through the drier summer months. The previous 2 wet winters have helped recharge many of the springs and seeps in northwestern Nevada.

The Nevada Water Supply Outlook Report shows the northern Great Basin being just 64% of average for "snow water equivalent percent of normal" and many of the other basins in southern Washoe County are currently between 80-91% of average. In sharp contrast, these same basins were over 150% of average last year. Stream flow forecasts have also risen sharply and sit just below average as of April 1, 2018.

Population Status and Trend

Mule deer recruitment and survival increased somewhat this year due to the mild winter and better overall habitat conditions brought on by the above-average moisture received during the past few winters.

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

Harvest

Deer hunters continue to struggle hunting in the Granite Range. Success rates for the early rifle was just 24% and remains well below the long-term average. The 4-point or greater category for all weapons classes combined of just 18% was the lowest reported over the past decade. Twenty-two of the 38 deer harvested were reported as 3-pts. Only 7 bucks with 4-points or greater were harvested during the 2017 hunting season.

The late season hunters fared much better (although tag numbers are low) as success rates were reported at 73%. In 2016, the late season tag-holders had a success rate of 53%. Junior hunters during the 2017 season had a success rate of 44% and all of the young hunters reported harvesting bucks.

Survey Data

The number of deer classified during helicopter composition surveys was lower than in previous years and overall mule deer densities are low. This makes locating mule deer much more difficult during surveys.

Fall surveys classified 196 mule deer in Hunt Unit 014. The resulting ratio for the sample was 31 bucks:100 does:58 fawns. In 2016, 120 mule deer were classified with a ratio of 29 bucks:100 does:43 fawns.

The mild conditions this past winter allowed mule deer to remain high on summer ranges through most of the winter. Spring surveys in the Granite Range located mule deer between 6000-8200 feet in elevation. It is very uncommon for these deer to be this high in elevation during the late winter and early spring. Typically, the Granite Range receives sufficient snow accumulations to force the mule deer onto their lower elevations winter ranges.

Spring surveys resulted in the classification of 152 mule deer with a ratio of 41 fawns:100 adults. This is much higher than the 32 fawns:100 adults observed in 2016. The mild winter and improved habitat conditions were major factors for the increased survival of fawns this year.

Mule deer were captured and fitted with satellite collars in the Granite Range during November 2017 and January 2018. Preliminary disease testing and health assessments have also been completed. Movement data will be valuable in managing this herd into the future.

Habitat

The winter of 2017-2018 was mild with below-average snowfall and precipitation. Precipitation in March 2018 has increased moisture totals throughout much of northwestern Nevada. The water year remains below average, but the significant moisture received during March-April has helped avert an extremely dry water year.

Water availability and forage conditions should be very good this spring and summer due to the improved moisture received during the month of March. Streamflow forecasts have also improved and are now calling for near-to-slightly below average runoff this coming spring and summer.

Population Status and Trend

Mule deer populations in the Granite Range will remain low and overall deer numbers are well down from the most recent peak observed in 2012.

Continued wet winters along with good summer precipitation would help maintain mule deer in good body condition and help to provide the resources needed for mule to remain productive and allow for higher fawn survival.

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

Report by: Chris Hampson

Harvest

The hunter success rate for the late December rifle hunt in Hunt Unit 015 was 33% in 2017. This is similar to both the 3-year and long-term averages for this hunt unit. The new early muzzleloader and archery seasons, which have been moved back to the traditional season time frames, seem to be successful. Both muzzleloader tag-holders were successful and 1 of the 4 archery hunters also had success. In previous years, these 2 weapons classes hunted in December and hunter success was limited.

Overall 4-point or greater in the harvest for all weapons classes was 67%, whereas in 2016, it was 33%.

Survey Data

No fall survey was conducted this year by California biologists in either California Hunt Unit X5b, adjacent to Nevada Hunt Unit 015. Nevada biologists do not fly fall surveys in this unit since most of the interstate deer herd resides in California during the fall period.

Spring surveys were conducted by NDOW in early March 2018, and 316 mule deer were classified. The sample showed a composition ratio of 42 fawns:100 adults. Deer were not on typical winter ranges in Nevada and appeared to have only staged for the winter along the California-Nevada border. Very few deer were located further to the east on the traditional Nevada winter ranges near Burro and Twin Peaks or in areas near Buffalo Creek.

A planned mule deer capture and telemetry collaring project are planned for 2018-2020. Nevada Department of Wildlife in cooperation with California Fish and Wildlife biologists will focus efforts on both the Nevada winter ranges and on the California side of the line on mule deer transitional range. The large fires that have occurred over the past decade have destroyed important mule deer habitat in both states and no current information has been collected to document current movement patters and corridors. The new information will help biologists manage this interstate deer herd into the future.

Habitat

One wildfire burned in Hunt Unit 015 this past year in Mixie Flat and Parsnip Canyon. The fire burned through some of the best sagebrush and bitterbrush left in that area. This fire will negatively impact wintering mule deer for decades to come.

Habitat conditions should remain fairly good despite the drier winter. Water flows at springs and seeps should continue to flow through the summer. The excellent moisture received during the previous 2 winters helped to bolster water flows and provide water at upper elevation lakebeds.

Over the past several decades, mule deer habitat within Hunt Unit 015 has been affected by many fires that have occurred. The entire area is prone to cheatgrass and medusa head infestation following these fires. The lack of good quality thermal cover and adequate winter forage (sagebrush and bitterbrush) on Nevada winter ranges will be a challenge for this interstate deer herd into the future. In California, many of the upper elevations summer ranges have burned and are now predominantly cheatgrass and medusa head. The loss of the important brush species that mule deer depend upon for forage and thermal cover will limit this deer herd.

Population Status and Trend

Observed spring fawn ratios were good and will allow the interstate deer herd to grow. Recent wet winters have helped improve conditions on the ground and deer have responded with improved production and recruitment.

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

Harvest

The late season rifle hunt in Hunt Unit 021 continues to be a quality mule deer hunt with strong hunter success rates (76%) and above-average 4-point or greater in the harvest. Success rates for archery and muzzleloader are generally lower. This hunt unit is very popular with northern Nevada hunters due to its quality and close proximity to the Reno-Sparks area, which makes drawing this tag difficult.

Survey Data

No fall surveys were flown by California Fish and Wildlife this past fall or winter. In 2016, California biologists flew both California Hunt Units X6B and X7A and flew portions of Nevada Hunt Unit 021. The previous year's fall survey classified 536 mule deer and provided a composition ratio of 39 bucks:100 does:51 fawns.

The buck ratio shows that this herd has high buck ratios and harvest that occurs on both the California and Nevada sides of the line continue to provide a quality hunting opportunities.

Nevada Department of Wildlife biologists conducted a spring mule deer survey in Hunt Unit 021 and classified 450 deer with a composition ratio of 43 fawns:100 adults. The sample was good although fewer deer moved onto Nevada winter ranges with the milder winter experienced in 2017-2018.

Nine mule deer were recently fitted with satellite collars in the Petersen Mountains. Deer were captured on the eastern slopes and upper elevations of the range. The movements of these interstate deer herd will help document important habitat on Nevada winter ranges and California summer ranges, as well as showing important movement corridors between summer and winter ranges.

Habitat

A large wildfire was started in August 2017 along Highway 395 north of Doyle, California and burned eastward through the Stateline Peak area in Hunt Unit 021, continuing eastward to Cottonwood Canyon on the north end of the Virginia Mountains in Hunt Unit 022. The fire burned important winter range for mule deer, antelope, and sage-grouse on the north end of Hunt Unit 021.

This fire destroyed remnant pockets of sagebrush and bitterbrush that remained following many fires that have occurred over the past few decades. Countless fires in the Petersen, Dogskin, and Seven Lakes mountains in Hunt Unit 021 have reduced the long-term carrying capacity to support wintering mule deer. The smaller resident herd has also been affected by the loss of cover and quality browse species.

The Department, with help from its partners, aerial seeded portions of the burned area with sagebrush and other native species. The wet spring may allow for good success and the seeding effort will help restore some important brush component in the burned areas.

Population Status and Trend

The 021 interstate deer herd that summers in California and winters in Nevada has been doing well in recent years. Sufficient mule deer push over to the Nevada side of the state line to allow for a quality mule deer hunt later in the season. Hunter success rates and the 4-point or greater in the harvest are normally above the statewide averages. The hunt unit remains a popular choice for local northern Nevada hunters as well as others.

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

Harvest

Mule deer harvest was down this year as hunter success rates dropped to 36%. Cosing of a major road access point by a private landowner probably influenced hunter success. This access point was the main road used by hunters to get to the upper elevations of the Virginia Mountains where numbers of deer are located. This road closure is likely to continue. Tribal lands also reduce access from the eastern side of the hunt unit.

The 4-point or greater in the harvest category remained high despite the lower overall success. Of the deer harvested, 50% were 4-points or greater. This shows that mature bucks are available for harvest within the hunt unit. Statewide average for this category was 39% in 2017.

Youth hunters from the 2017 hunting season enjoyed a success rate of 67% and harvested 100% bucks.

Survey Data

Only a short spring flight was conducted in Hunt Unit 022. The sample obtained provided a ratio of 35 fawns:100 adults. Biologists observed mule deer to be widely scattered due to the previously mentioned wildfire as well as mild conditions experienced this past winter.

Habitat

The basins in northwestern Nevada showed increases for both snowfall and total precipitation received during March 2018. The basins closest to the Reno-Sparks area had the largest increases while other basins further to the north of Reno-Sparks received slightly less precipitation.

The precipitation received helped to push current moisture amounts to near-average levels. This will help to ensure that water flows at springs and seeps will be sufficient this coming summer. Habitat conditions have improved due to the increased moisture received during the past few winters.

Wildfires continue to seriously affect mule deer habitat surrounding the Reno-Sparks area. Many fires this past summer burned more important mule deer habitat within Area 2. Restoration efforts were undertaken in the fall and winter of 2017-2018. Sagebrush and other native species were reseeded in portions of the burned areas. Good moisture this spring may increase the survival of the seeded species and restore some of the important brush species that were lost in the fires.

Cheatgrass and other non-native weed species are a concern for the drier slopes and lower elevations of the burned areas. Some other areas are being sprayed with a pre-emergent herbicide to limit the invasion of invading annual grasses.

Population Status and Trend

Wildfires continue to limit mule deer numbers in Hunt Unit 022. Recent precipitation may benefit the deer habitat within the hunt unit.

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

Survey Data

Post season surveys for Area 3 took place over the course of 3 days in mid-November 2017. During these flights 673 deer were surveyed. Ratios obtained from these surveys were 31 bucks:100 does:55 fawns.

During early March, spring mule deer surveys were conducted over a 3 day period. Nine hundred seventy-three deer were classified. This year's survey yielded a ratio of 45 fawns:100 adults, which is similar to the previous 3 years and is in line with the 5-year average.

Habitat

Conditions for Management Area 3 have improved over the last 2 years due to increased precipitation. As of April 1, precipitation is 82% of normal. Improved moisture the last couple of years helped habitat conditions improve in areas affected by fires. Rehabilitation work on past fires continues to improve areas affected by fires as well.

Population Status and Trend

The population estimate for Management Area 3 continues to hold at a relatively constant level. Fawn and buck ratios are stable with only minor fluctuations due to winter loss. Population levels at this time are expected to remain relatively constant with existing habitat conditions. With the amount of moisture that has been received over the last 2 years, fawn production should continue favorably with no major drops.

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

Report by: Chris Hampson

Harvest

Harvest for both the early and late rifle seasons improved when compared with the 2017 seasons, with success rates for the early and late seasons reported at 56% and 70%. In 2016, success rates for the 2 seasons were 24% and 67% respectively. The 4-point or greater in the harvest remained fairly high with 40% and 57% taken during the 2 seasons; however, the lower tag quotas allocated over the past several years influence those figures.

Youth tag-holders had an excellent hunt and all 8 of the young hunters harvested bucks for a 100% success rate.

Harvest of mule deer on the Sheldon was very similar to the 2016 hunting season total. Twenty-nine bucks were harvested and the overall 4-point or greater figure for all weapons classes was measured at 45%. In 2016, 30 bucks were harvested during all hunts with 27 of them being bucks.

Survey Data

Due to the mild winter of 2017-2018, a high percentage of mule deer on the Sheldon remained on their summer ranges over the winter and were located and classified on their typical summer ranges during the spring surveys. This is unusual as many deer from the Sheldon migrate either north into Oregon or south into Hunt Unit 012 in typical winters. Other deer stay on the Sheldon and push off into lower elevation winter ranges near Virgin Creek or scatter out onto lower elevation south slopes.

Fall surveys were conducted in November 2017. One hundred twelve mule deer were located on the upper elevation summer ranges on the Sheldon. The sample provided a ratio of 33 bucks:100 does:44 fawns. The spring survey in 2018 resulted in 87 deer classified on the same summer ranges surveyed in the fall. The resulting ratio was 38 fawns:100 adults.

Habitat

Habitat conditions on the Sheldon have improved in recent years due to the improved winter precipitation. However, winter snowfall and precipitation on the Sheldon have not been sufficient to allow all lakebeds on the Sheldon summer ranges to provide reliable water through the hot summer months. This causes deer and other wildlife to move off of these upper elevation summer ranges to locate better and more reliable water sources.

Most natural springs and seeps have seen improved flows when compared with the flows observed during the long-term drought between 2007 and 2015. Many of the springs had gone dry or had reduced flows during that time.

No major wildfires occurred on the Sheldon this past summer. Sheldon personnel continue to remove juniper from around important sage-grouse habitat which can also benefit mule deer by reducing juniper encroachment into important brush communities. Juniper removal around important springs and seeps can increase flows in important water sources for all wildlife living on the Sheldon.

Population Status and Trend

Mule deer numbers remain low on the Sheldon when compared with deer numbers observed a decade or more ago. Slight improvements are noted and fawn survival and recruitment has increased in recent years. Hunter success rates seem to be slightly improving as well and the 4-point or greater in the harvest also appears to have been increasing when compared with that observed a few years ago.

Units 041, 042: Western Pershing and Southern Humboldt Counties

Report by: Kyle Neill

Harvest

This population is not modeled or surveyed. According to the Departments management objectives, this Unit Group is managed conservatively to achieve the Resident Any Legal Weapon hunt success rate of greater or equal to 45%. Last year's success rate was 35% and the 3-year average is 38%.

Habitat

Several wildfires occurred in the summer months in 2017 within the unit group. These were the Poker Brown-Trinity Fire, Truckee Fire, Toulon Fire, and the Limbo Fire. The most significant wildfire thought to affect mule deer was the Limbo Fire. This fire burned 1,883 acres in the Poito Valley. Treatments included 500 acres of drill seeding with native grasses and shrubs, installation of a temporary fence to protect seed treatments, closure to livestock grazing and treating noxious weeds.

Population Status and Trend

This herd appears stable with minimal annual change.

Units 043 – 046: Eastern Pershing and Southern Humboldt Counties

Report by: Kyle Neill

Survey Data

Post-season surveys in this unit group are scheduled for 2 consecutive years followed by 2 years when surveys are not conducted. Fall 2017 was the second consecutive year of post-season surveys. This survey was conducted during 2 days in early November 2017, and all units within the group were surveyed. About 8 hours of helicopter time was used, which produced a sample of 569 mule deer with ratios of 23 bucks:100 does:39 fawns. Both buck and fawn ratios are about 29% below their respective long-term mean values.

Spring surveys were flown for 2 days in late-March 2018. Weather was considered ideal with fresh snow down to the valley floor. All units within the group were surveyed, classifying 569 mule deer as 30 fawns:100 adults.

Habitat

Several wildfires occurred over summer 2017 in eastern Pershing County. These were Limerick, MM 155, and Grass Valley fires. The Limerick Fire burned 14,592 acres. Some recovery efforts included aerially seeding 2,700 acres with sagebrush and planting 40 acres with sagebrush seedlings. The MM 155 Fire burned 22,361 acres in the East Range. Treatments included drill seeding 4,250 acres and aerially seeding 1,500 acres with sagebrush. The Grass Valley Fire burned 10,544 acres in the southern part of the Sonoma Range. Planned treatments included aerially applying herbicide to 1,000 acres as seed bed preparation and follow-up drill seeding along with installation of a temporary fence to protect the seeding treatment. A high percentage of last year's fires occurred in habitat that was previously burned. Mule deer may benefit from these burns this spring.

Population Status and Trend

The mule deer population in Hunt Unit group 043-046 is considered to be on the decline. Declining fawn ratios from 2013 to current have been observed. Lack of older age class bucks observed on the last 2 years of fall surveys reflect fewer 4-point or greater bucks harvested in all hunts, which was 31% last year (2017 statewide average 43%) and has been in the low 30% range since 2011.

Unit 051: Santa Rosa Mountains; Eastern Humboldt County

Report by: Ed Partee

Survey Data

During mid-November, post-season helicopter surveys were conducted and 702 animals were classified. Surveys resulted in a ratio of 33 bucks:100 does:43 fawns. The buck and fawn ratios both fall within the 5-year average and are very similar to the previous year's survey.

Spring survey flights were conducted in early March this year. Conditions were cloudy and breezy but we were able to survey the entire unit in one day. During these surveys, snow conditions were lacking and deer were scattered throughout the unit. Deer were located anywhere from 5000 - 8000 feet in elevation. This type of elevational change made it very difficult to locate deer due to the amount of open ground available. Four hundred fourteen deer were surveyed. Fawn ratios are holding steady at 39 fawns:100 adults with little fawn loss through winter.

Habitat

The weather patterns this winter were much different than that experienced in 2016-2017. Despite the lack of snow, March experienced substantive precipitation. Recorded precipitation as of April was 82% of normal, which has added to the benefits of last year's above-average precipitation. One small fire occurred in some winter range in 2017. Rehabilitation efforts have taken place in this area which should speed in recovery. Range conditions in the summer have been favorable over the last few years.

Population Status and Trend

Population levels for this herd have remained relatively constant with only minor fluctuations. Winter fawn loss has been minor and fawn recruitment should be good once again, although no major increases are expected at this time. With the continued moisture, summer range conditions should sustain these herds into next winter. With the amount of current green up, it is expected that the quality of forage will lead to substantial antler growth. Available habitat remains limited and increases are not expected at this time.

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

Harvest

The percentage of bucks with 4-points or greater was 42%, slightly higher than the previous 3 years.

Survey Data

A fall helicopter survey was not conducted during the reporting period.

A spring helicopter survey was conducted in April 2018, with 3,897 deer classified as 36 fawns:100 adults. The observed fawn ratio is 34% below the 10-year average fall production value of 70 fawns:100 does. The reduced fawn ratio may be due to the substantial degradation of transitional habitat and winter range over the last decade, including the damage to 360,000 acres by wildfire last summer.

Habitat

The above average snowpack from 2 winters ago improved range conditions last summer and fall. The mild winter experience this year benefited mule deer. In July 2017, 2 of the largest fires in Nevada consumed more than 360,000 acres, much of which was mule deer transitional range and critical mule deer winter range. The Roosters Comb Fire burned remaining islands of sagebrush that were important to wintering deer in Area 6. Of 15 deer collared on the Sheep Creek Range in December 2017, 3 had died by March. Hundreds of deer wintered on the burn and were reliant on immigrant forage kochia that re-sprouted following the burn. By early December, 50% of available forage kochia within the Roosters Comb Fire perimeter may have been consumed by deer.

The dry conditions that persisted into February may have reduced post-fire rehabilitation success. Significant portions of the 2017 Black Point, Roosters Comb, and Snowstorm Fires were targeted for rehabilitation by BLM, the Department, wildlife conservation organizations, and private landowners. The success of these seedings is reliant on timely moisture. It is unknown if moisture received in late February and early March was enough to allow for successful establishment of desirable forage.

Rehabilitation from the 2016 Hot Pot Fire in the Izzenhoods was excellent, likely due to application of seed at the most appropriate time and above average moisture received the winter of 2016-2017. Sagebrush establishment appears to be good and many of the new snowstorm forage kochia plants had reached a height in excess of 4 inches by last fall.

Mining activity continues to increase throughout Management Area 6. Direct and indirect effects to mule deer migration corridors remain the highest concern with increased mining and exploration. Thirty deer were collared from various sub-herds in the vicinity of the Carlin Trend this past winter to monitor use of migration corridors in relation to changes in various mining operations. The Department is working with the BLM, Barrick, Halliburton, and Newmont to ensure adequate mule deer migration corridors are maintained. An annual meeting among all stakeholders is conducted to address potential conflicts through open dialog and information sharing.

Population Status and Trend

The population estimate for the Management Area 6 deer herd mirrors last year's estimate, primarily due to efforts to suppress population growth through antlerless harvest. Given limited available winter habitat and the accelerated degradation of winter and transitional habitat the past 2 years, management objectives will be to maintain an overall population between 8,000 and 9,000 deer. The segment of deer wintering on the west face of the Independence Mountains benefited most from the open winter and had the highest fawn to adult ratio of 41:100. Deer that winter on the Sheep Creek Ranch experience the highest fawn loss with an observed spring ratio of 23 fawns:100 adults. Many of the seeded species in the Izzenhoods were not subject to heavy grazing pressure from mule deer this past winter as most deer

remained on transition range between the Izzenhoods and North Tuscarora Range taking advantage of past successful rehabilitation efforts.

This deer herd is capable of increasing rapidly. Winter range conditions in Area 6 will dictate long-term population levels. The ability to maintain this deer herd at the current management objective is a result of successful past range restoration efforts implemented by the Elko Bureau of Land Management District Office, the Nevada Department of Wildlife, local sportsmen groups, and private landowners. The positive results that can be seen throughout Area 6 in the form of sagebrush strips and forage kochia plots are a testament to positive working relationships among all stakeholders, particularly the positive working relationship between the Department and the Elko BLM district emergency and stabilization staff.

As has been the case since 2012, female harvest is necessary to maintain the deer population within the management objectives from reduced winter range capacity. Without implementing doe hunting over the past 6 years as a means to reduce herd growth, the Management Area 6 deer herd would have likely experienced a much higher rate of fawn and adult mortality on compromised southern winter ranges.

Unit 065: Piñon Range; Southwestern Elko County

Report by: Tyler Nall

Harvest

There were 90 tags issued in 2017 across all weapon classes for both residents and nonresidents, with 52 of all tag holders successful in harvesting a deer. Of the bucks harvested, 66% were 4-points or greater, above the previous 10-year average of 62%.

Survey Data

A post season deer survey was flown in November 2017 and biologists classified 406 deer with ratios of 31 bucks:100 does:46 fawns ratio. This buck ratio is lower than expected, probably due to the lack of snow, unseasonable warm temperatures, and the lack of rut activity during the survey.

Habitat

As of March 1st, 2018, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 31–101% of the long-term average with water year-to-date precipitation totals at 53–77% of average (www.nrcs.usda.gov). The mild winter should allow for low winter mortality but range conditions this summer may be dry with less than optimal forage conditions.

The 2017 Red Springs Fire burned about 4,600 acres of mixed-mountain shrub, perennial grasses, and pinyon-juniper habitat in the Cedar Ridge area of Hunt Unit 065. The burn area comprised a mixture of both public and private land. A coordinated effort was made to reseed the area during the winter of 2017-2018 using funds from the Bureau of Land Management. The limited temporal loss of ecological function of these acres was mitigated with the application of a seed mix comprised primarily of sagebrush, perennial grasses and some forbs.

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

Population Status and Trend

This deer herd has been relatively stable over the past 5 years, ranging between 750-850 adult deer.

Units 071 – 079, 091: Northeastern Elko County
Report by: Kari Huebner

Harvest

The 2017 hunter success for both the early and late season Any Legal Weapon increased compared to 2016. Hunter success for the early hunt was up from 67% to 75%; the late hunt increased from 79% to 92% success. In 2016, the reported harvest of 4-point or greater bucks was 32% early and 54% late. This year, the reported harvest of 4-point or greater bucks was higher during the early and late seasons at 51% and 66%, respectively.

The 2017 archery success was 28% for the early season, up from 22% last year. Late season success stayed the same at 25% for 2016 and 2017.

Survey Data

Post-season aerial composition surveys were conducted in December 2017, and 5,445 mule deer sere classified yielding a ratio of 26 bucks:100 does:35 fawns. An abbreviated spring survey was conducted in April 2018 classifying 1,637 mule deer and yielding a ratio of 27 fawns:100 adults.

Habitat

An Environmental Assessment is being analyzed by the Wells Bureau of Land Management District Office for vegetation treatments within this unit group. Once the Environmental Assessment is completed, possible treatments may include removal of encroaching juniper, herbicide application where necessary, and creating fuel breaks to reduce large acreage fires. All treatments should increase the health of the sagebrush ecosystem and benefit the wildlife that depends on it. The Environmental Assessment is to be completed by the summer 2018.

The majority of the Management Area 7 deer herd winters south of Interstate 80 in the Pequop and Toano Mountains. There are 6 functional wildlife safety crossings on US Route 93 designed to facilitate movement across the highway. Four additional crossings were completed on Pequop Summit in 2017. Deer-vehicle collisions have decreased each year the crossings have been in place, making the road safer for motorists. These migration routes for deer maintain habitat connectivity.

Since 2008, 111 deer have been radio collared in a collaborative effort between Nevada Department of Wildlife, Newmont Mining Corp., and University of Nevada, Reno on the Pequop winter range. As of spring 2018, 29 collars remain active.

Population Status and Trend

Due to a combination of fires, drought conditions, and possible plant senescence, deer habitat in Management Area 7 may support lower numbers of deer than documented in past decades. The past 2 fall fawn ratios have been the lowest on record for the Area 7 deer herd.

Recent deer collaring has 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) and seasonal use patterns for the Management Area 7 deer herd. The information garnered through the collars may also help identify potential habitat projects to address limiting factors for this deer herd.

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

Survey Data

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

Habitat

The Hunt 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. The fire burned hot and left few islands of habitat unaffected. Although the area was intensely seeded the first winter following the fire, the brush community may take years to fully recover.

An environmental assessment is being analyzed by the Wells Bureau of Land Management Bureau Office for vegetation treatments within this unit group. Once the Environmental Assessment is completed, possible treatments may include removal of encroaching juniper, herbicide application where necessary, and creating fuel breaks to reduce large acreage fires. All of the treatments should increase the health of the sagebrush ecosystem and benefit the wildlife that depends on it. The environmental assessment is to be completed by fall 2017.

Population Status and Trend

This is a relatively small resident deer herd, although there is likely some migration from both Idaho and Utah. The magnitude of migration from surrounding states is dependent on weather conditions during the hunting season and timing of the hunt. In an attempt to take advantage of these later migrations, the muzzleloader and Any Legal Weapon hunts have been scheduled later than in previous years. The intended result was to take advantage of the migratory segment of the herd and reduce hunting pressure on the small resident deer populations in the area. Hunter success increased again this past year during the Any Legal Weapon season (86% success in 2017 compared to 72% success in 2016). The percentage of 4-points harvested also increased.

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

Report by: Scott Roberts

Harvest

The 2017 harvest was 771 deer (609 antlered and 162 antlerless), which represents the lowest harvest since going to the limited draw system in 1976. Tags had been reduced significantly in response to indications that the population decreased since 2015-2016, as well as a decreasing trend in the percentage of 4-points making up buck harvest. These substantive tag decreases resulted in an immediate increase in percentage of 4-points in the harvest, as well as increased hunter success.

Survey Data

A post-season composition survey was conducted in December 2017, yielding observed ratios of 38 bucks:100 does:48 fawns. A spring helicopter survey was conducted in early April 2018. During this survey, 4,401 deer were classified, yielding a ratio of 35 fawns:100 adults. This observed fawn ratio is significantly higher the previous 10-year mean of 27 fawns:100 adults, and represents a rapidly growing population.

Habitat

Both winters of 2015-2016 and 2016-2017 were marked by heavy snow coverage for extended periods. The exceptional snowpack of these 2 winters led to excellent early summer range conditions in 2017, but the lack of any meaningful summer precipitation lead to dry conditions by early fall. The winter of 2017-2018 was marked by mild temperatures and open range conditions. As of April 1, 2018, the Upper Humboldt River and Clover Valley water basins are both below average for precipitation (84-86%) and for snow pack (71-73%) (https://www.nrcs.usda.gov).

The Department continues to work on habitat projects to improve mule deer winter and transitional range by creating a more browse-dominated stage. These efforts should increase wildlife diversity and reduce the potential for catastrophic wildfires by reducing the overall fuel load. These areas represent important winter and transitional ranges for mule deer that reside in Management Area 10. The Spruce Mountain

Restoration Project is underway with about 5,000 acres of habitat treatments being completed since 2013. These treatments have been a combination of hand-thinning, mastication, chaining, weed abatement, and seeding. Up to 5,000 additional acres occurring in the vicinity of Spruce Mountain are scheduled to be treated within the next 6 years. These restoration activities have the potential to benefit deer, elk, sage-grouse, and other wildlife.

Population Status and Trend

Significant adjustments were made to the Management Area 10 deer population model in 2015 to reflect recent observations in recruitment, harvest data, survey results, and to account for the severe winter conditions which occurred during the 2016 and 2017 winters. The population estimate dropped from 18,000 in 2015 to 14,000 in 2017, and rebounded in 2018 to 15,000 in response to the high recruitment rate. The observed buck ratio observed during the post-season survey illustrates that the buck portion of this herd was underestimated last year, and when coupled with the above average fawn ratio will allow for more hunter opportunity in 2018.

Units 111 – 113: Eastern White Pine County

Report by: Kody Menghini

Harvest

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

Survey Data

A post-season survey was conducted in December 2017 when 2,402 mule deer were classified yielding sex and age ratios of 32 bucks:100 does:44 fawns. For the ninth consecutive year, spring mule deer surveys were conducted in conjunction with post-season elk surveys in early March 2018. A composition survey sample of 2,352 mule deer yielded a ratio of 30 fawns:100 adults. The previous 5-year average (2013-2017) fawn recruitment is 29 fawns:100 adults for this herd.

Habitat

The above average winter precipitation in 2016-2017, followed by timely spring rains in 2017, improved quality and quantity of habitat available for mule deer in the short-term. Conditions deteriorated during summer and fall 2017 with warm and dry conditions. Minimal green-up was available to benefit mule deer prior to winter. The National Weather Service precipitation total for the 2017 calendar-year measured at the Ely Airport was 99% of normal. The near normal conditions were a result of the above average winter and spring precipitation. The winter of 2017-2018 was dry and warm. The National Weather Service reported the 2017-2018 winter precipitation to be 73% of normal at the Ely Airport. As of March 1, the Berry Creek SNOTEL site received 50% of the long-term average (1981-2010) snowpack during winter 2017-2018. Spring storms have been on the increase in 2018 and may improve habitat conditions.

The long-term habitat potential for mule deer is slowly declining due to the encroachment of pinyon and juniper trees into mountain brush habitats, range degradation due to excessive numbers of feral horses in some areas, and subdivision and sale of private parcels in quality habitat. However, over the last decade, BLM, USFS, and the Department have been active in conducting habitat enhancement projects. Past habitat enhancement projects have included 2 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 Hunt Unit 111. In 2017, 61 acres of aspen were treated to promote aspen regeneration in Hunt Unit 113. Twelve-hundred acres on the East Schell Bench were aerially reseeded in January 2018 in attempt to increase beneficial forage production on winter range in Hunt Unit 111. Many other projects with potential benefits to mule deer are still in the planning stages.

In June 2012, the Range and North Schell fires burned about 15,000 acres on the west side of the Duck Creek Range and from the Muncy Creek drainage northward on the east side of the Schell Creek Range.

Although these fires may negatively affect mule deer in the short-term, a net positive benefit for mule deer is expected in the long-term.

Population Status and Trend

In 2017, adjustments were made to the 111-113 mule deer population model to more accurately reflect observed sex ratios, high sample sizes, and upward trends in percent 4-points in harvest. Fawn recruitment has been stable for several years. The percent 4-point or greater in the harvest has been increasing since 2012. In 2017, 34% of the bucks harvested were 4-points or greater. That is the highest percent since 1985. The current population estimate of 5,000 mule deer is virtually the same as 5,200 mule deer in 2017.

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

Report by: Kody Menghini

Harvest

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

Survey Data

A post-season survey was conducted in December 2018 when 579 mule deer were classified yielding sex and age ratios of 46 bucks:100 does:45 fawns. For the ninth consecutive year, spring mule deer surveys were conducted in conjunction with post-season elk and bighorn surveys and occurred in March 2018. A composition survey sample of 367 mule deer yielded a ratio of 29 fawns:100 adults. The previous 5-year average (2013-2017) fawn recruitment is 29 fawns:100 adults for this herd.

Habitat

Similar to Hunt Units 111-113, below average precipitation was observed in the Snake Range units. The above average winter precipitation in 2016-2017, followed by timely spring rains in 2017, improved quality and quantity of habitat available for mule deer in the short-term. Conditions deteriorated during summer and fall 2017 with warm and dry conditions. Minimal green-up was available to benefit mule deer prior to winter. As of March 1, 2018, the Silver Creek and Wheeler Peak SNOTEL sites had received 4.8" and 12.9"of precipitation, respectively, since October 1, 2017, compared to 8.4" and 21.0", respectively, in 2017 during the same time period. Spring storms have been on the increase in 2018 and may improve habitat conditions.

The long-term habitat potential for mule deer is slowly declining due to encroachment of pinyon and juniper trees 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 USFS thinned 484 acres of pinyon and juniper trees in old chainings. Great Basin National Park is developing plans to use prescribed fire to create openings in expansive areas of conifers, many of which hold the remnants of aspen stands currently being crowded out by conifers such as white fir. These actions could benefit mule deer far into the future. The Black Fire (Hunt Unit 115) burned 4,900 acres in 2013, the Hampton Fire (Hunt Unit 114) burned 12,500 acres in 2014, and the Strawberry Fire burned 4,600 acres in 2016. A second round of aerial seeding was conducted on 1,200 acres in the Strawberry Fire in March 2018. Most of these fires were at higher elevation and in dense trees. While response has varied, multiple years of above average precipitation should benefit vegetation response and benefit mule deer.

Population Status and Trend

The Snake Range continues to be plagued by cycles of drought having negative effects on the high quality vegetation mule deer need for survival and favorable fawn recruitment levels. Since 2009, about 61

mountain lions have been removed through predation management and hunter harvest. These predator removal efforts do not appear to have produced any measurable benefits to the deer population. Even with a small population, a conservative hunting strategy has maintained a robust male age structure in this herd. This area continues to produce quality mature bucks, with the 10-year (2008-2017) average percent 4-point or greater buck harvest at 47% compared to the statewide average of 41%, indicating an older age structure in the population. For 2018, the mule deer population may decrease to an estimated 1,400 mule deer.

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

Harvest

The 2017 harvest across all weapon classes of 186 deer (181 bucks, 5 does) was only slightly lower than the previous 10-year average of 192. The overall harvest of 4-point or greater bucks was 36%; noticeably higher than the previous 10-year average of 30%.

Survey Data

An aerial spring mule deer survey was conducted during March 2018 classifying 1,534 deer in Hunt Unit 121 yielding a ratio of 38 fawns:100 adults. The resulting observed ratio is the highest since 2014.

Habitat

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

As of March 1st, 2018, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 12%-63% of the long-term average with water year-to-date precipitation totals at 43%-49% of average (www.nrcs.usda.gov). The mild winter should allow for low winter mortality but range conditions in the summer will likely be dry with less than optimal forage conditions unless more favorable precipitation patterns return this spring and summer.

Population Status and Trend

The spring fawn ratio rebounded from the previous year's ratio of 33, and was slightly higher than the previous 10-year average of 35. The increase in the observed fawn ratio resulted in a slight increase of the unit's population estimate. The planned enhancement of thousands of additional acres of summer, winter, and transitional habitats could allow for noticeable population growth in coming years.

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

Harvest

The 2017 combined harvest of 342 deer is comparable to the previous 5 year average of 338. The 4-point or greater buck harvest was 51%, higher than the previous 5 year average of 43% and the 2017 statewide average of 43%.

Survey Data

In November 2017, an aerial post-season deer survey was conducted with 833 deer classified yielding a ratio of 35 bucks:100 does:53 fawns. No aerial spring surveys were conducted during this reporting period.

Weather and Habitat

As of March 2018 the Western Regional Climate Centers Blue Eagle Ranch site shows below normal precipitation for the year. For the lower elevations the last significant precipitation received was in March 2017 and no precipitation was recorded in October 2017**.** The United States Drought Monitor as of March 2018 shows all hunt units as abnormally dry with the very eastern portion of Hunt Units 131, 132, and the northern tip of Hunt Unit 133 being in a moderate drought. Soil moisture for this year is below normal and dropped from 26% to 21% saturation for eastern Nevada and from 42% to 32% in southern Nevada according to the Nevada Water Supply Outlook Report by NRCS for February 2018. The White River watershed snowpack analysis dropped from 149% to 23% of median according to the Nevada Water Supply Outlook Report by NRCS for March 2018.

Habitat for deer is being affected by conifer encroachment at upper elevations and pinyon and juniper encroachment at lower elevations. Ongoing projects by the US Forest Service have crews cutting small pinyon and juniper trees to prevent domination of brush communities and fencing riparian areas for sage-grouse that will also benefit mule deer. Increasing feral horse numbers are degrading habitat in the Mt. Hamilton and Green Springs areas where a population has established. The Centennial-Seligman mine on Mt. Hamilton may be in production again soon and exploratory drilling continues in the Green Springs area of Hunt Unit 131. Fluid or mineral development in this area may affect sage-grouse, mule deer, and elk habitat. Plans are underway this year for construction of a new guzzler in Hunt Unit 132. There are 5 wilderness areas in Hunt Unit 131, 2 in Hunt Unit 132, and 3 in Hunt Unit 133. The Basin and Range National Monument encompasses most of Hunt Unit 133 and a small portion of Hunt Unit 132, totaling 704,000 acres.

Population Status and Trend

Deer were collared again this last winter to help study migration of this herd.

The previous 5 year observed spring fawn ratio has averaged 35 fawns:100 does with last year's ratio being 39 fawns:100 does. Even though no official spring survey was conducted this year, limited over winter fawn loss is expected due to the light winter. Modeled population numbers changed due to adjustments to better reflect observed survey results, recruitment, and past severe winter events and the current population estimate is 4,700 adult mule deer. The continued below normal precipitation could have an effect on fawn recruitment and overall population numbers. Current and future habitat enhancement projects by the US Forest Service, Bureau of Land Management and the Nevada Department of Wildlife have been improving mule deer habitat in Hunt Units 131 and 132.

Units 141 – 145: Eureka and Western White Pine Counties

Report by: Clint Garrett

Harvest

The 2017 combined harvest of 395 deer was higher than the previous 5 year average of 341. The 4-point or greater buck harvest was 30%; higher than the previous 5-year average of 28% and lower than the 2017 statewide average of 43%.

Survey Data

In November 2017, a post season aerial survey was conducted with 1,592 deer classified yielding ratios of 32 bucks:100 does:52 fawns. In March 2018, an aerial spring deer survey was conducted with 1,880 deer classified yielding a ratio of 39 fawns:100 adults, which resulted in an estimated overwinter fawn loss of 8%. The 2018 spring observed fawn ratio is slightly above the previous 5 year average of 38 fawns:100 adults.

Weather and Habitat

As of March 2018 the Western Regional Climate Centers Eureka site shows below normal precipitation for the year. The United States Drought Monitor currently shows all of the units as abnormally dry with this year's soil moisture dropping to 21% saturation for eastern Nevada according to the Nevada Water Supply Outlook Report by NRCS for February 2018. Currently all monitors show a trend leading towards drier range conditions in 2018 compared to the 2017 season.

During 2017, the Cortez Range had 2 separate fires totaling just over 14,000 acres in prime mule deer and sage-grouse habitat. Rehabilitation efforts were planned by the Bureau of Land Management to aerially seed the burned area with concentrated efforts in the upper elevation pockets for the reestablishment of sagebrush. The Pinto Fire in July 2016 burned about 1,900 acres in the Diamond Range affecting sage-grouse and mule deer habitat. Rehabilitation efforts are ongoing by the Bureau of Land Management and the Nevada Department of Wildlife. In December 2017, with the help of volunteers, 2,000 serviceberry, snowberry, and bitterbrush shrubs were hand planted with more treatments planned this spring. Plans are still underway to fence and protect the Robinson Spring area on the east side of the Diamond Range. Exploration for oil, gas, and minerals continues throughout Management Area 14 and at a small scale some timing restrictions reduce effects to sage-grouse and mule deer. Mule deer habitat and corridors are being affected by mining in Hunt Units 141 and 143. Plans are underway for the construction of a big game guzzler for deer in Hunt Unit 142 this upcoming spring-summer. Even though a large number of feral horses were removed in the Cortez Range in 2015, a significant number on the range still compete for available resources. There are large concentrations of horses, above AML, around and in HMAs at the north end of the Diamonds, south end of Roberts-Kobeh Valley, Antelope Valley, and Fish Creek Valley. These concentrations are negatively affecting resources and wildlife in those areas.

Population Status and Trend

Deer were collared again this last winter throughout Management Area 14 to gain a better understanding of the seasonal movement patterns and potential effects of mining related development, pinyon-juniper encroachment, and oil and gas exploration. Modeled population numbers changed due to better reflect observed survey results, recruitment and past severe winter events. The previous 5-year average population estimate (2013-2017) is 4,050 deer, with the 2017 and 2018 estimates at 4,200 and 4,350 respectively, showing a slight increase in population. The anticipated future approval of the 3 Bars Ecosystem and Landscape Restoration Project EIS will lead to additional pinyon and juniper treatments in Hunt Unit 143 enhancing range conditions for benefit mule deer.

Units 151, 152, 154, 155: Lander and Western Eureka Counties

Report by: Jeremy Lutz

Survey Data

A post-season helicopter survey was conducted in November 2017 classifying 1,292 mule deer and yielding ratios of 33 bucks:100 does:50 fawns. The 2017 observed post-season buck ratio is slightly below the previous 5-year average of 35 bucks:100 does.

A spring aerial composition survey conducted in late February 2018 resulted in the classification of 1,501 deer yielding an observed ratio of 32 fawns:100 adults. In comparison, the 2017 spring survey resulted in an observed ratio of 31 fawns:100 adults. This year's spring survey was conducted 3 weeks earlier than usual with an extra day of survey. This extra day resulted in over 350 additional deer being classified in areas that are typically not flown including Hunt Units 154, 156 and 153. Due to overlap on winter range areas with neighboring deer populations from Management Areas 14 and 6, close to 200 deer were left out of the Area 15 sample. Large groups that contained radio marked deer from neighboring herds were avoided as well.

Habitat

Habitat in Management Area 15 responded well to 2 years of above average moisture, and according to the National Drought Monitor Index, Lander and Eureka Counties are officially out of the 2012-2015 drought. The shrub and forb community continues to look favorable with ample growth seen last summer and fall. Deer went into the winter in good shape and due to the extremely mild winter of 2017-2018 should have fared well. Daytime highs of 60-70 degrees and nighttime lows in the upper 30-40 degrees were documented for much of January and early February. Increased moisture was received in late February and continued throughout March which should have a positive effect on mule deer habitat in Management Area 15.

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

Population Status and Trend

This population has been influenced by the varying amount and timing of precipitation received in Management 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 typically result in population declines. This cycle can be moderated by keeping this population at a sustainable level at or slightly below through the use of female harvest management.

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

Report by: Joe Bennett

Harvest

2017 was the eleventh consecutive year of the Any Legal Weapon, Early-Late split season structure, mule deer hunt in Management Area 16. In 2007, the season changed from a single 23-day season to a split 16-day early-late season structure. The split season is intended to allow those sportsmen willing to deal with more hunters in the field and comparatively more difficult hunting conditions a greater chance of obtaining a deer tag, while at the same time offering another hunt later in the fall with a fewer tags and cooler temperatures for hunters willing to wait longer between deer tags.

Since the inception of the split hunt, the Management Area 16 Early Resident Any Legal Weapon season success has averaged 41%, while the Late Resident Any Legal Weapon season success has averaged 57%. During the same 10-year period, the average harvest percentage of 4-points or greater during the early and late seasons has been 32% and 53%, respectively.

Survey Data

In 2017, post-season composition surveys identified 1,061 deer, which were classified as 186 bucks, 589 does and 286 fawns. No formal post-season aerial mule deer composition surveys for Hunt Units 161-164 were conducted in 2016.

Spring aerial composition survey in 2018 yielded a sample size of 735 deer which were classified as 560 adults and 175 fawns. In comparison, 2017 yielded a sample classified as 597 adults and 192 fawns. The survey was drawn from portions of Hunt Units 161, 162, and 163 to include a well-distributed sample.

Population Status and Trend

The Management Area 16 mule deer population has remained relatively stable for much of the past decade. Regularly occurring periods of drought, excessive feral animal numbers, aging browse species, and

increasing pinyon-juniper densities have collectively managed to keep mule deer populations in central Nevada from experiencing significant growth.

In recent years, drought conditions have waned. In 2015 and 2016, central Nevada received above-average spring precipitation which allowed rangeland conditions to improve somewhat. Good spring precipitation occurred in 2017, but only 88% of the overall average. The summer and fall months of 2017 were relatively dry, possibly reducing plant vigor and nutritional quality in the summer months.

A pinyon-juniper removal project was conducted in the summer 2016 near Danville Creek in Little Fish Lake Valley. Seven hundred seventeen acres of pinyon-juniper was cut and left. The removal of these trees will allow the herbaceous understory to regenerate. A pinyon-juniper removal project is anticipated to occur in Pasco Canyon during summer 2018, which should provide benefits to wintering mule deer.

The Management Area 16 mule deer population is relatively stable or slightly increased due to fawn recruitment.

Units 171 – 173: Northwestern Nye and Southern Lander Counties

Report by: Joe Bennett

Harvest

The 2017 mule deer season represents the eleventh consecutive year of the 16-day early-late split Any Legal Weapon season in Management Area 17. The split season is intended to allow those willing to deal with more hunters in the field and comparatively more difficult hunting conditions a greater chance of obtaining a deer tag, while at the same time offering a hunt later in the fall with smaller crowds and cooler temperatures for those hunters willing to wait longer between deer tags.

Since the inception of the split hunt, the Early Resident Any Legal Weapon season success has averaged 27%, while the Late Resident Any Legal Weapon season success has averaged 39%. During the same 10-year period, the average harvest percentage of 4-points or greater during the early and late seasons has been 27% and 44%, respectively.

Survey Data

For the second consecutive year, a new, randomized aerial survey methodology was used in 2017. A post-season aerial survey was conducted in late November-Early December 2017. The post-season aerial survey yielded a sample size of 1,232 deer which were classified as 236 bucks, 651 does, and 345 fawns. In comparison, 2016 yielded a sample size of 1,018 deer which were classified as 158 bucks, 534 does, and 326 fawns.

Spring aerial composition surveys for 2018 yielded a sample size of 510 deer, which were classified as 398 adults and 112 fawns. In comparison, 2017 yielded a sample size of 743 deer, which were classified as 557 adults and 186 fawns. In 2016 and 2017, the majority of the sample came from Hunt Unit 173 on the east side of the Toiyabe Range from Carvers north to Birch Creek.

Population Status and Trend

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

In recent years, Management Are 17 has observed slightly higher fawn recruitment. The above-average precipitation (146% of average) in 2015 and above-average spring precipitation (51% of total) in 2017 improved rangeland conditions somewhat, which in turn can explain higher fawn recruitment. However, in 2017, central Nevada did not benefit from the same precipitation (88% of the 30-year average) and fawn recruitment was closer to average.

In 2018, a collaring and habitat enhancement project (pinyon-juniper removal) will be implemented on Carvers Bench in Hunt Unit 173. Two thousand three hundred acres of pinyon-juniper will be removed from the bench and 20 adult female mule deer will be collared to study their response to the removal. These data will help the Department to better understand mule deer movements, distribution, and critical use areas at a more refined scale. The habitat enhancement component will enhance winter forage conditions.

Due to slightly higher fawn recruitment, the Management Area 17 mule deer population is currently experiencing a stable to slightly-increasing trend.

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

Survey Data

Mule deer surveys were not conducted in Area 18 during the reporting period.

Habitat

In summer 2017, 2 large fires consumed thick stands of pinyon pine on the east face of the Clan Alpine Range. The Department seeded about 3,500 acres of the Tungsten Fire as well as the Draw Fire. Both fires consumed close to 28,000 acres but only a small portion of important drainages were seeded. The understory was still intact in some areas of burned pinyon pine. Mule deer will respond favorably to the new burns. These burned areas may support deer well into the future because of the improved habitat conditions.

In summer 2016, a human caused fire erupted in the lower portions of Little Den Creek. This fire consumed 3,560 acres of pinyon-juniper woodland and higher elevational sagebrush basins. The Nevada Department of Wildlife and the BLM seeded this fire in January 2017. Favorable winter precipitation should aid in the establishment of the seeded plants. This fire will be beneficial to the mule deer herd.

Over the past 3 years fire has consumed 8,900 acres of pinyon-juniper woodland within the Desatoya Mountain Range. The removal of pinyon and juniper allows for the establishment of brush and grass species. This habitat conversion will enable the deer herd to thrive in these early successional stage plant communities. These newly created foraging areas may also draw in feral horses.

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

Population Status and Trend

The Area 18 mule deer herd appears relatively stable. Winter 2017 was mild with many mule deer occupying the upper elevations and contributing to overall low winter mortality. The 2017 hunter data indicates that 34% of harvested bucks were 4-point or greater with the 10 year average being 36% 4-points or greater. The 4-point or greater data is slightly down, but is close to the 10 year average of 38%.

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

Survey Data

Post-season survey flights were flown on December 1 and resulted in the classification of 102 deer with a ratio of 24 bucks:100 does:38 fawns. The spring survey flight in early April resulted in the classification of 115 deer with a ratio of 47 fawns:100 adults. The timing of both surveys was intended to gather data on the resident herd, prior to the fall migration and post-migration in the spring.

Habitat

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

Population Status and Trend

The 2018 modeled pre-hunt population estimate is about 1,400 animals and it has been at this approximate level for several years. Mild winters combined with noteworthy spring precipitation for several consecutive years appear to have allowed the Carson Range deer herds to increase slightly. Survey and harvest data indicate this deer herd has been maintaining over the last few years, with adequate fawn recruitment rates and generally good age cohort distribution. Point-class distribution in the hunter harvest of bucks continues to favor 4-points. The Department and the University of Nevada, Reno continue to study this deer herd, providing survival rates, mortality data, and migration information.

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

Report by: Carl Lackey

Survey Data

Post-season survey flights were flown on December 1 and resulted in the classification of 383 deer with a ratio of 37 bucks:100 does:57 fawns. Spring helicopter surveys conducted in early April resulted in the classification of 633 deer with a ratio of 45 fawns:100 adults. The timing of both surveys was intended to gather data on the resident herd, prior to the fall migration and after the migration in the spring.

Habitat

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

Population Status and Trend

The 2018 modeled pre-hunt population estimate is 1,900. Mild winters combined with noteworthy spring precipitation for several consecutive years appear to have allowed this deer herd to increase slightly. Over the last few years, this deer herd has appeared healthy with adequate fawn recruitment rates and generally good age cohort distribution. With continued urban development on and near Peavine Mountain, the long-term trend in abundance is downward, mostly due to habitat loss and fragmentation. This unit remains a much desired area to hunt deer, with high success rates and good point-class distribution.

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 Hunt Unit 195 since 2002.

Habitat

The majority of 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 395, has decreased this once migratory herd to a resident herd.

Population Status and Trend

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

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

Report by: Jason Salisbury

Survey Data

Surveys were not conducted in Management Area 20 during the reporting period.

Habitat

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

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

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

Report by: Jason Salisbury

Survey data

No formal surveys were conducted in this unit group.

Population Status and Trend

The Mason and Smith Valley mule deer herds appear to be stable at this time. The Any Legal Weapon hunt can be an indicator of stability. The 2017 overall hunter success rate was 45% with 28% of the bucks reported having 4-point or greater antlers.

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

Population Status and Trend

There is no modeled population estimate for this herd. This population is believed to be stable, but has the potential to increase under favorable habitat conditions.

Population Status and Trend

California Fish and Wildlife has captured mule deer in X-12 and Area 20 for the past 2 years. The purpose of this collaring project is to look at body condition of individuals over an extended time frame. This information will be used to understand population trends.

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

Units 211, 212: Esmeralda County

Report by: Joe Bennett

Survey Data

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

Population Status and Trend

Based on annual harvest data and ground survey data, the Management Area 21 mule deer population appears to have remained stable at comparatively low levels for quite some time. Recent drought periods have reduced mule deer numbers in Esmeralda County. However, recent year's precipitation should have alleviated some of the detrimental rangeland effects caused by prior droughts. During 2017, central Nevada received 88% of the 30-year average on precipitation. Along with precipitation related effects, increasing densities of pinyon-juniper and the aging of the shrub component in the area have collectively affected the quantity and quality of available habitat in Management Area 21.

Aerial survey data gathered in adjacent hunt units indicate that fawn production and recruitment rates in this region of Nevada remain somewhat stable or slightly increasing. The same situation likely exists in Management Area 21. Currently, the Management Area 21 mule deer population is considered to be stable or slightly increasing.

Units 221 – 223: Northern Lincoln and Southern White Pine Counties

Report by: Cooper Munson

Survey Data

The post season aerial surveys were conducted in December 2017. Deer were encountered in each unit and mountain range and large groups of migratory deer were classified. One thousand four hundred and thirteen deer were classified as 306 bucks, 781 does, and 326 fawns yielding a ratio of 39 bucks:100 does:42 fawns.

Spring deer surveys were canceled due to the distribution of deer during a mild winter.

Habitat

Habitat conditions are improving throughout much of Area 22 as a result of above-average precipitation in 2015 and 2016. In 2017, some habitat conditions degraded due to competition for resources with feral horses coupled with the lack of precipitation. According to Community Environmental Monitoring Program

(CEMP) precipitation data, Lincoln and White Pine Counties received about 90% of the previous 10-year average of precipitation. The lack of persisting snowpack and early spring precipitation may decrease forage throughout much of the summer range in Management Area 22.

Multiple threats exist for mule deer throughout Management Area 22. Pinyon-juniper forest continues to expand in both elevation and density into all seasonal ranges for mule deer. Although pinyon-juniper provides thermal cover for mule deer, it reduces the understory and limits forage availability for deer. Dense pinyon-juniper stands remain undisturbed throughout large expanses in Management Area 22. Nonetheless, the Department and BLM, along with other local resource groups, are continuing projects to improve areas that have been degraded or invaded by pinyon-juniper throughout Management Area 22. Wilderness areas make the implementation of projects that would benefit mule deer challenging. A solar energy zone is being proposed in Dry Lake Valley, adjacent to several mule deer wintering areas. Feral horse numbers are excessive in some areas, leading to decreased use of those areas by mule deer.

Population Status and Trend

The area 22 deer herd appears to be stable with a population estimate similar to the 5-year average.

Unit 231: Wilson Creek Range; Northeastern Lincoln County

Report by: Cooper Munson

Survey Data

Postseason aerial surveys were conducted in December 2017 resulting in the classification of 1,323 deer. The composition of surveys resulted in a post-hunt ratio of 26 bucks:100 does:41 fawns. Many of the deer were encountered in the Wilson Mountain and Fortification mountain areas along with agricultural areas that have been developed on historical winter range that may augment winter forage.

Spring deer surveys were canceled due to the distribution of deer during a mild winter. A 3 year average of survey data is being used for spring survey data population modeling.

Habitat

Habitat conditions are moderate for most of Management Area 23 due to average precipitation during 2016 and below average in 2017 which reduced the threat of drought in the area. Minimal snowpack was observed throughout the winter which is likely to negatively influence some riparian areas and upland vegetation affected by drought in the recent past. Deer likely went into winter in moderate condition due to the lack of fall precipitation in 2017. According to CEMP, this portion of Lincoln County received 95% of the 10-year average annual precipitation during 2017. The availability of plentiful forage on private property likely helps deer in Management Area 23 to persist through the winter in better condition.

Mule deer habitat in Management Area 23 is threatened by the continued invasion of pinyon and juniper into both upper and lower elevations, as well as increasing in density in areas already invaded. Fire suppression efforts in dense pinyon-juniper forest result in continued stagnation of large expanses of degraded habitat. Multiple habitat improvement projects have been accomplished by BLM and NDOW to remove and decrease dense pinyon-juniper from thousands of acres in Hunt Unit 231. The primary focus of the projects was to develop and increase sage-grouse habitat but will benefit mule deer and other wildlife. Feral horses continue to increase the degradation of habitat and water sources. Shed antler hunter numbers have significantly decreased this year due to new regulations, which has allowed deer to winter without much of added stress. Wilderness areas created in each mountain range of Management Area 23 challenges the completion of habitat projects beneficial for mule deer in areas of degraded mule deer habitat.

Population Estimates and Trend

The Management Area 23 deer herd population has been on the rise over the last 10 years and appear to be stable and healthy. The population estimate is similar to last year.

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

Report by: Cooper Munson

Survey Data

Postseason aerial surveys were conducted in December 2017 in Hunt Units 241 and 242. The majority of the survey was conducted in the Clover and Delamar Mountains on transitional habitat and winter ranges. Four hundred seventy deer were classified and comprised 237 does, 111 bucks, and 122 fawns. This provides a survey ratio of 52 fawns:100 does:47 bucks.

No spring deer surveys were conducted in 2017.

Habitat

Habitat conditions are fair throughout most of Area 24 due to slightly above average precipitation during 2017. According to CEMP, about 89% of the previous 10-year average precipitation was received during 2017 that potentially increased the risk of drought to persist in the area. Thus far in 2018, Management Area 24 has received average amounts of precipitation that should provide for improved vegetation growth.

Although mule deer exist in all units of Management Area 24, the bulk of mule deer habitat is found in Hunt Units 241 and 242. In the Clover Mountains of Hunt Unit 242, pinyon and juniper densities are such that mule deer habitat is limited by lack of understory. The highest densities of deer are found in areas which have either burned or manipulated by habitat improvement projects. Many deer are found near private agricultural land as well. The Delamar Mountains of Hunt Unit 241 contain mule deer in somewhat lower densities, many of which are also found associated with areas that burned within the last decade. Although some large fires have burned in both of these units in the past, vast areas of dense, closed-canopy pinyon-juniper still exist in both areas. Feral horses exist in both Hunt Units 241 and 242 in high densities. These are both areas that have been declared horse-free by BLM and had the AML set at zero. A proposal for a new large powerline down through the Clover Mountains has the potential to bring increased development and traffic into that area.

Population Estimates and Trend

The 2018 population estimate is relatively stable. Portions of this population reside along the Utah-Nevada border which complicates the process of evaluating the consistent population residing in Nevada.

Units 251-253: South Central Nye County

Report by: Joe Bennett

Survey Data

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

Population Status and Trend

Management Area 25 has limited amounts of quality mule deer habitat. The greatest quantity and quality of mule deer habitat in Management Area 25 can be found in Hunt Unit 251. The majority of the mule deer population occurs in Hunt Unit 251. Due to recent drought periods, effects from feral animals, pinyon-juniper expansion, and aging of browse species, the mule deer population in Hunt Unit 251 has remained

stable at relatively low numbers for some time. The above-average precipitation in 2015 and 2016 should have helped to alleviate some of the detrimental effects on rangelands caused by recent droughts. In 2017, central Nevada received 88% of the 30–year average precipitation. The slightly below-average precipitation of 2017 should not have caused the detrimental effects observed during drought periods, but should not have produced the plant vigor of recent years.

The aerial survey data from 2016-2017 and 2017-2018 gathered in adjacent units indicate that fawn production and recruitment rates in much of central Nevada is relatively stable or slightly increasing.

Units 261 – 268: Clark and Southern Nye Counties

Report by: Pat Cummings

Survey Data

In Management Area 26, the majority of the mule deer inhabit the Spring Mountains (Hunt 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.

Habitat

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

The July 2013 Carpenter 1 Fire was ignited by lightning. The fire burned vegetation across 27,869 acres. The 43.5-square-mile fire burned within several vegetative associations along a 5,560 foot-elevation gradient. Mule deer summer and winter ranges were impacted in Trout Canyon, Lovell Canyon, Harris Springs Canyon, and Kyle Canyon.

Population Status and Trend

In April 2017, environmental conditions range from fair to good due to moisture producing storms in late 2017 and early 2018. Based on favorable mule deer harvest data in 2017 hunt seasons, and satisfactory environmental conditions, the mule deer population in Management Area 26 is stable to increasing.

Units 271, 272: Southern Lincoln and Northeastern Clark Counties

Report by: Cooper Munson

Survey Data

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

Habitat

Mule deer habitat is limited in Management Area 27. Although better mule deer habitat is found in the Virgin Mountains, it is still a low-density mule deer area. Both units are within Mojave Desert ecotypes with pinyon-juniper found at higher elevations. Water is very limited and mule deer are generally found in areas not far from water, at least during the warmer times of the year. This area experienced 93% of the 10-year average precipitation during 2017 and early 2018, which will likely result in similar habitat conditions that have been observed in recent years in Area 27.

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 monocultures of pinyon-juniper, much of which is dead. The Department and BLM are conducting habitat treatment in several areas under the Pine Nut Health Project funded in part by Habitat and Upland Game stamp funds and the Nevada Wildlife Heritage Project to increase browse and decrease the pinyon-juniper. Loss of brush 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 management area, are resident deer. The 2018 population for Area 29, estimated at 500-700 adult animals, based on buck harvest, is well below the historical levels recorded for the Pine Nut Mountains.

ANTELOPE

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

Report by: Chris Hampson

Hunt Results

The 2017 resident rifle quota for Hunt Unit 011 decreased by 10 tags compared with the 2016 quota. A more conservative approach was taken last year due to 2 consecutive tough winters and an observed reduction in the number of animals classified during last summer's aerial composition survey.

Survey Data

Aerial helicopter surveys for antelope within Hunt Unit 011 were completed in late summer and 552 antelope were classified. The resulting composition ratio for the sample was 29 bucks:100 does:38 fawns. The data collected showed that the buck ratio of 29.4 remains very close to the management post-season objective of 30 bucks per 100 does. Observed fawn ratios indicated that the herd is producing above maintenance levels.

Last year, the summer surveys were much more difficult due to antelope being scattered over wide areas. Due to excellent habitat conditions on their upper elevation summer ranges, antelope were more concentrated and remained on the critical summer ranges throughout the entire summer. The conditions allowed biologists to locate and classify animals much more efficiently during this year's survey.

Fawn ratios were slightly lower this year than what was observed the previous year. The level of recruitment observed this past year should allow for the population to experience a slightly increasing trend in 2017-2018. The tough winter experienced in 2016-2017 may have left doe antelope in poorer body condition entering into the fawning season.

Post-season buck ratios dropped from around 38 bucks per 100 does in 2016-2017 to 29 bucks this year. The current buck ratio of 29.4 bucks per 100 does was just slightly below the management objective for Hunt Unit 011 of 30 bucks per 100 does.

The percentage of yearling bucks within the overall buck sample was measured at 32% this year. In 2016, the yearling sample was measured at just 23%. This would indicate that overall survival for this year was near the long-term average but still showed a solid improvement from last year.

Habitat

Due to the significant moisture received during March 2018, precipitation is between 10-40% below the average levels. The improved moisture outlook should allow for most springs, seeps, and important upper elevation lakebeds to provide some water through the drier summer months. The previous 2 wet winters have helped recharge many of the springs and seeps in northwestern Nevada.

Critical summer ranges in Hunt Unit 011 are in better shape due to the increased moisture received and sufficient water should still be available at the upper elevations for antelope through this coming summer. Prior to 2016, these important summer ranges had gone almost completely dry for several consecutive years and antelope were forced to move off of their dry summer ranges in order to locate better resources.

Some antelope habitat has burned and or re-burned in recent years while additional habitat was burned in the Barrel Springs Fire more than a decade ago. Some of the habitat that burned a decade or more ago still does not have the important brush species coming back within the burned areas.

Population Status and Trend

Antelope populations within Hunt Unit 011 have generally declined since the drought began in 2007. The populations of antelope in this part of the state may increase with improved habitat conditions experienced recently.

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

Report by: Chris Hampson

Hunt Results

Tag quotas for this unit group increased by 20 tags in 2017 when compared with the previous year. Quotas were increased to take advantage of the increasing trend of this antelope herd.

In 2017, an antelope hunting season for doe antelope was initiated with 25 tags awarded. Fifteen hunters reported harvesting an animal for a 65% hunter success rate. Statewide average for the horns shorter than ears hunt was 74% in 2017.

Survey Data

Surveys for antelope were conducted in mid-September 2017. The surveys classified exactly 500 antelope. The resulting composition ratio was 66 bucks:100 does:46 fawns. This represents the third consecutive year of good recruitment for this antelope population and has resulted in a continued strong upward trend for this herd. In 2015 and 2016, the fawn ratios were measured at 50 and 52 fawns per 100 does, respectively.

The 2017 increase in the overall buck ratio for this population may have been influenced this year by the improved survival as the buck sample was made up of 40.5% yearling bucks.

Buck ratios have risen over the past few years due to the increased productivity of this herd. However, many of these bucks are younger aged class bucks and will be only 1 to 3 years old entering the 2018 hunting season. Over the next few years, these age classes will be observed in the population as more mature bucks will be available for harvest.

Habitat

Due to the significant moisture received during March 2018, most of the basins in northwestern Nevada currently measure between just 10-40% below the average levels. The improved moisture outlook should allow for most springs, seeps, and important upper elevation lakebeds to provide some water through the drier summer months. The previous 2 wet winters have helped recharge many of the springs and seeps in northwestern Nevada.

Upper elevation summer ranges continue to be in good shape as far as the amount of water available to antelope. Spring sources are mostly running and have decent flows despite a fairly dry summer 2017.

No major wildfires occurred within Hunt Unit group 012-014 this past year. Large wildfires such as the Lost Fire in 2012 that burned over 50,000 acres resulted in the loss of important antelope habitat in this unit group. Some of the burned areas are now just beginning to show signs of recovery as brush species slowly come back into the burned sites.

Population Status and Trend

The antelope populations within Hunt Unit group 012-014 continue to show a strong upward trend. The average recruitment of 46 fawns:100 does for this herd represents the third straight year of good

survival and growth. Harvest data also suggests that hunters are enjoying more success and densities of animals are increasing throughout the very large hunt area.

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

Hunt Results

Quotas were once again reduced in this hunt unit in 2017 as hunter success rates remained below the long-term averages. Success rates for resident rifle hunters this past hunting season showed an increase and were measured at 75%. This is the highest success rate for many years for this hunt unit and was much better than the 54% success rate observed in just 1 year ago.

The quality of buck antelope with 15-inch or longer horns was 3% below the statewide average of 27%

Survey Data

Four hundred three antelope were classified as 71 bucks, 226 does and 106 fawns and resulted in a composition ratio of 31 bucks:100 does:47 fawns. Although, antelope were fairly scattered, an adequate sample of antelope was located on the flight. In 2016, biologists classified 428 antelope and the sample provided a ratio of 29 bucks:100 does:53 fawns.

Recruitment has increased over the past few years as more moisture has been received. The improved habitat conditions have allowed antelope does to enter into the fawning season in better condition and has led to increased fawn survival.

Buck ratios showed an increase from 29 bucks per 100 does recorded in 2016 to an average buck ratio of 31 bucks per 100 does in 2017. The post-season buck ratio management objective for the hunt unit was just slightly lower at 30 bucks 100 does. This indicates that population estimates and recommended quotas were in line with current management objectives and projections.

Habitat

Habitat conditions have improved for antelope throughout much of northwestern Nevada. The increase in moisture has allowed for good quality forage and abundant water on the upper elevation critical summer ranges inhabited by antelope. Water flows to almost all of the spring has increased and lakebeds that were dry for many years during the long-term drought are now at least partially filled and many were overflowing their banks in 2017.

The winter of 2017-2018 has been well below average for total precipitation and snowfall. Very warm temperatures during the months when temperatures were normally the coldest has been the new norm. This allows antelope to spend the winter in areas higher in elevation and to spread out over wider areas. Should significant winter weather move in, antelope will move down in elevation and onto their normal lower elevation winter ranges.

A wildfire west of Buffalo Creek and Parsnip Wash drainages burned during summer 2017. The fire burned around 8,000 acres and affected both upper elevation summer and lower elevation winter range. Wildfires in this hunt unit are fairly common due to the amount of annual grasses (cheatgrass and medusa head) at the mid-to-lower elevations. This latest fire burned areas that had not burned in years or were recovering from past burns. Much habitat has been lost in this hunt unit because of the encroachment of annual grasses. The loss of the brush component on the upper elevations of these burned areas near Grass Mountain and Parsnip Wash is unfortunate as the sagebrush and bitterbrush lost in the fire was important to all wildlife living in the area.

Population Status and Trend

Three consecutive years of good recruitment reversed the downward trend of this antelope population. The improvement in overall habitat conditions has allowed for the increased production and recruitment. The Hunt Unit 015 antelope population will benefit and allow for a continued increasing trend. Hunter success rates and the quality of bucks taken should also continue moving upward as densities of antelope increase.

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

Report by: Chris Hampson

Hunt Results

Rifle hunters reported a success rate of 78% during the 2017 hunting season. This was despite a major access road being closed by the private land owner that limited access to some of the best hunting areas within the hunt unit.

Resident tags allocated to rifle hunters increased by 5 tags in 2017 and the tag quota represented the highest quota yet for this antelope herd. Antelope can now be located throughout the unit group and harvest of animals is more spread out over the entire unit group.

This hunt unit group remains one of the most sought after tags for residents to draw due to its close proximity to Reno-Sparks and the trophy quality that exists within this population of antelope.

Survey Data

Surveys within this low-density hunt unit are conducted efficiently and are completed in fairly quick fashion. Following the hunting season, antelope scatter over even wider areas due to the hunting pressure. This makes locating antelope during the post-season survey somewhat challenging.

Despite the scattered nature of this herd, 143 animals were located during the survey in Hunt Unit group 021-022 this past summer. The sample provided a composition ratio of 30 bucks:100 does:44 fawns. The herd continues to expand and densities of animals are slowly increasing within the area.

Buck ratios remain near the managed buck ratio objectives for this unit group. This would indicate that the recommended quotas and harvest levels for this herd are in line with current objectives for this population of antelope.

Habitat

Wildfires continue to affect antelope and other wildlife that live within the 021, 022 Hunt Unit group. In recent years, wildfires have been an increasing challenge to limit.

Restoration of these burned areas was undertaken in fall 2017 and will continue over the next 2 years. The Department worked with the BLM Carson District as well as others to design and implement plans to try to restore much of the burned areas.

Habitat and spring protection projects continue to be planned and constructed within the Virginia Mountains. More work is planned for the area in 2018 and additional project work is planned into the future. The large spring and riparian restoration projects completed over the past few years have shown excellent results and the areas within these large exclosures are recovering.

The projects also provided new water troughs for cattle and helped the cattle operation by providing good quality water sources for cattle to use outside of these exclosures. These cooperative restoration

projects showed the positive results from having good working relationships between landowners, cattle operators, and agency personnel and that the resulting efforts can result in very positive effect on the ground to the benefit of wildlife populations living in the area.

Population Status and Trend

The ratio of 44 fawns:100 does observed this year is considered very good recruitment for this herd and above the 2016 recruitment ratio of 40 fawns:100 does.

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

Report by: Ed Partee

Survey Data

In mid-September 2017, post-season aerial composition surveys were conducted in Management Areas 3 and 5. The survey required 5 days to complete due to breezy conditions. The 2017 survey in Management Area 5 is back in line with the 5-year average. Once again during this year's survey, group size was relatively small with animals being spread across the landscape (Table 1).

Table 1. 2017 Post-season antelope composition for Humboldt County

Hunt Unit	Total	Bucks:100 Does:Fawns
031	99	38:100:27
032-035	246	21:100:36
051	192	38:100:43
2017 Totals	**537**	**30:100:37**
2016 Totals	612	22:100:30

Habitat

Last year's above-normal precipitation had a huge effect on where animals were observed. There was quality forage and free water available throughout the entire year. Hunt Units 032 and 051 both were affected by wildfires in 2017. Fires affected winter habitat for both of these herds as well as some summer habitat for Hunt Unit 032. The precipitation this year has resulted in a much milder winter with precipitation levels at 82% of average. Winter was mild with increased moisture during March that added slightly to the snowpack which is 60% of the median. With the amount of precipitation received thus far, range conditions are already showing great signs of recovery from the last few dry years. With the late moisture received this year and well saturated ground conditions forage availability should be ideal during fawning time. Summer rains will benefit these herds throughout the remainder of the year. With current and expected habitat conditions, these populations should have a positive response.

Population Status and Trend

These units continue to show a stable trend with populations remaining the same. With the added moisture that has been experienced over the last 2 years we can expect fawn recruitment to increase. Recruitment rates in Hunt Unit 031 are still slightly depressed this year and have dropped from the long term average. The horns shorter than the ears hunts have been successful in keeping these populations from increasing and staying within the habitat capabilities. Success on buck hunts for some of these units has dropped again which may be due to the amount of free water available during last year's hunt. Group sizes were small and very well distributed throughout the range.

Unit 033: Sheldon

Report by: Chris Hampson

Hunt Results

Tag quotas for antelope on the Sheldon have remained fairly stable over the past several years. This past hunting season 35 tags were awarded to rifle hunters during both the early and late seasons. Hunter success rates for rifle hunters were 78% in the early season and 66% in the late. This is just the opposite than what was observed during the 2016 rifle season as the late season tag holders had the higher success rates last year.

The percent of buck with 15 inch horns or better was measured at 39% in the late hunt but only 19% in the early season. The statewide average for this category was 27%.

Survey Data

The 2017 antelope survey on the Sheldon resulted in 440 antelope classified with a composition ratio of 54 bucks:100 does:25 fawns. A number of important summer ranges on the Sheldon were observed to have had very low densities of antelope present.

Major summer ranges that were nearly void of antelope during the 2017 survey included the Horse Haven area, Southwest Onion Lake, and Rock Springs Table. These areas represent some of the highest density areas on the Sheldon when sufficient water is available and temperatures remain warm into the early fall. The Sheldon antelope are also known to start moving off for their winter ranges once colder night time temperatures start to occur in early-to-mid September.

The lack of antelope observed in some of the more remote areas of the Sheldon where surveys are commonly conducted (areas with generally significantly higher buck ratios) is thought to have influenced the lower buck ratio. The fawn ratio observed this year was also down from the previous year's level of 37 fawns:100 does and well below the 2015 observed ratio of 44 fawns:100 does.

Habitat

Some of the most important upper elevation lakebeds on the summer ranges of the Sheldon did not receive the necessary moisture over the winter to provide water to antelope through the summer. This lack of water caused antelope to move off of these areas and concentrate in areas where water was more readily available. It appeared that there were a few lakebeds that held water through the summer months, but the vast majority of important summer ranges were once again dry by late summer.

Due to the significant moisture received during March 2018, precipitation totals are just 10-40% below the average levels. The Sheldon remains the most drought affected area from the drought that lasted between 2007 and 2015, as many of the lake beds on critical summer ranges continue to remain completely dry.

No major wildfires were reported on the Sheldon this past summer. Sheldon personnel continue to treat and remove encroaching junipers from areas that are near sage-grouse leks and or brood rearing and nesting sites. In 2017, 5400 acres of juniper were treated and another nearly 4,900 acres were treated in recent years. Many of these cleared sites were also reseeded with native plant species.

Population Status and Trend

The lower recruitment value observed on the Sheldon will result in a slight drop in the overall population numbers on the Sheldon this year. However, 2 of the last 3 years have been average to well above average for recruitment and the net result for the 3 year period is still stable to increasing trend for this population of antelope over that time frame.

The Sheldon provides some of the best antelope hunting in Nevada and is highly sought after by Nevada's hunters.

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

Survey Data

Biologists conducted ground surveys throughout the unit group for 5 days in October 2017. The 2017 post-season buck ratio is greater than the 5-year average, while the 2017 fawn ratio mirrors the 5-year average (Table 1).

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

Year	Bucks	Does	Fawns	Total	Bucks:100 Does:Fawns
2016	97	258	115	470	38:100:45
2017	**91**	**221**	**89**	**401**	**41:100:40**
5-year average	73	202	81	357	36:100:40

Habitat

Several wildfires occurred in the summer months last year within the unit group. These were the Poker Brown-Trinity Fire, Truckee Fire, Toulon Fire and the Limbo Fire. The Poker Brown Fire burned 15,537 acres and the Trinity Fire burned 8,895 acres. These fires occurred in areas that have been previously burned. About 500 acres were drill seeded with native grasses and shrubs on the Poker Brown site while nothing was done on the Trinity site. The Truckee Fire burned 98,960 acres of mostly previously burned areas. This area only received noxious weed treatments due to the patchy burn intensity. The Toulon Fire burned 2,268 acres in the Trinity Range. Planned treatments included aerially seeding 400 acres with sagebrush, closure to grazing, and continued monitoring. The Limbo Fire burned 1,883 acres in the Poito Valley. Treatments included 500 acres of drill seeding with native grasses and shrubs, installation of a temporary fence to protect seed treatments, closure to livestock grazing and treating noxious weeds. It is thought that these fires will not negatively impact antelope and maybe be beneficial in the short term providing a rush of new growth.

Population Status and Trend

Hunt Unit 041, 042 population estimate for 2018 is 2,000 animals and is a record high estimate for this herd. Fawn ratios over the last 4 years have averaged 42 fawns:100 does, which has allowed this herd to grow at a mean rate of 5%. Furthermore, the recruitment rate indicates ample habitat resources exist to continue to promote herd growth. Doe hunts for this unit group have been designed to provide hunting opportunity while slowing growth rates.

Since 2007, hunters who harvested antelope bucks were asked to provide horn length as part of their questionnaire data. Since then, Hunt Units 041, 042 have averaged 38% of all the bucks harvested with horn lengths of 15 inches or longer. Harvest results from 2017 indicate that of the 99 bucks measured 28% of them had horn lengths of 15 inches or longer. Additionally, the 2017 statewide average was 28%.

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

Survey Data

Composition surveys were conducted from the ground over a 4 day period in mid-February 2018. This time frame remains conducive to locating antelope, which are generally on the valley floors in the winter months. All units were surveyed this year as roads were highly accessible due to a lack of winter moisture. Three hundred twenty-seven antelope were classified with a ratio of 39 bucks:100 does:41 fawns. The 2017 post-season buck ratio is below the 5-year mean (45 bucks:100 does). The observed fawn ratio is considered strong and slightly better than the 5-year average.

Habitat

Similar to western Pershing County, eastern Pershing County experienced several wildfires over the summer of 2017. These were Limerick, MM 155 and Grass Valley. The Limerick Fire burned 14,592 acres. Some recovery efforts were aerially seeding 2,700 acres with sagebrush and planting 40 acres with sagebrush seedlings. The MM 155 Fire burned 22,361 acres in the East Range. Treatments included drill seeding 4,250 acres and aerially seeding 1,500 acres with sagebrush. The Grass Valley Fire burned 10,544 acres in the southern part of the Sonoma Range. Planned treatments were aerially applying herbicide to 1,000 acres as seed bed preparation and follow-up drill seeding along with installation of a temporary fence to protect seeding treatment. These fires are not expected to impact antelope but maybe be beneficial in the short term providing new growth. This year antelope have already been observed feeding in these burned areas.

Population Status and Trend

The Hunt Unit 043-046 antelope herd continues to increase. The 2018 population estimate is 700 animals and represents an increase of about 8% over what was reported in 2017. Field observations from last year indicate that this herd is expanding into new habitat within all units.

Units 061, 062, 064, 071, 073: North Central Elko County
Report by: Matthew Jeffress

Survey Data

A ground survey was conducted in the 061-073 Hunt Unit group in January 2018. This is the first time the annual survey has been conducted outside the September-October timeframe, primarily due to the 2017 fire related emergency hunts and planned antelope translocation. A sample of 937 antelope was observed yielding ratios of 63 bucks:100 does:47 fawns. The fawn ratio was 5 points lower than last year's ratio, but considering the time of year the survey took place, a ratio of 47 fawns:100 does is indicative of population growth. The observed buck ratio is believed to be biased high given most antelope were surveyed in an area that typically sees low buck harvest, but had high horns shorter-than ears harvest during the normal and emergency hunts. Buck to doe ratios observed on the west side of Mountain City Highway were below 40:100, however only about 300 antelope were classified west of Mountain City Highway, an area that typically represents a higher proportion of the annual survey sample size.

Habitat

Large range fires burned in antelope habitat during summer 2017. About 39,000 acres of winter range was burned along the I-80 corridor in Hunt Unit 073 by 4 fires: Pole Creek, Tabor Flats, River Ranch and Oil Well. An additional 167,000 acres of winter range was burned in Hunt Units 066 and 067 by the Snowstorm and Black Point Fires. Both the Snowstorm and Black Point areas provide winter range for antelope that summer on the west side of the Independence Mountains. Also, some antelope from

Independence Valley winter on the Sheep Creek Range-Boulder Valley. That winter range was affected by the 200,000 acre Rooster's Comb Fire. The below average snowpack during 2017-2018 allowed antelope to remain on summer and transition ranges most of the winter, which likely mitigated the loss of winter range in the short term. BLM, the Department, sportsmen groups, and private landowners participated in aggressive restoration efforts this winter-early spring. Early spring storms brought much needed moisture in the form of wet snow across much of Management Area 6 in 2018. Success of the restoration is closely tied to continued moisture and appropriate range management practices.

Population Status and Trend

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

For the past several years, the Department has increased female harvest in this unit group to maintain the population within the winter range carrying capacity. In response to the loss of habitat from wildfires in 2017, the Department initiated 2 emergency hunts targeting this population. Harvest success was greater than 50% for both seasons. In addition to reducing densities through harvest, the Department also facilitated a request for antelope from 2 Native American Tribes in Washington State. In late October, 99 antelope were translocated to the Colville Confederated Tribes and another 50 were translocated to the Yakama Nation. Success of both translocation efforts appears to be high.

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

Report by: Tyler Nall

Hunt Results

The 2017 season marked the highest combined total antelope harvest on record for this unit group. Hunt Unit 065 continues to account for the majority of the take with 69% of all harvested antelope coming from the unit. However, harvest was more evenly distributed across all units in 2017 when compared to years past.

Survey Data

A ground survey was conducted in late January and early February of 2018 resulting in 487 antelope classified with age and sex ratios of 43 bucks:100 does:52 fawns. This survey represents the second largest observed sample ever obtained in this unit group and is the second consecutive year in which a large sample size was obtained. The large sample size was attributed to the relatively dry conditions, which concentrated animals and allowed for complete coverage of the unit group.

Habitat

As of March 1st, 2018, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 31%-101% of the long-term average with water year-to-date precipitation totals at 53%-77% of average (www.nrcs.usda.gov). The mild winter should have resulted in low over-winter mortality of antelope, but range conditions this summer may be dry with less than optimal forage conditions unless more favorable precipitation patterns return this spring and summer.

The 2017 Red Springs Fire burned about 4,600 acres of mixed-mountain shrub, perennial grasses, and pinion-juniper habitat in the Cedar Ridge area of Hunt Unit 065. The burn area comprised a mixture of both public and private land. A coordinated effort was made to reseed the area during the winter of 2017-2018 using funds from the Bureau of Land Management. The limited temporal loss of ecological function of these acres was mitigated with the application of a seed mix comprised primarily of sagebrush, perennial grasses and some forbs. Antelope were documented multiple times using the burn during late summer of 2017 through winter of 2018.

Population Status and Trend

The above average fawn ratio has led to an about 6% population increase over the 2017 estimate. All assessed variables (success rates, horn length and observed buck ratio) for the buck hunt in this unit group continue to be higher than the statewide averages, indicating this herd continues to provide hunters with a high quality antelope hunt.

Unit 066: Owyhee Desert; Northwestern Elko County

Report by: Matthew Jeffress

Survey Data

A 1 day helicopter survey was conducted in August over the Owyhee and YP Deserts. In addition, 2 groups of antelope observed on the Snowstorm Mountains in August were added to the survey sample. A sample of 167 antelope was obtained yielding ratios of 55 bucks:100 does:19 fawns. One hundred twenty-nine antelope were found on the Owyhee and YP Desert portions of the unit and 38 were from the Snowstorms. The Owyhee Desert typically has a low fawn ratio and again this year, that segment of the survey yielded a ratio of 16 fawns:100 does.

Habitat

Last summer, large range fires burned antelope habitat in Hunt Unit 066. About 167,000 acres of winter range and year-round habitat was burned in Hunt Units 066 and 067 by the Snowstorm and Black Point Fires. Both fires had the potential to affect year-round resident antelope in Hunt Unit 066, however the mild winter of 2017-2018 allowed antelope to use much of their year-round habitat. Restoration efforts on the Snowstorm and Black Point fires occurred much later in the season than what would be considered optimal timing, however significant moisture was not received until late February-early March 2018. The success of the restoration is tied to continued moisture and appropriate range management practices. Since 1995, 7 big game water developments have been constructed on the Hunt Unit 066 portion of the Owyhee Desert. The addition of perennial water sources has had little effect on increasing the Owyhee Desert portion of the population. Several guzzlers were upgraded or rebuilt the last 2 years. Because of the wet winter last year, many of the desert dry lakes on the central portion of the Owyhee Desert held water into August. As a result of the available free water in pit tanks, little to no measurable antelope use was documented on guzzlers last summer.

In addition to the new loss of habitat, degraded winter range along the southern and western portions of the Snowstorms limited the winter carrying capacity of this herd. Increases in mining exploration across the Snowstorm Mountains and on antelope wintering grounds south of Chimney Reservoir in Humboldt County have been observed in recent years.

The BLM has initiated, and continued to maintain, many miles of sagebrush mowings along existing roads on the Owyhee Desert. These mowings are intended to breakup fuel continuity across the core of the Owyhee Desert. In addition to stimulating growth of young palatable sagebrush plants, the BLM has recently added a forb and grass seed component to these areas. The mowings will benefit antelope over the next decade. There are opportunities to improve habitat on and around the desert dry lakes for wildlife, particularly antelope and sage-grouse. The dry lakes have patches of cheatgrass and other exotic weeds that could be controlled and replaced with desirable forage and cover.

Population Status and Trend

The current population estimate for antelope within Hunt Unit 066 is slightly lower than the 2017 published estimate. Most of the decrease can be attributed to the low observed fawn to doe ratio.

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

Survey Data

Due to mild winter conditions, no formal antelope survey was conducted in this unit group during the reporting period. Antelope were not concentrated on forge kochia seedings on the west side of the Sheep Creek Range or the mouth of Rock Creek on the east side of the Sheep Creek Range. Nor were they found in Boulder Valley. In fact, the TS Ranch did not document more than 50 antelope on their private cultivated fields. Much of the change in distribution can likely be attributed to the antelope habitat burned by range fires last summer.

Habitat

Similar to the Area 6 deer herd, antelope have been affected by wildfires and the loss of vital sagebrush communities. In 2011, 212,000 acres of rangeland burned in Hunt Units 067 and 068. Despite the challenges with range rehabilitation, the Bureau of Land Management (Elko), Newmont Gold Company, the Nevada Department of Wildlife, private landowners and wildlife conservation organizations seeded over 39,800 acres of burned private land and 52,500 acres of burned public land during the fall and winter 2011. Seed appeared to take well in many areas north of the Carlin Trend and past restoration and rehabilitation efforts along the Interstate 80 corridor benefited from proper livestock grazing practices and timely summer and fall rains.

During the summer of 2016 the Hot Pot and Izzenhood fires burned a significant portion of antelope transitional range as well as some winter habitat. As a result of these fires about 700 antelope were observed on the west flanks of the Sheep Creek Range in October last year, presumable forced to use the kochia seedings early as a result of the loss of transitional habitats. Both fires were seeded with desirable forage species during the winter of 2016-2017. Optimal soil moisture facilitated a good response from seeded forage species, including Snowstorm forage kochia. Snowstorm forage kochia is a new cultivar being seeded on big game winter range to compete with annual grasses and to provide forage and some thermal cover for wildlife.

In addition to the above listed fires, 200,000 additional acres of antelope habitat were burned by the August 2017 Rooster's Comb Fire. The Rooster's Comb Fire burned much of the Antelope Creek Drainage and the entire northern and eastern flanks of the Sheep Creek Range. The loss of habitat caused by this fire included many of the remaining sagebrush islands in Hunt Unit 068 as well as a portion of previously restored habitat. Seedings around Black Mountain, the eastern rim of the Sheep Creek Range and the Santa Renia Mountains were coming in great and had begun to function as optimal winter range and year-round habitat for dozens of species, including antelope, until they burned again in 2017. BLM, the Department, wildlife conservation organizations, and private landowners participated in aggressive restoration efforts again this winter, seeding a significant proportion of the Rooster's Comb Fire. The lack of fall and winter moisture has the potential to greatly affect the success of the restoration efforts however early spring storms brought much needed moisture in the form of wet snow across much of Hunt Unit068 in 2018.

Appropriate forage use is important to maintain the viability and production of seedings on transitional and winter ranges. Poor range conditions have existed throughout much of the southern portion of the 25 Allotment over the past 7 years. During the winters of 2015-2016 and 2016-2017, The Bureau of Land Management took steps to alleviate livestock grazing pressure along the west face of the Sheep Creek Range. During this past winter, cattle were released for public land grazing on the west face of the Sheep Creeks at the first of the year.

Population Status and Trend

The current population estimate for Hunt Units 067-068 is lower than that published in 2017 mostly due to continued targeted doe harvest during the regular horns shorter-than-ears hunts and the additional harvest realized during the fall 2017 fire related emergency horns shorter-than-ears hunts. Harvest levels in 2017 reduced the population in line with the decreased carrying capacity of the compromised winter range. The success of restoration efforts and proper grazing management will dictate the long term population objectives for this herd. Because yearling buck harvest during the horns shorter-than-ears hunt can influence post-hunt buck ratios, adjustments were made to the population model to account for such harvests, and will continue to be assessed when recommending quotas in units where female harvest is used as a tool for population level control.

Units 072, 074, 075: Northeastern Elko County

Report by: Kari Huebner

Survey Data

Ground surveys conducted in mid-August 2017 resulted in the classification of 626 antelope. The observed sex and age ratios were 44 bucks:100 does:36 fawns. The observed buck ratio was higher than the 2016 ratio of 34 bucks:100 does, while the fawn ratio was slightly lower than the 2016 observed ratio of 39 fawns:100 does. The survey in this unit group is typically conducted between the archery and rifle seasons due to the migration of antelope out of the northern end of Hunt Unit 072 and into Idaho during and after the rifle season.

Habitat

This unit group has been affected by wildfire throughout the last 10 years, with about 700,000 acres burned. On summer range, the effects of these fires have been beneficial with perennial grasses and forbs dominating the recovering burned areas. On winter range, the brush species antelope depend on for winter survival have been negatively affected, although sagebrush is beginning to recover and provide forage and cover during the critical winter months.

An environmental assessment is being analyzed by the BLM's Wells Field Office for numerous vegetation treatments within this unit group. Once the assessment is completed, possible treatments may include removal of encroaching juniper, herbicide application where necessary, and creating fuel breaks with the intent of reducing large acreage fires. All of the treatments should increase the health of the sagebrush ecosystem and benefit the wildlife that depends on it. The assessment is projected to be completed by the summer of 2018.

Population Status and Trend

A Horns Shorter Than Ears hunt was initiated in this unit group for the first time in 2015. The 2017 hunter success of 86% was higher than the statewide average of 75%.

The antelope population in this unit group is taking advantage of the natural recovery of perennial grasses and forbs as well as to extensive seeding efforts in both Nevada and Idaho in previously burned areas. Total snow accumulations during the winters of 2015-2016 and 2016-2017 were much greater than what northern Elko County had seen for some time, and the heavy, drifting snow coupled with the lack of burned off slopes likely decreased over winter survival of antelope in some areas during that period. While this past winter saw a return to more mild conditions and improved overwinter survival, the body condition of does coming out of winter last spring resulted in a somewhat depressed production rate which is reflected in the slight decrease in the population estimate for 2018.

Units 076, 077, 079, 081, 091: Northeastern Elko County
Report by: Kari Huebner

Survey Data

Ground surveys conducted in September 2017 resulted in the classification of 460 antelope. The observed sex and age ratios were 46 bucks:100 does:22 fawns. The buck ratio was the same as the 2016 ratio and the fawn ratio was slightly lower than the 2016 ratio of 25 fawns:100 does.

Habitat

Major fires affected wildlife habitat in this unit group in 2007 with about 244,000 acres burned. 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 being analyzed by the BLM's Wells Field Office for numerous vegetation treatments within this unit group. Once the assessment is completed, possible treatments may include removal of encroaching juniper, herbicide application where necessary, and creating fuel breaks with the intent of reducing large acreage fires. All of the treatments should increase the health of the sagebrush ecosystem and benefit the wildlife that depends on it. The assessment is expected to be completed by the summer of 2018.

Population Status and Trend

A Horns Shorter Than Ears hunt was initiated in this unit group for the first time in 2016. The 2017 hunter success of 80% was higher than the statewide average of 75%.

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

Units 078, 105 – 107, 121: Southeastern Elko and Central White Pine Counties
Report by: Tyler Nall

Hunt Results

The 2017 hunting season marked a record harvest for bucks, and the second highest harvest of does in this unit group. This was the third season in which Hunt Units 078 and 105-107 were included in the Horns Shorter Than Ears hunt that traditionally only included Hunt Unit 121. The recently added units accounted for roughly 15% of the Horns Shorter than Ears harvest.

Survey Data

A ground survey was conducted in December 2017 during which 781 antelope were classified yielding ratios of 50 bucks:100 does:37 fawns. Coverage of the unit group was good due to the relatively dry conditions and large samples were obtained from all hunt units in the unit group.

Habitat

As of March 1, 2018, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 12%-63% of the long-term average with water year-to-date precipitation totals at 43%-49% of average (www.nrcs.usda.gov). The mild winter should have resulted in low over-winter mortality of antelope, but range conditions in the summer may be dry with less than optimal forage conditions unless more favorable precipitation patterns return this spring and summer.

Wild horse populations continue to pose a problem in this unit group. Most of this unit grouping is made up of arid basin and range, with very limited natural water sources. The competition for these water sources can be extreme considering that according to 2017 estimates the wild horse populations in the 4 associated Herd Management Areas (HMAs) range between 329%-1,427% of the Appropriate Management Level (AML) as determined by the BLM. On a positive note, in February 2018 the BLM conducted a wild horse gather in the Triple B Complex where they gathered 1,389 horses and treated 28 mares with the contraceptive PZP. The AML for the Triple B Complex is 472-884, and the BLM estimates that after the gather there are 2,466 horses still in the complex. Following the recent gather this population is somewhat closer to AML, which should reduce competition for the limited resources in the unit group. However, continued efforts will be needed for the population to reach AML.

Population Status and Trend

The 2018 population estimate is slightly lower than that of 2017, and is likely due to the higher harvest over the past 3 years. Comparatively liberal quotas were initiated in 2015 in response to the relatively stagnant nature of this population over the past decade. This population has shown little ability to increase during the recent past and appears to have been constrained by density dependent factors. The increased quotas will continue in an effort to stimulate a population level response to this herd's chronically low fawn ratio. A very promising sign that this hunt strategy is working is that the fawn ratios observed in the past 3 years are noticeably higher than the 10-year average.

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

Report by: Scott Roberts

Hunt Results

The 2017 hunting season marked the third highest annual harvest for bucks, and represented a record harvest for this unit group. Hunting pressure was well distributed across the unit group with all units contributing between 4%-24% of the harvest. The 2017 hunting season was productive for hunters as harvest rates and reported buck size were both higher than statewide averages.

Survey Data

An abbreviated ground survey was conducted in November 2017 with some hunt units receiving very little survey time. Five hundred and nineteen animals were classified yielding sex and age ratios of 59 bucks:100 does:36 fawns. The observed buck ratio was up substantially from that obtained in 2016, and the observed fawn ratio was higher than the previous 10-year mean of 29 fawns:100 does.

Habitat

The winters of 2015-2016 and 2016-2017 were both above average in snowpack and in total precipitation. These tough winters appeared to have hampered fawn production as does were in compromised states coming out of winter. The above average precipitation led to excellent fawning and summer range habitat conditions for those does that were able to carry fawns to term.

A large portion of this unit group lies within the Triple B Complex, which is made up of the Triple B Herd Management Area (HMA), Maverick Medicine HMA, the Cherry Spring Wild Horse Territory (WHT) and the Antelope Valley HMA west of US 93. The cumulative Appropriate Management Level for all the Herd Management Areas within the complex is 472-884 wild horses. In February, 2018, a wild horse capture of the Triple B Complex was initiated by both the Ely and Elko Districts of the Bureau of Land Management. The operation was successful in removing 1,389 horses from the complex, leaving approximately 2,466 horses still on the range (www.blm.gov/programs/wild-horse-and-burro/). Forage overuse by wild horses and competition for limited water resources will continue to challenge the antelope population in this unit group.

Population Status and Trend

The current population is up slightly from the published estimate of 2017 due to some minor modifications to the population model. Buck ratios remain high and should support increased harvest in coming years. One factor that is limiting hunter opportunity is that a number of animals are not available for harvest due to private lands and hunting restrictions at the Ruby Lake National Wildlife refuge. The population trend for this unit group is relatively stable as the 10-year mean fawn ratio has been near maintenance level for recruitment.

Units 111 – 114: Eastern White Pine County

Report by: Kody Menghini

Survey Data

The 2017 post-season ground survey was conducted from November 2017 to February 2018. Thirteen days were spent conducting this survey. Group size was modest and groups were scattered. A survey of 1,461 antelope was classified and an additional 155 antelope were observed, but unclassified. This sample yielded observed sex and age ratios of 51 bucks:100 does:31 fawns. In comparison, observed ratios of 46 bucks:100 does:45 fawns were obtained in 2016. The observed fawn ratio of 31 is below the 5-year (2012-2016) mean of 35 fawns:100 does.

Habitat

The National Weather Service precipitation for the 2017 calendar year measured at the Ely Airport was 99% of normal. Spring 2017 had good amounts of precipitation, but the summer and much of the fall was dry and warm. Habitat quality deteriorated throughout the year due to the warm, dry conditions. There was little fall green-up prior to winter to benefit antelope. Winter 2016-2017 was warm and dry. The National Weather Service precipitation for winter measured at the Ely Airport was 73% of normal. Due to the mild conditions, antelope should be in comparatively good body condition at the end of winter.

Habitat projects have reduced tree cover over many acres in north Spring Valley and the north end of the Antelope Range. In 2013 and 2014, over 12,000 acres burned in 3 separate wildfires in the north end of the Schell Creek and Antelope ranges. Much of the acreage burned was in dense pinyon and juniper forests, thereby effectively increasing antelope habitat. The above-average precipitation received the last 2 years should promote positive vegetation responses. Antelope are taking advantage of these habitat improvements and landscape changes.

Planning is currently underway to rebuild several guzzlers and possibly construct new guzzlers in the near future in Antelope and Snake Valleys.

Population Status and Trend

Surveys in recent years and increasing post-season buck ratios, despite increases in buck harvest, indicate that this population has been underestimated to some degree. Adjustments were made to the

current population model to more accurately reflect observed sex ratios and other metrics. While these adjustments resulted in an increase in the published estimate between 2017 and 2018, the population is considered to be stable. The current population estimate is 1,800 adult antelope.

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

Report by: Cooper Munson

Survey Data

Ground surveys were conducted for antelope in this hunt unit during October 2017. Survey conditions were good although minimal precipitation fell during the fall season. Three hundred six antelope were classified, consisting of 59 bucks, 183 does, and 64 fawns. This provides a ratio of 32 bucks:100 does:35 fawns. Antelope were classified in Lake, South Spring, Hamlin, and Snake Valleys. Multiple groups of antelope were surveyed in densely vegetated areas not commonly observed as antelope winter range. Other high densities of antelope were observed near or on private property with agriculture production.

Habitat

Habitat conditions during the survey were good, but minimal precipitation events in late fall and early winter resulted in many depleted water resources. Overall this portion of Lincoln County experienced about 93% of the 10-year average precipitation during 2017 according to the CEMP data. Antelope were observed using many of the recent habitat enhancements and water developments. Feral horse numbers are well above AML, which results in degraded habitat conditions for antelope. Pinyon-juniper expansion into lower elevations continues to slowly reduce available habitat for antelope. Sagebrush and pinyon-juniper removal projects have been completed in Lake Valley, South Spring Valley, and Hamlin Valley for the benefit of sage-grouse which may result in improved habitat for antelope.

Population Status, and Trend

This antelope population has shown a few years of low recruitment, but appears healthy and productive. Ongoing drought conditions have limited the population growth to some extent, but habitat improvements, new water developments, and 2 years of average precipitation should promote increased antelope populations. Predator removal projects were implemented in 2016 and 2017 in an attempt to increase the recruitment of young into the population by removing coyotes in the area. The computer-generated population estimate for 2018 is consistent with the estimate from 2017, showing a slight.

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

Report by: Clint Garrett

Hunt Results

The 2017 season saw a record harvest of antelope bucks in this hunt unit group, with the majority of the harvest for both the doe and buck hunts coming from Hunt Unit 131. The percentage of bucks in the harvest with 15 inch or greater horn length fell from 37% in 2016 to 33% in 2017, but remains above the statewide average of 28%.

Survey Data

The 2017 post-season antelope ground survey was conducted for this unit group in October 2017. Four days were spent classifying 576 antelope yielding sex and age ratios of 37 bucks:100 does:35 fawns. The 2017 observed buck and fawn ratios are below those obtained during the 2016 survey when a sample of 476 antelope yielded sex and age ratios of 41 bucks:100 does:38 fawns. Surveys were conducted in

Antelope, Fish Lake, Jakes, Little Smoky and Railroad Valleys. The observed fawn ratio is above the previous 5-year-average of 27 which historically has ranged from a low of 5 to a high of 53.

Habitat and Weather

This hunt unit group lies within the central basin and range ecoregion which is typified by pinyon-juniper woodland, sagebrush valleys and basins mixed with some cool season grasses and saltbush-greasewood vegetation. As of March 2018 the Western Regional Climate Centers Blue Eagle Ranch site on the southern end of the units, and the Eureka site at the northern end of the units, both show below normal precipitation for the year. The last significant precipitation the southern portion of the units received was in March 2017 and there was no precipitation recorded in October 2017. For the northern portion of the units several good monsoonal rains in September provided water for antelope and recharged ground tanks in Little Smokey and Big Sand Springs Valleys but the tanks dried quickly and were empty before winter. The United States Drought Monitor currently shows all of the units as abnormally dry with the very eastern portion of Hunt Unit 131 being in a moderate drought. This year's soil moisture is below normal and dropped from 26% to 21% saturation for eastern Nevada according to the Nevada Water Supply Outlook Report by NRCS for February 2018. The current dry weather pattern will lead to poorer than normal range conditions for antelope unless we receive above precipitation this coming spring and summer, especially for the southern end of this hunt unit group.

Pinyon-juniper removal efforts to benefit sage-grouse, conducted by Ely BLM, took place this past year within the northern portion of Hunt Unit 131 and have increased available habitat for antelope. Feral horses in the northern portion of these units has created competition for forage and water. More pinyon-juniper projects and feral horse removal followed up with spring enhancements or guzzler construction throughout this entire hunt unit group would be beneficial to this antelope population. Seven big game water developments targeting antelope have been constructed in Antelope and Jakes Valley increasing water availability for wildlife. The Duckwater Reservation lies within Hunt Unit 164. There are 5 wilderness areas located within Hunt Unit 131.

Population Status and Trend

The modeled August population estimates over the past 5 years have ranged from 900 to 950 adult antelope with the 2018 population estimate being 950 adult antelope. This antelope herd is considered stable to increasing given current habitat conditions. This year's survey shows a slight decrease in the fawn to doe ratio however there were 100 more antelope classified in 2017 compared to 2016 and fawn recruitment is still well above average.

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

Report by: Clint Garrett

Hunt Results

The 2017 season saw the highest harvest level of bucks this hunt unit group has seen since the inception of the hunt in 1989, with the majority of the harvest coming from Hunt Unit 132. The percentage of bucks in the harvest with 15 inches or greater horn length fell to 24% compared to last year's 36%.

Survey Data

The 2017 post-season antelope ground survey was conducted for this unit group in November and December 2017. Three days were spent classifying 243 antelope yielding ratios of 54 bucks:100 does:34 fawns. The observed buck ratio is substantially higher and the observed fawn ratio is similar when compared to the 2 day post-season ground and aerial survey conducted in 2016 when a sample of 217 animals yielded ratios of 35 bucks:100 does:33 fawns. Surveys were conducted in Railroad Valley, Sand

Springs Valley, Twin Springs, Sand Springs Wash, Lunar Lake and the Rachel area. The observed fawn ratio is well above the previous 5-year average of 24 which has ranged from a low of 6 to a high of 71.

Habitat and Weather

The northern portion of this hunt unit group lies within the central basin and range ecoregion and transitions into the Mojave basin and range ecoregion on the southern end. Pinyon-juniper, sagebrush valleys and basins in the northern and central portions turn into Mohave Desert habitats with desert shrub and cactus to the south. The southern portion of this hunt unit group tends to be less productive for antelope than the northern portion due to this habitat change. As of March 2018, the Western Regional Climate Center's Hiko site at the southern end and the Blue Eagle Ranch site at the northern end of the hunt unit group both show below normal precipitation for the year. The southern portion of the units received well above normal monsoonal moisture but through most of the fall and winter the area has received little to no precipitation with the exception of January. The last significant precipitation the northern portion received was in March 2017 and no precipitation was recorded in October 2017. The United States Drought Monitor currently shows all of the hunt units as abnormally dry with the very north eastern portion of Hunt Units 132 and 133 being in a moderate drought. Soil moisture for this year is below normal and dropped from 26% to 21% saturation for Hunt Units 132 and 134 in eastern Nevada, and for Hunt Unit 133 soil moisture in southern Nevada dropped from 42% to 32% according to the Nevada Water Supply Outlook Report by NRCS for February 2018. Current conditions show this hunt unit grouping trending towards drought. The dry weather patterns will lead to poorer range conditions compared to last year with the need for precipitation this coming spring and summer to make up for the well below normal fall and winter precipitation.

Six big game water developments 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 Hunt Unit 133 and small portions of 132 and 245 totaling 704,000 acres. Also, within this hunt unit group there are 5 wilderness areas. Pinyon-juniper removal and thinning projects followed up with spring enhancements or guzzler construction throughout the entire hunt unit group would be beneficial to this antelope population.

Population Status and Trend

The modeled August population estimates over the past 5 years have ranged from 600 to 650 adult antelope with the 2018 population estimate being 600. This antelope herd is considered stable to increasing given current habitat conditions and well above average fawn recruitment.

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

Report by: Jeremy Lutz

Survey Data

Post-season antelope surveys were conducted from the ground beginning in October 2017 and finishing in February 2018. Areas surveyed included Crescent Valley, Grass Valley, Antelope Valley, Reese River Valley and the Simpson Park Mountains. There were 1,649 animals classified during a combined 4 days of survey, yielding ratios of 49 bucks:100 does:47 fawns. The previous 6-year average observed fawn ratio for this unit group is 45 fawns:100 does. Due to the mild winter of 2017-2018 antelope were widely scattered and could still be found on summer and transition habitat. Thankfully, some much needed moisture was received in February and March 2018.

Habitat

Above average precipitation during the winters of 2015-2016-2017 resulted in improved leader growth on essential key forage species for antelope. Springs and seeps that went dry during the drought are now providing water for wildlife again. The Cortez Mountains and Dry Hills are starting to show

improved habitat conditions due to 2,000 domestic horses being removed from crucial antelope winter range. It is estimated that 1,500-2,000 horses still occupy the range but with continued support for future gathers wildlife managers are hopeful the area will eventually become horse free again.

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

Population Status and Trend

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

In January 2018, 10 antelope were captured in central Eureka County and outfitted with GPS satellite collars. The Nevada Department of Wildlife partnered with Barrick Mining Company to carry out the project. All antelope were captured within a 5 mile radius of Barrick's Horse Canyon Mine. The objective of the project is to delineate seasonal antelope habitat on the east side of the Cortez Mountains as well as the north end of the Simpson Parks. Currently, Barrick is in the process of writing an EIS for a mine expansion associated with the Cortez Hills Mine. Data obtained from monitoring marked animals will help inform the EIS process, ultimately reducing negative effects to antelope in this area.

The amount and timing of precipitation will ultimately regulate this population's ability to increase and expand. The high fawn recruitment over the past several years has resulted in population growth for this herd. Female harvest should continue to be used as a method to control this population's growth at a sustainable level.

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

Report by: Joe Bennett

Survey Data

A post-season antelope composition survey was conducted in Hunt Units 161 and 162 in October 2017. The survey yielded a sample of 129 antelope, which were classified as 23 bucks, 80 does, and 26 fawns. In comparison, the 2016 survey yielded a sample of 169 antelope which were classified as 28 bucks, 110 does, and 31 fawns. Although the majority of animals observed during these surveys reside primarily in Hunt Units 161 and 162, movement of antelope between these and adjacent units is known to occur. The ingress (movement in) and egress (movement out) of antelope among units is reflected in population modeling and the quota setting processes.

Habitat

In 2017, according to Community Environmental Monitoring and Planning (CEMP) precipitation data, central Nevada received 88% of the 30-year average. Spring precipitation (March, April, and May) resulted in 23% of 2017's precipitation accumulation. The 1 SNOTEL site located in central Nevada

measured snowpack levels at 88% in March of 2017. Above-average spring precipitation in 2015 and 2016 provided much-needed reprieve and helped to reverse drought effects in recent years. Higher forage vigor plausibly resulted during 2015 and 2016 in response to above-average spring precipitation. This increase in the quantity and quality of forage growth is critical during the fawning period. Female antelope require forage with higher nutritional value during the fawning period because of the added energy expenditures that are necessary to raise young. Summer monsoonal precipitation was extremely limited in 2017 (25% of the total) with no precipitation falling during June. Lack of monsoonal precipitation during the summer months would have caused plants to decline in forage quality earlier in the growing season. Not only are grasses and forbs important forage for adult animals, but fawns also depend on these plants to provide cover for protection from predators.2018 January and February should have been able to carry good forage conditions through the spring months

The completion of 3 water developments during 2012 in the southern portion of Hunt Unit 162 has benefited antelope that have been affected by the degradation of natural spring sources by feral animals and drought. An increase in antelope near agricultural areas has occurred over the past several years, and if drought conditions re-occur this trend is expected to continue.

A pinyon-juniper removal project that was conducted in the summer 2016 near Danville Creek in Little Fish Lake Valley is still providing additive benefits. Recent observation data suggests that antelope in Little Fish Lake Valley are using these areas more frequently. Seven hundred seventeen acres of pinyon-juniper was treated in response to encroachment into the valley. 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. Upcoming pinyon-juniper removal projects in Pasco Canyon should benefit antelope in Monitor Valley.

Population Status and Trend

Although the 161-162 antelope population experienced a slight increase in production and recruitment rates during 2015, 2016, and 2017, observed fawn:100 doe ratios remain below-average. The overall herd is showing a slightly increasing trend

Units 171 – 173: Northwestern Nye and Southern Lander Counties

Report by: Joe Bennett

Survey Data

A post-season antelope composition survey was conducted in Hunt Units 171-173 in November 2017. The survey yielded a sample of 196 antelope, which were classified as 25 bucks, 131 does, and 40 fawns. In comparison, 2016 survey yielded a sample of 128 antelope which were classified as 20 bucks, 84 does, and 24 fawns.

Habitat

In 2017, according to Community Environmental Monitoring and planning precipitation data, central Nevada received 88% of the 30-year average. In the early part of 2018, much-needed precipitation receipts have been received. The 1 SNOTEL site located in central Nevada measured snowpack levels at over 88% in March 2018. Spring precipitation produces nutritious forage for does approaching the critical fawning period allowing them to enter in better body condition. Not only does increased spring precipitation produce better quality and quantity of forage for adults, it provides necessary grasses and browse species which fawns use for hiding cover to avoid predators.

Population Status and Trend

During 2012 and 2013, the Management Area 17 antelope population experienced suppressed production and recruitment due to drought. However, production unexpectedly rebounded from 2014

to present. This increase in production for 2014-2017 has altered the trajectory of this antelope population and it is now slightly increasing. The above average spring precipitation during 2015 and 2016 and average spring precipitation in 2017 resulted in some degree of rangeland improvements in Management Area 17. This is having a positive response at the population level.

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

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

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

Report by: Jason Salisbury

Survey Data

Ground surveys were conducted for antelope in Management Area 18 during the fall of 2017. There were 427 antelope classified as 86 bucks, 217 does, and 124 fawns yielding sex and age ratios of 40 bucks:100 does:57 fawns.

Habitat

Habitat conditions improved in 2017 with adequate spring and summer moisture. The winter of 2017-2018 was extremely dry but contained enough moisture to foster an early green-up of grasses. The mild winter may have contributed to lower winter mortality for the Area 18 antelope herd. Increased moisture during the spring of 2018 should result in good range conditions for antelope.

In summer 2017, 2 large fires consumed thick stands of pinyon pine on the east face of the Clan Alpine Range. The Nevada Department of Wildlife seeded approximately 3,500 acres of the Tungsten Fire. The Draw Fire was seeded by the Department and BLM. Both fires burned close to 28,000 acres, but only a small portion of important drainages were seeded. The understory is still intact in some areas of pinyon pine that burned. These areas will respond quite well to the new burns. These newly burned areas should improve habitat for antelope well into the future.

Two new water developments were constructed in Hunt Unit 181 last year near Diamond Jack Wash and Dixie Valley.

Population Status and Trend

In 2017, the Area 18 herd experienced the first horns shorter-than-ears hunt. Twenty tags were issued and 17 hunters reported being successful for an 85% success rate.

This is the third year in a row where consistently higher fawn ratios have been observed. This will allow for positive growth trends. Hunter success for the general rifle hunt was 85% and is well above the statewide average of 76%.

Units 202, 204: Lyon and Mineral Counties

Report by: Jason Salisbury

Survey

Post-season composition surveys occurred in early February 2018 and resulted in 26 antelope being classified. The resulting sex and age ratios for the sample were 40 bucks:100 does:33 fawns.

Habitat

In 2017, the Nine Mile Ranch property was turned over to Nevada State Parks. A future recommendation for the Rough Creek meadows would be to improve fence designs surrounding the property to allow for access to the meadows.

Two water developments located near the Baldwin Canyon area will be upgraded in the near future. A new pipe rail fence, gutter, and drinker will be installed to allow for use by antelope. Previous barbwire fence designs have excluded antelope from using these water sources.

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

Future projects that remove pinyon and juniper will allow for some expansion. Creating corridors between California and Nevada will enable the herd to migrate easier from summer range to winter range.

Population Status and Trend

The 2017 fawn ratio should allow for a stable population trend. Consecutive years of low fawn production have reduced the herd down to slightly more than 100 animals.

Units 203, 291: Lyon, Douglas Counties

Report by: Jason Salisbury

Survey Data

A post-season ground survey was conducted in September 2017 for Hunt Unit group 203, 291. A sample of 42 antelope was obtained providing a composition ratio of 36 bucks:100 does:55 fawns.

Habitat

Feral horses within the Pine Nut HMA are increasing and will have a negative effect on the antelope population.

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

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

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

Population Status and Trend

This population of antelope has remained stable with low fawn ratios in recent years. Because of these lower fawn ratios, a coyote removal project was initiated in 2017 during peak antelope fawning. The removal of coyotes should help facilitate increased fawn survival for these unit groups. The 2017 fawn

ratio is well above the previous 5-year average and may have been influenced by the coyote control project which will continue into the 2018 calendar year.

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

Survey Data

Post-season herd composition surveys were conducted from the ground in fall 2017. A sample of 96 antelope was observed yielding a ratio of 42 bucks:100 does:36 fawns.

Habitat

Mineral County has been experiencing a prolonged drought period. Many water developments in Hunt Unit 207 went dry in late summer and early fall last year. Normal monsoonal moisture patterns have been absent for the last 2 years. The lack of summer thunderstorms and precipitation during late fall and early winter left the range in less than desirable conditions. As of this report, increased precipitation in March has helped.

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

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

Population Status and Trend

This population estimate for this herd of antelope has remained stable for the last 4 years.

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

Survey Data

A post-season antelope composition survey was conducted in Hunt Units 211-213 in October 2017. The survey yielded a sample of 51 antelope, which were classified as 7 bucks, 32 does, and 12 fawns. In comparison, 2016 yielded a sample of 42 antelope classified as 8 bucks, 24 does and 10 fawns. Observed fawn ratios indicate the herd experienced above-average production in 2016 and 2017.

Habitat

Much of Management Area 21 falls within the transition zone between the Great Basin and the Mohave Desert. As a result, the quality of antelope habitat throughout the area varies widely. During periods of favorable climatic conditions, antelope tend to expand the areas they inhabit in Management Area 21, while during dry periods, these areas contract. Drought years within the last decade, coupled with competition from feral animals in many areas, continue to affect habitat conditions throughout Management Area 21. Recent years' above-average precipitation (2015 and 2016) should have resulted in some degree of rangeland improvements in Management Area 21. In 2017, central Nevada has experienced slightly below-average precipitation receipts (88% of average) which plausibly caused rangeland conditions to slightly regress from the previous 2 years.

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-Mohave transition zone in Esmeralda County in greater numbers than had previously been observed. While many animals continue to move in and out of the area based on season and prevailing climatic conditions, more and more animals have become permanent residents of the county. The majority of the Esmeralda County antelope population is made up of 2 core herds. One herd currently resides in and around the Monte Cristo Range in northern Esmeralda County, while the other typically inhabit the region near, and between, the towns of Goldfield and Silver Peak, Nevada, in east-central Esmeralda County. Antelope also occur, in smaller numbers, throughout many other areas of the county.

Currently, due to favorable production rates observed in 2016 and 2017, the Management Area 21 antelope herd is considered stable to slightly increasing.

Units 221 – 223, 241: Lincoln and Southern White Pine Counties

Report by: Cooper Munson

Survey Data

Ground surveys were conducted for antelope during October 2017. Three hundred thirty-nine antelope were classified as 83 bucks, 186 does, and 70 fawns, which results in a ratio of 45 bucks:100 does:38 fawns. Antelope were classified in Delamar, Dry Lake, Cave, Lake, South Spring, and Steptoe Valleys. About 100 antelope were classified near the boundary of Management Area 22 and 11. This may be attributed to seasonal habitat use due to weather conditions. Overall the survey resulted in the classification of a larger sample size, which may be attributed to the limited water resources. Antelope were observed using guzzlers, livestock waters, and natural water resources throughout the area, but many were being rapidly depleted.

Habitat

Habitat conditions appeared to be good during the survey due to precipitation events during the summer. Late fall and early winter precipitation was minimal resulting in nominal recharge of guzzlers and natural water resources. Antelope seem to use recently completed habitat enhancement projects in Cave Valley, which were initiated for the benefit of sage-grouse. Newer water developments in Delamar Valley have allowed for expanded use of habitat in that area. Feral horse numbers continue to be above AML in some parts of this hunt unit and are rapidly expanding across the range. A solar energy zone is being designated in Dry Lake Valley that will be a major threat to antelope habitat in that area which consists of 24,000 acres slated for development. Pinyon-juniper expansion into the lower elevations continues to reduce habitat quality and quantity for antelope. Habitat improvement projects have been initiated in south Steptoe Valley and northern portions of Cave valley to remove and reduce pinyon-juniper and provide sufficient habitat for wildlife.

Population Status and Trend

Although this population has seen low fawn recruitment over the past few years, it seems to be doing reasonably well despite recent drought conditions. Habitat improvements and water developments are contributing to allow antelope to use increased areas throughout the area. The population estimate for 2018 is similar to the 2017 estimate of 400 individuals and consistent with a 5-year average.

Unit 251: Central Nye County
Report by: Joe Bennett

Survey Data

A post-season antelope composition survey was conducted in Hunt Unit 251 during September 2017. The survey yielded a sample of 128 antelope, which were classified as 33 bucks, 71 does, and 24 fawns. In comparison, 2016 yielded a sample of 219 antelope which were classified as 48 bucks, 134 does, and 37 fawns.

Habitat

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

Prior to 2015 and 2016, central Nevada experienced a long, extensive drought period. The increased spring moisture that occurred in 2015 and 2016 have provided a much-needed reprieve for rangeland conditions and water source recharge. Precipitation in 2015 and 2016 would plausibly have increased forage vigor and allow antelope to go into the fawning and winter seasons in better condition. In 2017, central Nevada received below-average precipitation (88% of average) with minimal monsoonal precipitation. Central Nevada did not receive optimal precipitation when does are in highest need of highly nutritional forage.

Population Status and Trend

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

ROCKY MOUNTAIN ELK

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

Survey Data

Post-season helicopter surveys were conducted near the end of January and March 2018. Thirty-eight elk were classified this year, down from last year's survey of 143. This is the fifth year of classification surveys in Hunt Unit 051. During the survey effort in January, only 21 animals were located due to the poor winter conditions. During the second survey in March, an additional 17 elk were observed. The combined effort of both surveys yielded 9 bulls compared to 73 bulls classified in 2017. The ratio from this year's survey was 53 bulls:100 cows:71 calves. The bull ratio is close to last year's statewide average, while the calf ratio remains elevated. These results should be interpreted cautiously due to the small number of elk encountered on survey. Areas surveyed included the Osgood Mountains, Hot Springs Range, and the Santa Rosa Range.

Habitat

Habitat conditions are excellent in this unit. The upper elevations in Hunt Unit 051 have a tremendous amount of forage that has sustained this herd through most of the year. This winter was much milder with less snow throughout the range. Despite the lack of early snowfall, precipitation levels were 83% of average as of April 1, 2018. The upper elevations of the Santa Rosa Mountains have been ideal for elk, providing quality forage that should result in favorable body conditions for calving and antler growth. This herd should remain stable to increasing in 2018 due to plentiful spring moisture and its influence on forage

Population Status and Trend

The population estimate for Hunt Unit 051 has dropped to 130 animals. This is a relatively new herd established by pioneering elk from neighboring areas. The lack of snow accumulations this year did not result in immigration of elk, as was documented in 2016-17. Snow accumulations experienced during the winter of 2016-2017 not only pushed elk from adjacent areas into Hunt Unit 051, but also pushed the resident elk out of the higher elevations of the Santa Rosa Range to areas where they were more visible. This is the third year of a telemetry project using radio-collars to monitor movement and use patterns of elk in Hunt Unit 051. The telemetry project coupled with annual surveys allows Nevada Department of Wildlife biologists to document herd growth and contraction. This population is expected to see fluctuations in numbers depending on annual winter conditions. The objective is to maintain this herd below 200 animals.

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

Hunt Results

Rifle hunts for antlerless elk in September continue to have higher hunter success than past October hunts. Further, the success of spike-only hunts was better than expected. In previous years, the majority of harvest occurring during the antlerless elk management hunts in Management Area 7 occurred in Hunt Unit 071. To direct hunter effort to the core units of Management Area 7, Hunt Unit 071 was removed from all antlerless elk management hunts during the 2017 season.

Survey Data

Two-thousand three-hundred and forty-seven elk were classified during an aerial survey in February 2018. The sex and age ratios of the sample were 28 bulls:100 cows:44 calves. The observed calf ratio was slightly below the 10-yr average, while the bull ratio was 10 points lower than the 10-yr average. A group

of 850 elk was classified on the far northern boundary of the Duck Valley Reservation in Idaho, north of Hunt Unit 061 and the Diamond A Desert in Idaho was not surveyed.

Habitat

Below average snowfall this past winter allowed elk to disperse across much of their available habitat. Elk were found throughout Hunt Unit 071, including the north and west sides of Copper Mountain as well as Haystack Mountain and Cornwall Basin. In 2017, the Nevada Department of Wildlife, Elko Bighorns Unlimited, and Nevada Bighorns Unlimited-Reno funded a vegetation monitoring effort to evaluate impacts by elk in the Bruneau Watershed. The final report will be available summer 2018 and will help guide future management of the Bruneau elk herd.

Population Status and Trend

Elk west of the Bruneau River exhibited a lower calf ratio than those between the Bruneau and Jarbidge Rivers. This portion of the Bruneau elk herd has experienced low harvest during the previous 10 years and the low calf ratio may be due to density dependent factors. The zone where the Duck Valley Indian Reservation, Idaho, and Nevada converge provides several hundred thousand acres of prime summer, fall, and winter habitat and provides a refuge for elk during the hunting season in Nevada. Survey data, as well as on-going collection of telemetry data, indicate many elk use portions of Duck Valley and Idaho throughout the calendar year, rarely moving into Nevada.

A telemetry project initiated in 2016 to monitor elk using the Diamond A Desert found about 50% of the elk with radio-collars migrated to Hunt Unit 072 during late spring, summer, and early fall. This movement likely explains lower hunter success and antler length for harvested elk in Hunt Units 061, 071 when compared to statewide averages. When attempting to restrict herd growth from 2011-2015, harvest recommendations assumed that all elk observed in the Bruneau Drainage during winter surveys were available for harvest during the subsequent fall. Additional radio-collars deployed on elk in the Diamond A Desert in February 2017 indicate a portion of elk wintering on the Diamond A Desert continue to seek refuge in the Jarbidge Wilderness during the summer and fall. The large numbers of elk moving into Hunt Unit 072 may be due to increased harvest pressure on the Bruneau herd coupled with increasing road densities in the Bruneau drainage. Increased off-road activity beginning in the early 2000s coinciding with the growth in popularity of shed antler collection and increased summer recreation radiating from Wildhorse Reservoir State Park likely also facilitated the emigration of elk to the Jarbidge Wilderness, Duck Valley, and portions of Idaho.

Harvest management strategies implemented by Idaho Department of Fish and Game (IDFG) for the portion of the Bruneau elk herd residing in Idaho include conservative quotas for antlered elk, moderate antlerless harvest north of Hunt Unit 061, and conservative antlerless harvest north of Hunt Unit 071. Nevada Department of Wildlife biologists continue to work with IDFG to advance the understanding of elk distribution along the Nevada-Idaho border and improve elk management in both states.

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

Report by: Matthew Jeffress

Hunt Results

For the second year in a row, hunter success during the September rifle hunt for antlerless elk dropped below 30%, likely due to a decreasing elk herd. Spike-only hunts surpassed Nevada Department of Wildlife's original estimated success of 8% and have allowed for the maintenance of bull quality during the antlered elk hunts. Hunt success during the late hunt for antlerless elk was poor. Elk occurring in the northern portion of the unit group spent most of the winter in Idaho and the smaller southern herd remained in the upper elevations of Hunt Unit 067. Although the winter of 2017-2018 was mild, muddy conditions persisted in the higher elevations during the late hunt making access difficult.

Survey Data

Aerial surveys in February 2018 resulted in the classification of 651 elk. The sex and age ratios of the sample were 42 bulls:100 cows:55 calves. The observed calf ratio was seven points above the 10-yr average and the bull ratio was 10 points lower than the 10-yr average. The northern elk are accounting for a larger portion of the survey and the herd. This is likely due to the southern elk being subject to harvest during all seasons, while the northern herd spends a significant amount of time finding refuge on the Duck Valley Indian Reservation and in Idaho, where hunter pressure is minimal.

Habitat

Over the last 15 years, several wildfires have created vast communities of perennial grasses. Elk have benefited from the proliferation of perennial grasses through successional processes occurring post-fire and seeding efforts for watershed stabilization. The 2017 Snowstorm Fire consumed much of the southern edge of the Owyhee Desert between the South Fork Little Humboldt River and the North Tuscarora Range. The fire may have affected seasonal distribution of elk as they remained in the upper elevations of Hunt Unit 067 most of the winter. Much of the Snowstorm Fire was seeded during the winter of 2017-2018 and into the spring. Biologists for the Nevada Department of Wildlife are hopeful for a strong recovery of deeply rooted perennial grasses, but mindful that much of the affected acreage has now burned multiple times. The prevalence of disturbance in this system decreases the site potential for recovery and may facilitate invasion by cheatgrass.

Population Status and Trend

Based on telemetry data from a representative sample of radio-collared elk, about 280 elk spend most of the year outside the unit group boundaries, including some that summer in Idaho. When the segment of the population occurring outside of Hunt Units 062, 064, 066-068 is considered, the population estimate for adult elk permanently residing in Nevada is 520.

Despite recent increases in tag quotas, hunter success continues to decline which is indicative of a declining population. Reductions in the tag quota for antlerless elk hunts did not improve hunter success as expected during the 2017 hunting season. To maintain this herd at a population objective of 500 adults, fewer elk are expected to be found and their densities will be higher in the northern portion of the unit group. This inequity in density and distribution of elk may become a management challenge because many of the northern elk are not available for harvest either due to time spent outside the unit group or inhabiting private land on the west side of the Bull Run Mountains.

The Nevada Department of Wildlife continues to work with landowners to reduce conflicts with elk on private land. There were no private lands conflicts reported in 2017 for the fourth year in a row. One landowner participated in the private lands antlerless elk hunt in Hunt Unit 062, resulting in the harvest of 7 antlerless elk, greatly reducing conflict with cultivated fields.

In March 2018, an additional 24 elk were radio-collared from various sub herds within this population. Telemetry data continues to provide a better understanding of population demographics and seasonal movements. Twenty of these deployments are intended to help Nevada Department of Wildlife biologists understand the source of seasonal elk mortality being investigated for the past three years.

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

Report by: Tyler Nall

Hunt Results

The 2017 hunting season marked the fifth year of elk hunting in Hunt Unit 065. Two of the 4 hunters with tags for the antlered elk season in September were successful with each bull having 6-point antlers. This is the first year since 2014 that hunters were successful in the antlered elk hunt. The antlerless hunt was similar to last year's success rate of 44% at 43% for 2017.

Survey Data

Post-season elk surveys were conducted in February 2018. The survey classified 27 elk yielding ratios of 67 bulls:100 cows:58 calves. Survey conditions were poor with mild temperatures and no snow coverage. Due to the abundance of trees within this unit it is very difficult to survey in all but perfect conditions. Four of 5 radio-collars fitted on elk in this unit were located in one group of 24 elk while the other collared elk wasnot observed.

Habitat

The Cedar Ridge Wilderness Study Area, the Red Spring Wilderness Study Area, and the Huntington Creek corridor provide yearlong habitat for a majority of the elk herd in Hunt Unit 065. The mixture of recent burns and pinyon-juniper woodlands provide adequate resources for resident elk. There is an abundance of suitable habitat in the Piñon Range that will allow for future expansion of the herd to the west of the core population center.

As of March 1, 2018, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 61%-101% of the long-term average with water year-to-date precipitation totals at 61%-77% of average (www.nrcs.usda.gov). The mild winter should allow for low winter mortality but range conditions in the summer will likely be dry with less than optimal forage conditions unless more favorable precipitation patterns return this spring and summer.

The 2017 Red Springs Fire burned about 4,600 acres of mixed-mountain shrub, perennial grasses, and Pinion-Juniper habitat in the Cedar Ridge area. A coordinated effort was made to reseed the area during the winter of 2017-2018 using funds from the Bureau of Land Management. The limited temporal loss of ecological function of these acres was mitigated with the application of a seed mix comprised primarily of sagebrush, perennial grasses and some forbs. Collar data shows considerable elk use following the fire in the summer and fall months. Elk use will likely increase in this area following the seeding efforts and growth of early seral vegetation.

Population Status and Trend

In December 2017, 4 cow elk were radio-collared near Cedar Ridge in Hunt Unit 065 to learn more about this relatively new and growing herd. Due to collar failures and mortality, there are a 5 working collars in this herd. Two years of radio-collaring efforts has enabled the Nevada Department of Wildlife to document shifts in seasonal use patterns. Of note, in December 2017 the wildlife capture crew observed a group of roughly 80 elk containing several mature bulls in the Cedar Ridge area. There have not been any major movements out of the core use area documented, but herd expansion is probable. The radio collaring project will continue to aid in tracking new pioneering movements. The population objective for this unit was established through the Western Elko County Elk Management Sub-plan at 200 elk. Aggressive hunt strategies over the last 5 years have kept this population well-under objective. Indeed, the 2018 population estimate for this herd is 140 compared to 120 in 2017.

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

Report by: Kari Huebner

Hunt Results

Hunter success dropped during the early rifle hunt for antlered elk with a reported 42% success compared to 50% in 2016 for this unit group. Reported success during the late season rose slightly from 34% success in 2016 to 36%. Four separate rifle seasons for antlerless elk were implemented to reduce the population. Tag numbers were again increased and hunter success varied among seasons. Hunters during the wilderness-only ALW hunt and the late antlerless ALW hunt continue to be the most successful.

Survey Data

Surveys conducted in January 2018 resulted in the classification of 948 elk with observed ratios of 176 bulls:100 cows:43 calves. The observed bull ratio was considerably higher than the 2017 bull ratio of 98 bulls:100 cows and the observed calf ratio was also higher than the 2017 ratio of 32 calves:100 cows.

Habitat

Several wildfires burned in 2006, 2007, 2008, and 2012 further enhancing habitat for elk. The recovery of perennial grasses and forbs has been remarkable in most of the burned areas. Vegetation communities impacted by the most recent wildfire, affecting 6,700-acres in Stud Creek, are recovering well and providing productive forage to elk.

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

Population Status and Trend

The population objective in the Jarbidge Mountains Elk Herd Management Plan has been established at 1,000 adult elk (±10%) on the USFS portion of Hunt Unit 072. The Wells Resource Area Elk Plan allotted an additional 220 elk in portions of Hunt Unit 072, 074, and the east side of 073 on lands managed by the Bureau of Land Management. The Western Elko County Elk Plan identified 200 elk for the west side of Hunt Unit 073. Cumulatively, the population objective for elk in Hunt Units 072, 073, 074 is 1,420 adult elk.

In January 2017, 10 radio-collars were deployed on the Inside Desert between the East Fork of the Jarbidge River and Clover Creek in Idaho. During the 2017 hunting season 5 of the radiocollared cows were harvested in Idaho. Those collars were redeployed in January 2018. The objective of the monitoring is to determine seasonal distribution of elk and the extent of interstate movements. Ten additional elk were radio-collared on the nearby Diamond A Desert in 2017. Telemetry data will assist in differentiating Jarbidge and Bruneau elk that inhabit a shared wintering area.

Quota recommendations for antlerless elk tags will remain aggressive to curtail population growth and meet management objectives. The wilderness-only hunt for antlerless elk in the Jarbidge Wilderness continues to be a success and is recommended for continuation.

Unit 075: Snake Mountains; Elko County

Report by: Kari Huebner

Survey Data

Surveys conducted in January 2018 resulted in the classification of 136 elk yielding age and sex ratios of 98 bulls:100 cows:49 calves. Bull and calf ratios were higher than those observed in 2017 (21 bulls:100 cows:46 calves).

Habitat

In 2006, a 16,720 acre wildfire burned in Deer Creek. Although initial impacts to wildlife were not favorable, the elk herd is now using this area due to the recovery of perennial grasses, forbs, and aspen stands. Vegetation succession occurring in the 2007 Hepworth Fire scar is also benefiting elk.

Population Status and Trend

The population objective for Hunt Unit 075 is 100 elk (±10%) and was established by the Wells Resource Area Elk Plan. Quota recommendations for hunts of antlered and antlerless elk will continue to be designed to reduce herd size toward population objectives.

Due to the large amount of private land (about 50% of the total area), this herd continues to be a management challenge. Most landowners permit access to hunters; however, elk will seek refuge on private lands that do not permit access. The Nevada Department of Wildlife continues to work with these landowners to increase access for hunters.

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

Report by: Kari Huebner

Hunt Results

Success rates for the 2017 early and late rifle hunts for antlered elk dropped to 61% and 50%, respectively. In 2012, 5 depredation hunts for antlerless elk were implemented for the northeast portion of Hunt Unit 081. Nearly 650 elk have been harvested in Hunt Unit 081 since inception of the depredation hunts. A late season antlerless hunt was offered in 2015 to increase harvest of antlerless elk and distribute hunting pressure throughout the unit group. Success has been 60% in all three seasons.

Survey Data

Surveys were not conducted in this unit group in 2017.

Habitat

Nearly 240,000 acres burned in this unit group during summer 2007. Extensive seedings were conducted to rehabilitate burned areas. The habitat is responding favorably, as it did after the fires in 1999 and 2000. The long-term outlook of this habitat for elk is favorable.

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

Population Status and Trend

Elk spend a substantial amount of time on private lands due to the amount and distribution of the parcels. Thirteen landowners qualified for 52 elk incentive tags for allowing elk use on private rangeland.

In Jan 2017, 2 radio-collars were deployed on elk in the Deadline Ridge area of Hunt Unit 081. Eight additional radio-collars were deployed in January 2018 and should help to determine if elk wintering in Nevada use summer range in Idaho.

The depredation hunts in Hunt 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 will be recommended again in 2018.

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

Hunt Results

For the 2017 season, 16 rifle tags for bulls were issued and split between the early (8 tags) and late (8 tags) seasons. Of the 16 rifle tags, 13 tag holders were successful. Across all weapon classes, 85% of the bulls harvested had 6 or more points, up from 70% in 2016. There were 6 spike-only tags available, of which 0 hunters were successful. Fifty antlerless tags were allocated across the 3 weapon classes with an overall hunter success of 30%. The cumulative harvest of elk for this unit group in 2017 represents the lowest total since 2011.

Survey Data

An aerial survey was conducted in January 2018, where 243 elk was classified yielding sex and age ratios of 63 bulls:100 cows:33 calves. This year's survey was abbreviated with little of Hunt Units 078 and 106 being surveyed.

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 riparian vegetation very susceptible to overuse by horses. This unit group covers all or part of 4 Herd Management Areas (HMAs), and according to 2017 BLM population estimates these 4 HMAs ranged from 392% - 1427% of AML (www.blm.gov/programs/wild-horse-and-burro/).

The Spruce Mountain Restoration Project is underway with about 5,000 acres of habitat treatments being completed since 2013. These treatments have been a combination of hand-thinning, mastication, and chaining of pinyon-juniper woodlands, weed abatement, and seeding. Up to 5,000 additional acres occurring in the vicinity of Spruce Mountain are scheduled to be treated within the next 6 years. In early 2018, contract crews began hand-thinning a 1,100 acre polygon near Spud Patch Basin in Hunt Unit 078. This project is part of a mitigation package designated to offset habitat losses due to the Long Canyon Mine and is the first of many habitat enhancement projects that will be implemented in the area. These restoration and mitigation activities have the potential to benefit elk, deer, sage-grouse, and a myriad of other wildlife.

Population Status and Trend

Hunts for antlerless elk were implemented in 2011 i to manage this herd near its population objective of 340 elk. The 2018 population estimate is very similar to the previous year, and near the population objective set in the Wells Resource Area Elk Plan. The stable nature of this herd is a function of adequate harvest levels coupled with chronically low calf ratios.

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

Hunt Results

Twelve bulls were harvested in Hunt Unit 091 during the 2017 hunting season, 7 by Utah hunters and 5 by Nevada hunters. An additional 25 cows were harvested in a depredation hunt on the TLBar Ranch in Utah.

Hunters who draw this tag are able to hunt Pilot Mountain in both Nevada and Utah. Specialty tag holders are prohibited from hunting elk in Hunt Unit 091 due to low tag quotas and a cooperative agreement between the Nevada Department of Wildlife and the Utah Division of Wildlife Resources, which directs both states to evenly share the hunting opportunity related to the elk resource.

Survey Data

Surveys were not conducted in this unit in 2017.

Habitat

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

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

Population Status and Trend

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

A population objective of 250 elk was established in the Wells Resource Area Elk Plan. The objective was based on the original Hunt Unit 079 boundary that has now been divided into Hunt Units 079 and 091 and included only the Nevada portion of Pilot Mountain. The Hunt 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 has remained committed to managing this population to restrict a sustainable elk population. Since 1999, 575 elk have been harvested from the elk restricted zone in the Ruby Mountains. In 2014, the Nevada Department of Wildlife implemented its most aggressive hunt strategy since the inception of the first depredation hunts in 1999. This latest strategy included management hunts for antlerless elk coinciding with existing mule deer hunts and resulted in additional antlerless harvest.

For the 2017 hunting season, antlered quotas remained at 100 tags split between 2 seasons with a cumulative hunt success of 41%. The antlerless quota remained at 100 tags for the single 6-month season, which had a 10% hunt success. There were 280 antlerless elk management tags accepted by deer tag holders of all of the various weapon classes and seasons. The cumulative success of all of the antlerless elk management tags was 4%.

Survey Data

Elk specific surveys were not conducted for this unit group but incidental observations during the fall aerial deer survey classified 36 elk yielding ratios of 63 bulls:100 cows:26 calves. Landowner complaints regarding elk damage have been minimal the last 10 years, with no reported damage of agricultural fields since 2010. For these reasons, the hunt strategies that have been implemented are considered a success in 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 very 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, 221 – 223: Schell, Egan and Snake Ranges; Eastern White Pine and Northern Lincoln Counties

Report by: Kody Menghini

Hunt Results

Tag quotas for antlered elk were split for the sixth consecutive year for Hunt Unit Groups 111-115 and 221-223. Hunt Unit 223 was added to Hunt Units 221, 222 in 2014. Bull quality remains high in both unit groups. In Hunt Units 111-115, 79% of the bulls harvested were 6-points or greater and 44% had antler lengths 50-in or longer. In Hunt Units 221-223, 78% of the bulls harvested were 6-points or greater and 39% had antler lengths 50-in or longer. These metrics are well above the statewide averages.

Survey Data

For the ninth consecutive year, the post-season composition survey for elk was combined with spring deer surveys. Two-thousand five-hundred and fifty-nine elk were classified yielding sex and age ratios of 32 bulls:100 cows:33 calves. Sex and age ratios have averaged 31 bulls:100 cows:36 calves over the previous 5 years.

Habitat

The above average winter precipitation in 2016-2017, followed by timely spring rains in 2017, improved quality and quantity of habitat available for elk in the short-term. Conditions deteriorated during the summer and fall 2017 with a prolonged warm and dry weather pattern. Minimal green-up was available to benefit elk prior to winter. Many wildlife water developments were empty by late summer and elk were observed traveling long distances to water. The precipitation total collected by the National Weather Service for the 2017 calendar-year at the Ely Airport was 99% of normal. The near normal conditions were a result of the above average winter and spring precipitation. The winter of 2017-2018 was dry and warm. The National Weather Service reported the 2017-2018 total winter precipitation to be 73% of normal at the Ely Airport. As of 1 March, the Berry Creek SNOTEL site and the Ward Mountain SNOTEL site received 50% and 30%, respectively, of their long-term average snowpack during winter 2017-2018 (www.nrcs.usda.gov). At the time of this writing, spring storms have been on the increase and may help to temper the dry winter conditions and improve 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, range degradation due to numbers of feral horses well above Appropriate Management Levels (AML) in some areas, and subdivision and sale of private parcels in quality habitat. Nevertheless, elk are benefiting from thousands of acres of pinyon- juniper chainings, thinnings, and other tree removal projects recently completed by the Bureau of Land Management (BLM) and the US Forest Service (USFS). Future projects are planned in the north Schell Creek Range, Ward Mountain, south Steptoe and Cave Valleys, Kern Mountains, and Duck Creek Basin. The expansion of storage capacity at several big game water developments is currently planned, as well as the possible construction of new catchments in the Antelope, Snake, and Steptoe Valleys, and the Antelope Range.

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

Population Status and Trend

The current population estimate is 4,400 adult elk. Quota recommendations will be designed to further decrease this population toward the established population objective.

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: Tyler Nall

Hunt Results

There were 66 tags issued for antlered hunts across all weapon classes in 2017, with a 53% success rate. Of the 35 bulls harvested in this unit group, 74% were 6-points or greater.

Forty-three antlerless tags were issued across all weapon classes with a 60% success rate. Three antlerless depredation hunts were held to limit elk use on private lands in Steptoe Valley, Hunt Unit 121. Eighty total tags were issued for the depredation hunts from August 1, 2017-January 31, 2018, with a reported 16% success rate.

Survey Data

Aerial post-season elk surveys were conducted in January 2018. Four hundred thirty-three elk were classified yielding ratios of 33 bulls:100 cows:49 calves. Survey conditions were moderate to poor, with warm temperatures and little to no snow coverage. Bulls continue to be difficult to locate on survey due to the abundance of trees within this unit group. Of the bulls classified, 53% were yearlings.

Habitat

Encroachment of pinyon-juniper woodlands occurs across a substantial portion of this unit group. Several large scale habitat enhancement projects are proposed for Hunt Unit 121. The proposed Egan and Johnson Basin Restoration Project would affect roughly 24,000 acres of pinyon and juniper trees in sagebrush communities. The Combs Creeks project, completed in 2016, was designed to reduce pinyon-juniper encroachment on 7,000 acres in the southern portion of Hunt Unit 121.

As of March 1, 2018, snowpack figures recorded at SNOTEL sites in the water basins located within and adjacent to this unit group ranged from 12%-63% of the long-term average with water year-to-date precipitation totals at 43%-49% of average (www.nrcs.usda.gov). The mild winter should allow for low winter mortality but range conditions in the summer will likely be dry with less than optimal forage conditions unless more favorable precipitation patterns return in the spring and summer. In February 2018 the Bureau of Land Management (BLM) conducted a feral horse gather in the Triple B Complex where they removed 1,398 horses and treated an additional 28 mares with the immunocontraceptive Porcine Zona Pellucida (PZP). The Appropriate Management Level (AML) for the Triple B Complex is 472-884. The BLM estimates 2,466 horses remain in the complex after the gather. Reduced horse densities should lessen competition for limited resources in the unit group, particularly in Hunt Units 104 and 108 where water availability is limited. However, continued efforts will be needed for this horse population to reach AML.

Population Status and Trend

While 433 elk were classified during the 2018 survey, an additional 268 elk were unclassified for a total of 701 animals observed. Given last year's population estimate was 700 elk, this population has likely been underestimated in recent years and is nearing, if not equal to, the population objective of 770 adult elk. The Nevada Department of Wildlife is committed to maintaining this elk herd within the population objective. As a result, a more aggressive approach to cow harvest will be needed to achieve this goal.

The Nevada Department of Wildlife is also committed to reducing the private land damage in Steptoe Valley while still providing opportunity to sportsmen to hunt elk. The depredation hunts have been successful the last 5 seasons with most of the problem elk removed and hunter success dropping. Future depredation tag quota recommendations will continue to 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

Hunt Results

Hunts in Hunt Unit 131 were first offered for antlered elk in 1995 and for antlerless elk in 2007. Antlered and antlerless elk hunts in Hunt Unit 108 and Hunt Unit 132 were added, successively, until the current unit group was established in 2013. Total harvest in 2017 was 29 bulls and 41 cows and is below last year's harvest of 36 bulls and 44 cows. In 2017, the Antlerless Elk Management Hunts associated with archery, muzzleloader and rifle deer seasons accounted for 34% of the total cow elk harvest in the unit group compared to 20% in 2016. Antlerless harvest accounted for 59% of the total elk harvest in the area compared to 55% in 2016. The percent 50+ inch main beam length for harvested bulls increased from 19% in 2016 to 39% for 2017.

Survey Data

A post-season aerial composition survey was conducted in February 2018. During the survey, biologists classified 244 elk yielding sex and age ratios of 119 bulls:100 cows:65 calves. Thick tree cover and poor snow coverage created difficult survey conditions with cow-calf groups hard to locate. In comparison, the abbreviated survey in 2017 totaled 65 elk with observed ratios of 59 bulls:100 cows:44 calves. The previous 5-yr average calf ratio is 36 calves:100 cows.

Weather and Habitat

As of March 2018, the Western Regional Climate Centers Blue Eagle Ranch site shows below normal precipitation for the year. For the lower elevations the last significant precipitation received was in March 2017 and no precipitation was recorded in October 2017**.** As of March 2018, the US Drought Monitor shows all hunt units as abnormally dry with the very eastern portions of Hunt Units 131 and 132 exhibiting moderate drought conditions. Soil moisture is below normal and dropped from 36% in 2017 to 21% saturation in eastern Nevada and the White River watershed snowpack analysis has also dropped from 149% in 2017 to 23% of median according to the Nevada Water Supply Outlook Report by the Natural Resources Conservation Service for March 2018. Range conditions are expected to be drier than normal with a more limited growing season compared to last year given current water year precipitation.

A fencing project was completed at the Moorman Ranch in August 2017 and is intended to prevent elk use of private land in the northern portion of Hunt Unit 131. Habitat projects coordinated by the US Forest Service and the Bureau of Land Management in Ely to remove small-diameter pinyon and juniper trees encroaching into bunchgrass and sagebrush communities are ongoing. These projects, as well as past wildfires, promote production of grasses and forbs benefiting elk, as well as other wildlife in the area. Increasing feral horse numbers are degrading habitat in the Mt. Hamilton area where a large herd has established. New mineral exploration drill pads were observed in the Green Springs Area of Hunt Unit 131. If development of a mine occurs in this area, sage-grouse, mule deer and elk will be impacted.

Population Status and Trend

The White Pine County Elk Management Plan established a combined population objective of 300 adult elk (±20%) for Hunt Units 131 and 132. The population estimate for 2018 remains relatively unchanged from 2017 at 370 adult elk, while the previous 5-yr average is 450 elk. The elk herd is currently slightly above population objective. The aggressive harvest of cows in recent years coupled with a drop in success for antlered elk hunters during the rifle season has resulted in an elevated bull to cow ratio. Mild winter conditions and aggressive harvest strategies have also contributed to the above-average cow to calf ratio. This year's observed calf ratio indicates an increasing population current recommendations for harvest management are been designed to bring the herd within the limits of the 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 Hunt 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, a small number of elk, hunting pressure and dispersed movement patterns, elk hunting conditions are very difficult. In the previous 5 years. 47 bulls and 33 cows have been harvested. For each of the last 3 years, there have been a total of seven different seasons offered with a combined quota of 85 tags. Overall harvest success during the 2017 season was the lowest on record at 12%compared to 26% in 2016.

Survey Data

Elk numbers are low in this unit group and no formal composition survey was conducted during the reporting period. An incidental observation of 2 yearling bulls occurred in Hunt Unit 145 during post-season mule deer surveys in November 2016. A landowner complaint in Hunt Unit 144 resulted in the observation of 3 bulls and 5 cows on private property in Oct 2016 and 3 bulls and 9 cows on private property in August 2017. Total incidental observations of elk for 2016-2017 and 2017-2018 are 10 and 12 respectively.

Population Status and Trend

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

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

Report by: Joe Bennett

Survey Data

A post-season aerial composition survey of elk was conducted in Management Area 16 during February 2018. The aerial survey yielded a sample size of 321 elk comprised of 77 bulls, 179 cows, and 65 calves. Snow conditions were below average. While on the survey, elk were observed at higher elevations than previous years. Elk were primarily observed in Hunt Unit 162. In comparison, the January 2017 survey observed a sample of 398 elk containing 111 bulls, 202 cows, and 85 calves.

Habitat

According to precipitation data collected in 2017 by the Community Environmental Monitoring and Planning (CEMP), central Nevada received 88% of average. Spring precipitation (March, April, and May) resulted in 23% of 2017's precipitation accumulation. Central Nevada received above-average spring precipitation in 2015 and 2016 which should have alleviated drought effects in recent years. However, spring precipitation in 2017 was much lower and precipitation during the summer (June, July, and August) was only 25% of average. The monsoonal moisture that central Nevada relies upon to maintain forage vigor during the summer did not occur in 2017. Increased browse vigor and grass species growth has plausibly resulted in response to above-average spring precipitation during previous years.

An effort to remove pinyon and juniper trees was conducted in summer 2016 near Danville Creek in Little Fish Lake Valley. Seven-hundred and seventeen acres of pinyon and juniper trees were cut and left in response to encroachment into the valley. The removal of these trees will allow the herbaceous understory to regenerate providing good forage and habitat to elk at certain times of the year. A pinyon-

juniper removal project occurred in the Clear Creek area in summer 2017, which should produce similar results.

Population Status and Trend

In January 2004, the Board of Wildlife Commissioners approved the revised Central Nevada Elk Plan (CNEP). The plan included updated elk population objectives, which allowed for modest increases in elk numbers in Management Area 16. More than 10 years later, the Management Area 16 elk population has reached and slightly exceeded the population objective of 850 adult elk in Hunt Units 161-164. A significant increase in the MA 16 elk tag quotas from 2014-2017, particularly for the antlerless hunts, was intended to stop herd growth and begin a slight reduction in elk numbers. The population estimate in 2018 is about 800 adult elk warranting a reduction in recommendations for tag quotas for the 2018-2019 seasons.

To increase antlerless elk harvest, new harvest strategies have been instituted in many areas of Nevada. These strategies include Wilderness-Only hunts, Spike hunts, and Antlerless Elk Management Hunts, which allows deer hunters to more easily obtain an elk tag that runs concurrently with their deer season. The Wilderness-Only hunt has been successful since its inception to increase the harvest of antlerless elk. A harvest of 142 elk was observed during the 2017-2018 seasons. Weather conditions and distribution of animals could have plausibly produced recorded harvests. The record harvest over the last 4 years is being reflected in population estimates. Now that population objectives have been met, harvest strategies will be designed to maintain a stable population.

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

Report by: Joe Bennett

Survey Data

An aerial elk composition survey was conducted in Management Area 17 in February 2018. The survey yielded a sample size of 2 cow elk. No formal surveys were performed in 2017 due to inclement weather. The survey usually includes portions of Hunt Unit 184 along the east side of the Desatoya Range where the core herd of elk typically winters. Due to survey timing, and the small size of this herd, the 2018 survey was unsuccessful. This survey can be challenging under the best conditions, and typically results in a sample size of 40-50 animals.

Habitat

According to precipitation data collected in 2017 by the Community Environmental Monitoring and Planning (CEMP), central Nevada received 88% of the 30-yr average. Spring precipitation (March, April, and May) resulted in 23% of 2017's precipitation accumulation. In the early part of 2018, much-needed precipitation receipts have been received. The one SNOTEL site located in central Nevada measured snowpack levels at over 88% in March of 2018. Above-average spring precipitation in 2015 and 2016 should have alleviated drought effects in recent years. To a lesser extent, 2017's winter and spring precipitation should have allowed plant species to experience increased browse vigor and grass species growth. This should have allowed animals to enter the calving and winter periods in better condition than recent years.

Although spring precipitation has been above average the past 2 years, summer precipitation in 2017 was only 25% of average. The monsoonal rain that central Nevada relies upon to maintain forage vigor throughout the summer did not occur in 2017. The above-average spring precipitation the last three years should have increased the quality and quantity of forage species during the critical birthing period when female ungulates are most in need of forage high in nutrients.

Population Status and Trend

For many years, small numbers of elk were sporadically reported in Hunt Units 171-173. Presumably, these elk were moving between Hunt Unit 173 and adjacent Hunt Units 161 and 162. By the early 2000's, reports

became more frequent, and NDOW determined that a small resident herd had permanently established itself in the southern portions of MA 17.

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

Currently, the Management Area 17 elk herd is considered stable or increasing at low levels. Survey samples during winter aerial survey efforts, as well as random observations of the core herd during other times of the year, continue to hover around 40-50 animals. Herd growth has not occurred as expected despite documentation of production, bull harvest remains minimal, and no harvest of antlerless elk.

Unit 231: Wilson Creek Range; Lincoln County

Report by: Cooper Munson

Survey Data

Aerial surveys were conducted in January 2018 and resulted in the classification of 161 elk consisting of 48 bulls, 74 cows, and 39 calves. These totals result in a ratio of 65 bulls:100 cows:53 calves. Of the 48 bulls observed, 58% were classified as spikes to 4-points. A mild winter allowed elk to disperse throughout all elevations of the mountain ranges in Hunt Unit 231. The majority of this survey sample resulted from a 3-hr survey along the Nevada-Utah border and the White Rock Mountain Range. Other groups of elk were observed on the ground wintering throughout Hunt Unit231.

Habitat

According to precipitation data acquired from the Community Environmental Monitoring Program (CEMP) in 2017, Lincoln County Received about 96% of the 10-yr average and near the 30-yr average of annual precipitation. According to the US Drought Monitor, the Seasonal Drought Outlook predicts that drought conditions in this area may persist or increase for the coming year. Feral horse numbers are at an exceedingly high level with excessive numbers observed during elk surveys. Invasion of pinyon-juniper woodlands continues to reduce both quality and quantity of elk habitat and is facilitated by the suppression of wildfires that would result in the transition of dense pinyon-juniper stands to grasses and shrubs. Habitat enhancement projects could potentially provide more elk habitat but are very costly due to both planning and use of mechanized equipment. The Bureau of Land Management (BLM) and the Nevada Department of Wildlife) completed another major habitat improvement project removing pinyon and juniper trees from roughly 3,000 acres and seeded with native plant seeds. Many of the areas that have burned in the past few decades are still providing the bulk of the habitat for elk in Hunt Unit 231. Recent installation and maintenance of water developments, by NDOW and local sportsmen, are helping to reduce conflicts with livestock operators and private landowners. Another water development is scheduled to be rebuilt in mid-2018 to add storage capacity and upgrade to a more reliable water source for elk and other wildlife. The number of shed antler hunters significantly decreased in 2018 due to new regulations, allowing elk to winter without the added stress of human activity that has forced elk and other wildlife to retreat to less desirable habitat.

Population Status and Trend

One-hundred and seventy-eight elk were harvested from Hunt Unit 23 during the 2017 season. These included 102 cows and 76 bulls. This represents a 33% decrease in harvest from the 2015 season when 267 elk were harvested and 22% decrease in harvest from the 2016 hunting season with 226 elk harvested. The number of elk in Hunt Unit 23 has decreased due to efforts to maintain the herd at management objective as agreed upon in the Lincoln County Elk Management Plan. Elk move freely between Hunt Unit 23, Utah, and Management Area 22, each exhibiting higher densities and populations of elk. Many of the elk in Hunt Unit 23 use private property, predominately on agriculture fields which the Nevada Department of Wildlife

addresses through the elk damage or incentive tag program. According to data collected from radio-collars, many of the elk spend time, in Utah which may contribute to the decreasing population. The division of this hunt unit from Hunt Unit 241 in 2015 has decreased hunter congestion and added hunter opportunity.

Unit 241 – 242: Delamar and Clover Mountains; Lincoln County
Report by: Cooper Munson

Survey Data

Aerial surveys were conducted during February 2018 and resulted in no observations of elk. Three hours of the survey were spent along the state line with Utah and throughout the Clover mountains to locate elk in the area. Survey conditions were difficult due to a mild winter and lack of snow, which allowed the elk to use densely vegetated areas and permitted the dispersal to all elevations of the unit group.

Habitat

Habitat conditions were improved in much of 2017 due to slightly above-average precipitation during 2016. Feral horse numbers are high in Hunt Units 241 and 242, where the Appropriate Management Level is 0. Several water developments burned by wildfire in 2014 have recently been rebuilt. Fire suppression continues to limit habitat for elk. Habitat in the area appears to be recovering relatively well due to restoration efforts despite limited precipitation. The Bureau of Land Management and the Nevada Department of Wildlife seeded a small wildfire that burnt in summer 2016 with a native seed mix to stabilize soils and increase wildlife habitat and have removed hundreds of acres of pinyon and juniper trees in an attempt to increase forage for wildlife.

Population Status and Trend

A population model has not been developed for elk in this area until the Nevada Department of Wildlife is confident that elk are permanently established in the area. Elk are often observed moving across the Nevada-Utah border moving between Hunt Units 231 and 242. Hunter harvest data indicates that 4 cows and 3 bulls were harvested from Management Area 24 in 2017. The 2018 survey, combined with incidental observations suggest there may be up to 150 elk in the area. The division of this unit group from Hunt Unit 231 should facilitate a decrease in hunter congestion and added hunter opportunity.

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

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

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

Survey Data

An aerial elk survey was not conducted in Hunt Unit 262 in 2018. In February 2017, an aerial survey conducted over the Spring Mountains yielded a sample of 146 elk. The sample comprised of 33 bulls, 87

cows, and 26 calves. The majority of elk were encountered in and below the sagebrush and pinyon and juniper ecotone in lower Macks Canyon, and in the vicinity of Cold Creek. Elk were also encountered in the lower Willow Creek drainage and south of Lovell Summit. In January 2015, an aerial survey sample comprised of 37 bulls, 105 cows, and 21 calves.

Habitat

In July 2013, the Carpenter 1 Fire was ignited by lightning. The fire consumed vegetation across 27,869 acres. The 43.5-mi^2 fire consumed plants within several vegetative associations along a 5,560-ft elevation gradient.

Severely degraded vegetative conditions on the McFarland Burn were noted in 15 aerial surveys conducted between 2002 and 2017, and likely the reason that few elk were encountered in the area. Degraded habitat is largely the result of an overpopulation of feral horses aggravated by the effects of periodic drought conditions. The US Forest Service disengaged from a process to produce a comprehensive feral horse herd management plan. The plan would have covered horse and burro removals and revised Appropriate Management Levels. Initially, the US Forest Service announced the decision would be signed in fall 2013, and the US Forest Service would request to be put on the gather schedule. As of April 2017, progress in producing a comprehensive herd management plan has been impeded by advocacy groups and lack of funding.

Elk avoidance of roads and decrease in habitat use adjacent to roads has been reported in the literature. Based on well-documented findings, use of off-highway vehicles also influences elk distribution. In recent years, recreational use of off-highway vehicles in the Cold Creek area and on the McFarland Burn has increased substantially.

In June 2004, the Humboldt-Toiyabe National Forest issued a Decision Notice and Finding of No Significant Impact for the Spring Mountains National Recreation Area Motorized Trails Designation Project. The decision involves the minimal closure of newly established roads in the McFarland Burn. Thus, the recently authorized management prescription for motorized trails ensures the status quo in the McFarland Burn for the near future.

Population Status and Trend

The population estimate for elk inhabiting the Spring Mountains remains unchanged from 2017. Due to the large sample obtained in the January 2015 aerial survey, the population model was adjusted to reconcile cow and bull deficits.

The quality of elk habitat throughout most of Hunt Unit 262 is marginal. Elk have existed on a relatively low nutritional plane limiting reproduction and recruitment. Calf recruitment for many years has been low. Formerly, under ideal conditions marked by fewer horses and normal precipitation receipts, the McFarland Burn afforded quality early-seral forage necessary for maintenance, growth, and reproduction. In the near future, meaningful efforts to improve elk habitat must involve management of horse and burro numbers and completion of habitat improvements. Elk habitat in the Spring Mountains can be enhanced by seeding recently burned areas, increasing water availability, and decommissioning and restoring newly created roads and trails.

DESERT BIGHORN SHEEP

Units 044,182: East and Stillwater Ranges; Pershing and Churchill Counties
Report by: Jason Salisbury

Survey Data

An aerial survey was conducted in September 2017 and yielded a sample of 328 sheep which were classified as 83 rams, 175 ewes, and 70 lambs. This was a record count for this unit group.

Habitat

Continued expansion of pinyon and juniper is limiting bighorn sheep habitat within the Stillwater Range. Prescribed fires and/or natural occurring fires are needed in most of the northern half of the Stillwater's to allow for new occupation by bighorn sheep.

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

Population Status and Trend

In November 2017, a disease surveillance program was initiated in the Stillwater and East Ranges. Seventeen bighorn sheep were captured for sampling of which 12 were fitted with GPS/VHF collars to track seasonal distribution of the bighorn herd and ram forays. All 17 samples were negative for *Mycoplasma ovipneumoniae* for both blood antibodies and presence of the organism on Polymerase Chain Reaction (PCR). As of this report no significant movements have been observed by collar animals.

Desert Bighorn sheep continue to do well in the Stillwater Range. This year's modeled population estimate is 500 bighorns and represents a moderate increase from 2017. The lamb recruitment rate of 40 lambs:100 ewes will allow for an increasing population trend.

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

Hunt Results

For the 2017 season, Hunt Unit Group 045, 153 was split into an early-late season hunting strategy to ease congestion. In 2017, a total of 8 tags were allocated, split evenly between the early and late seasons. All hunters were successful with 1 ram harvested from Hunt Unit 153. Additionally, a collared ram from Hunt Unit 153 made its way into Hunt Unit 045 and was harvested in the early season.

Survey and Collar Data

In mid-August 2017, biologists spent approximately 2.40 hours of helicopter time during the 1 day survey in Hunt Units 045, 153. In Hunt Unit 045, 138 bighorns were encountered providing ratios of 77 rams:100 ewes:49 lambs. The lamb ratio continues to remain strong, but is slightly below its long-term mean of 54 lambs:100 ewes. Desert bighorns observed during the survey continue to remain well distributed throughout the southern end of the Tobin Range to the top of Mount Tobin.

In Hunt Unit 153, 15 desert bighorns were found in Jersey Canyon, Fish Creek Range and Cedar Canyon Ridge just south of Home Station Gap Road. These bighorns calculated into ratios of 133 rams:100 ewes:17 lambs.

In late 2016, 3 rams from Hunt Unit 045, and 2 rams and 2 ewes from Hunt Unit 153 were fitted with GPS/VHF collars to aid biologists in identifying seasonal habitat use and movements. Collar data from 2017-2018 for Hunt Unit 045 indicated that 1 collar failed, 1 ram was killed in August 2017 by a mountain lion, and the third collared ram remains alive and spent the majority of its time near Little Miller and Miller Basin with trips to the Indian Caves and into the southern end of the Tobin Range. Data from Hunt Unit 153 indicated that the 2 collared rams were both harvested during the 2017 season (1 from Hunt Unit 153, 1 from Hunt Unit 045) and currently, only 1 ewe collar is working. This ewe spent most of her time on Mount Moses and between Butcher and Jersey Canyons with short movements into Hunt Unit 183, south of the Home Station Wash Road. Furthermore, biologist and hunter observations from 2017 indicate seasonal movement of bighorns from Hunt Unit 182 (Fencemaker and Sou Hills) into Hunt Unit 045 near the Indian Caves.

Population Status and Trend

The Hunt Unit 045 desert bighorn herd continues an increasing population trend since the initial release in 2003 and the augmentation in 2008. Sight records and field observations from 2017-2018 indicate that this herd is slowly expanding use areas. Bighorns have been observed as far north as Pollard Canyon and approximately 6 miles south of Miller Basin in the southern end of the Tobin Range. The 2018 population estimate for the Tobin herd is 250 desert bighorns.

The Hunt Unit 153 herd was established from bighorns that exited Hunt Unit 045 from the 2003 and 2008 augmentations. Ram movements from Hunt Unit 153 to Hunt Unit 045 have been documented. Collar data indicates that back and forth movement is not at a high frequency. The small population in Hunt Unit 153 continues to remain stable at approximately 20 bighorns.

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

Report by: Clint Garrett

Hunt Results

Four tags were issued in 2017 with 50% harvest success. All 4 tag holders hunted with no tags returned and averaged 16 days hunting per tag holder. For specific 2017 unit results, please refer to the Appendix section.

Survey Data

An aerial survey in September 2017 and a ground survey in March 2018 yielded a sample of 45 total sheep with age and sex ratios of 27 rams:100 ewes:11 lambs. Hunt Unit 131 and 164 both had low observed lamb recruitment at 11 lambs:100 ewes and 9 lambs:100 ewes, respectively. For Hunt Unit 164 the lamb ratio dropped significantly compared to the 2016 observed ratio of 87 lambs:100 ewes. The observed previous 5 year lamb ratio has averaged 20. For the second consecutive year, only 1 ram was seen on aerial survey in the Duckwater Hills.

Weather and Habitat

As of March 2018 the Western Regional Climate Centers Blue Eagle Ranch site on the southern end of the units shows below normal precipitation for the year. The last significant precipitation the southern portion of the units received was in March 2017 and there was no precipitation recorded in October 2017. Monsoonal rains in September provided some water and recharged ground tanks in Big Sand Springs Valley for the southern end of Hunt Unit 164, but dried quickly and were empty before winter. The United States Drought Monitor currently shows all of the units as abnormally dry with the very eastern portion of Hunt Unit 131 being in a moderate drought. This year's soil moisture is below normal and dropped from 26% to 21% saturation for eastern Nevada according to the Nevada Water Supply Outlook Report by NRCS for March of 2018. The current dry weather pattern will lead to poorer than normal range conditions for

bighorn unless we receive above average precipitation this coming spring and summer, especially for the southern end of this hunt unit group.

Bighorn in Hunt Unit 131 can be found in a variety of habitat types and a range of elevations depending on the snow conditions in a given year. This animal distribution can range from the top of Currant Mt. 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 bighorn. In past surveys bighorn have also been found in the Duckwater Hills. In Hunt Unit 164, the sheep seem to prefer the hills around Big Round Valley where water is also a limiting factor and increasing feral horse numbers continue to compete with bighorn for available resources. One big game water development has been built targeting bighorn sheep on the south end of Currant Mountain. There are 5 wilderness areas in Hunt Unit 131. The Duckwater Shoshone Reservation lies within Hunt Unit 164.

Population Status and Trend

There have been 3 Rocky Mountain bighorn rams harvested in Hunt Unit 131, the last of which 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*. All 3 sub-populations have a high risk of further exposure and interaction with domestic sheep. During 2017, stray domestic sheep were seen in both Hunt Unit 164 and 131. Reduced lamb survival from 2012 to 2016 is likely due to the bacterial infection which resulted in a declining population. The population was once estimated at a high of 180 bighorn in 2011-2012 and going into 2017 there was strong lamb recruitment in Hunt Unit 164 with a population estimate of 130 bighorn suggesting an increase, but for 2018 both units show a declining population with an estimate of 110 adult bighorn.

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

Report by: Clint Garrett

Hunt Results

Three tags were issued in 2017 with 100% harvest success. All 3 tag holders hunted with no tags returned and averaged 3 days hunting per tag holder. For specific 2017 unit results, please refer to the Appendix section.

Survey Data

An aerial survey in September 2017 resulted in the classification of 85 sheep with sex and age ratios of 87 rams:100 ewes:58 lambs. This is the highest sample size to date obtained in this unit and the lamb ratio was well above the previous 5-year average of 34 lambs:100 ewes. Three purple ear tagged and collared sheep were seen during survey.

Weather and Habitat

As of March 2018 the Western Regional Climate Centers Hiko site, the closest to the southern end and the Blue Eagle Ranch site at the northern end of the unit both show below normal precipitation for the year. The southern portion of the unit received well above normal monsoonal moisture but most of fall and winter has received trace to no precipitation with the exception of January. The last significant precipitation the northern portion received was in March of 2017 and no precipitation was recorded in October of 2017. The United States Drought Monitor currently shows the unit as abnormally dry with the very north eastern portion being in a moderate drought. Soil moisture for this year is below normal and dropped from 26% to 21% saturation in eastern Nevada and in southern Nevada dropped from 42% to 32% according to the Nevada Water Supply Outlook Report by NRCS for March of 2018. Current conditions show this unit trending towards drought. The dry weather pattern will lead to poorer range conditions compared to last year with the need for precipitation this coming spring and summer to make up for the well below normal fall and winter precipitation.

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 only limited by available grasses, forbs and water. The burn at Troy provides the best habitat in the area and is used by bighorn due to its flush of grasses and forbs with available water nearby. Tree removal along with spring enhancement or guzzlers in this unit would be beneficial to bighorn. The Basin and Range National Monument encompasses a small portion of Hunt Unit 132. There are 2 wilderness areas in Hunt Unit 132.

Population Status and Trend

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

Origins of the Quinn Canyon Range sheep are unclear. A red ear tagged ewe was observed during the 2016 survey, which was originally released into the South Pahroc Range in 2011. The first aerial survey in the Quinn Canyon Range was conducted in February 2014 in which 10 adults and 5 newborn lambs were classified. The Quinn Canyon population appears to have little or no connectivity with the Grant Range herd as biological samples were collected for genetics and disease testing with the results being negative for *Mycoplasma ovipneumoniae.* During sample collection a collar and purple ear tag were placed on a ram in the area. Unfortunately the collar failed but the ram has been observed on past surveys in the same general area.

The 2018 population estimate is highest ever documented at 120 bighorn. The last 2 year observed lamb ratios have been well above average and this year's observed lamb ratio was the highest currently recorded for the unit showing an upward trend for this population.

Unit 133, 245: Pahranagat and Mount Irish Ranges; Lincoln County

Report by: Cooper Munson

Survey Data

No aerial surveys were conducted in this area during the reporting period.

Habitat

Spring habitat conditions had slightly degraded from previous years due to no precipitation between late March and early July 2017. During the mid-summer 2017 some precipitation fell in this area which minimally recharged some water sources that had been depleted. According to Community Environmental Monitoring Program (CEMP) precipitation data the annual precipitation received in Alamo during 2017 was approximately 84% of the previous 10-year average which is over 1.5 inches less than 2016. Most of the water developments in the North and East Pahranagats were dry or nearly dry during the height of summer and early fall, but were still being utilized by sheep throughout most of the year. Multiple water developments were repaired and maintained by the water development crew out of Las Vegas with the assistance of local volunteers. The timing of precipitation during late winter should have allowed sheep to continue to utilize water developments throughout this area.

Population Status and Trend

This population has shown a static trend for the past few years. Mild winters may be increasing lamb survival. The modeled population estimate for 2018 is similar to the 2017 estimate. Disease Surveillance has been conducted In 2012 (n = 7) and in 2015, 10 animals were sampled (4 - East Pahranagats, 4 -North Pahranagats, and 2 - Mount Irish area). In 2012, 3 bighorn tested positive for *Mycoplasma ovipneumoniae* for blood antibodies (titer) indicating past exposure and in 2015 there were 4 animals with a titer to *Mycoplasma ovipneumoniae*. In both years tests were negative for the presence of *Mycoplasma ovipneumoniae.* on Polymerase Chain Reaction (PCR).

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

Survey Data

An aerial bighorn sheep composition survey was conducted during September 2017. The survey covered Palisade Mesa, Lunar Cuesta, Little Lunar Cuesta, Black Beauty Mesa, Citadel Mountain, Twin Springs, Echo Reservoir, and Big Fault Mesa. During the survey, 68 sheep were classified as 22 rams, 36 ewes, and 10 lambs. A thorough survey was precluded in portions of the area due to weather. In comparison, 2016 yielded a sample size of 103 sheep classified as 30 rams, 54 ewes, and 19 lambs. Overall, the observed lamb to ewe ratios of 28:100 for 2017, and 35:100 for 2016 is well below the long-term average. However, there has been a higher lamb ratio observed since 2011 when disease was detected in this herd.

Habitat

In 2017 central Nevada received 88% of its 30-year average precipitation (CEMP). Spring precipitation resulted in 23% of 2017's precipitation accumulation. In early 2018, much needed precipitation was received. A SNOTEL site in central Nevada measured snowpack levels at over 88% in early March 2018. Above-average precipitation in 2015 and 2016-2017 winter-spring should have led to improved rangeland conditions. Although not observed in 2017, recent years' moisture receipts during summer-early fall have tempered the impacts of drought. Desert bighorn habitat in Hunt Unit 134 has benefitted from recent years' moisture and grass and forb species experienced good production during the growing season.

Population Status and Trend

In 2011 a pneumonia disease event related to the presence of *Mycoplasma ovipneumoniae* 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 from 2011 to 2013. An increase in lamb survival has been documented from 2014-2017, but further monitoring of the herd will be necessary to determine if it indicates the beginning of a recovery. As a result of the disease event, the Hunt Unit 134 desert bighorn population is still depressed and well below the estimate prior to the 2011 disease event.

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

Survey Data

In 2017, an aerial survey conducted in September yielded a sample size of 387 bighorn sheep which were classified as 108 rams, 198 ewes, and 81 lambs. This was a record sample for Hunt Unit 161. In comparison, the last survey in 2015 classified 308 bighorn sheep as 84 rams, 159 ewes, and 65 lambs.

Population Status and Trend

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

The recent detection of *Mycoplasma ovipneumoniae* and the presence of pneumonia in several central Nevada desert bighorn populations has raised concerns that Hunt Unit 161 desert sheep population is at risk of suffering the same fate. Currently, however, there have been no reported observations of sick desert sheep in Hunt Unit 161 and the herd appears to be doing well based on lamb recruitment. However, periods of drought and impacts from unreasonably high numbers of feral animals continue to plague the herd. On the positive side, with good winter-spring precipitation from 2015–2017, the Hunt Unit 161 desert sheep herd is considered to be increasing.

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

Survey Data

No aerial surveys were completed in 2017. The most recent aerial survey in 2016 yielded a sample size of 136 sheep which were classified as 44 rams, 65 ewes, and 27 lambs. The survey covered the southern portion of Hunt Unit 162, Warm Springs, Morey Peak, and Hot Creek Canyon.

Population Status and Trend

A small number of desert bighorn sheep occurred in the Hot Creek Range prior to the 1990's, 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 Hunt Unit 162 prior to 2005 and has remained relatively static. Pioneering has also occurred in the southern portion of Hunt Unit 162 over the past several years. A small scale radio collaring project was initiated in this area in January 2013, and the monitoring of a collared ewe and a collared ram has provided interesting data concerning sheep movements, lambing areas, and connectivity to adjacent herds.

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

Unit 173: Toiyabe Range; Northern Nye County
Report by: Joe Bennett

Survey Data

An aerial survey was conducted in September 2017. The survey yielded a sample size of 53 sheep which were classified as 9 rams, 31 ewes, and 13 lambs. No formal surveys were conducted in Hunt Unit 173 in 2016. Areas surveyed included Peavine Canyon, Seyler Peak, areas adjacent to Toiyabe Dome, North Twin River and portions of the San Antonio Mountains near Liberty Mine and Spring.

Habitat

The largest portion of the Hunt Unit 173 desert sheep populations occurs in and around the Peavine Canyon and Seyler Peak area of the Toiyabe Range, although animals can regularly be found along the eastern side of the Toiyabes as far north as Ophir Canyon. In recent years there have not been any ancillary reports of sheep utilizing the lush meadow habitat in Peavine Canyon, contrary to historical distribution. The 2017 precipitation receipts were 88% of the 30-year average. Other factors are likely contributing to why sheep have not returned to Peavine Canyon's productive meadows with adequate moisture the last few years.

Population Status and Trend

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

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

The recent detection of *Mycoplasma ovipneumoniae* and the presence of pneumonia in several central Nevada desert bighorn populations has raised concerns that the Hunt Unit 173 desert sheep population is at risk of suffering the same fate. The Hunt Unit 173 desert sheep population is considered to be experiencing a static to slightly increasing trend due to higher lamb recruitment.

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

Report by: Jason Salisbury

Survey Data

In September 2017, a 3 hour aerial survey yielded a total of 408 desert bighorn sheep. The observed sex and age ratios were 69 rams:100 ewes:28 lambs. Areas surveyed included the Fairview Range, Sand Springs Range, and Monte Cristo Mountains. This is the highest recorded sample size ever obtained for this unit group.

Habitat

The U.S Navy is in the planning process to withdraw additional public land north and southeast of the currant Bravo-17 bombing range. The area may potentially encompass the Sand Springs Range, the Monte Cristo Mountains, Fairview Mountain, and Slate Mountain. The Nevada Department of Wildlife is currently working with the Navy to allow for hunting activities on the bombing range if these expanded areas are granted. The Nevada Department of Wildlife, various sportsmen's groups, and land managing agencies have spent countless hours and money developing this sheep resource. It is important to try and maintain some level of hunting opportunity into the future.

In 2017 a fire started on the Bravo-17 bombing range within Hunt Unit 181. Within a days' time the fire had engulfed the east side of Fairview Peak as well as Slate Mountain. When the fire was out it had consumed more than 27,000 acres of habitat. Some of the fire occurred in the old fire scar but a large portion of it burned native habitat on Slate Mountain. If there is a positive side to the fire, it is that the Nevada Department of Wildlife was able to seed about 3,500 acres of critical habitat with forage kochia and snowstorm kochia. These non-native plants will provide high crude protein to the bighorn herd and can withstand heavy grazing and fire.

The South Rail fence located in the Sand Springs Range was destroyed in the summer of 2017 by a monsoonal rain event. In March 2018, the Nevada Department of Wildlife and Nevada Bighorns Unlimited rebuilt this site. To safeguard it from future flash flood events, the water development was tucked away from the main flow of the wash. Large boulders were then rip-rapped to protect the tanks as well as provide a needed storm flow channel. The site should be functional for many years to come. An additional big game water development was cleared for a new build up the canyon from the South Rail Fence. This unit will serve as a backup system which relies on precipitation where the South Rail Fence relies on a natural spring. The Slate Mountain guzzler will require some minimal maintenance in 2018. The fiberglass lids were burned up on 2 tanks and a few apron panels were destroyed in the recent fire.

Population Status and Trend

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

Unit 183: Clan Alpine Range; Churchill County
Report by: Jason Salisbury

Survey Data

During a 2.5 hour aerial composition survey in September of 2017 a total of 294 desert bighorn sheep were classified as 86 rams, 143 ewes, and 65 lambs, which provides sex and age ratios of 60 rams:100 ewes:45 lambs.

Habitat

In 2017, the Little Angel water development was upgraded. This water storage capacity increased from 7,250 to 12,000 gallons. The increased storage and apron size should enable the unit to be self-sustaining.

Additionally, the Lauderback water development should be rebuilt. It has a small capacity of 3,000 gallons and continually goes dry in late summer from increased bighorn use. Increasing its storage and apron size will afford the herd a reliable backup water source to the neighboring Little Angel water development.

In the summer 2017, 2 large fires consumed thick stands of pinyon pine on the east face of the Clan Alpine Range. The Nevada Department of Wildlife seeded approximately 3,500 acres of the Tungsten Fire. The Draw Fire was seeded by NDOW and the BLM. Both fires consumed close to 28,000 but only a small portion of important drainages were seeded. The pinyon pine that burned had understory still intact in some areas. It is believed that these areas will respond quite well to the new burns. These newly created areas will support bighorn sheep into the future.

Population Status and Trend

The 2017 Clan Alpine Range herd estimate is 475 bighorn, and is a slight increase of what was reported last year. This year's lamb ratio of 46 lambs:100 ewes will allow for continued population growth.

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

Survey Data

In September of 2017, a 2 hour survey yielded a sample of 126 desert bighorn sheep. The observed sex and age ratios were 30 rams:100 ewes:34 lambs. Bighorn sheep were encountered throughout the Desatoya Mountains, Eastgate Hills, and Greyback.

Habitat

In the summer of 2016, a human-caused fire erupted in the lower portions of Little Den Creek. This fire consumed a total of 3,560 acres of pinyon-juniper woodland and higher elevational sagebrush basins. The Nevada Department of Wildlife and the BLM seeded this fire in January 2017. In the fall 2017 the seeding looked phenomenal with many small bunchgrasses and sagebrush observed from the air. This fire will be beneficial to bighorn sheep as long as the horses and cows do not over-utilize and destroy the early seral stage plant development.

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

Population Status and Trend

In November 2017, disease surveillance was conducted in the Desatoya Mountains. In total, 8 bighorn sheep were captured for sampling of which 4 were fitted with GPS/VHF collars to track seasonal distribution for the bighorn herd. Test results showed titers to the primary pathogen of concern *Mycoplasma ovipneumoniae* in 4 of the 8 sheep indicating the herd had past exposure but no active infection of *Mycoplasma ovipneumoniae*. These test results support past observations in the Desatoya's of bighorn with clinical signs of pneumonia back in 2009.

The 2017 lamb ratio of 34 should allow for the Hunt Unit 184 bighorn population to remain stable.

Unit 195: Virginia Range; Storey County

Report by: Carl Lackey

Survey Data

An aerial composition survey was conducted in September 2017 yielding a sample of 40 bighorn sheep with a ratio of 68 rams:100 ewes:32 lambs. Animals were found on Clark Mountain in the vicinity of the lower water development and throughout the Eagle-Picher Mine area.

Habitat

Habitat conditions in this unit are marginal to poor, due in large part to the feral horse population in the Virginia Range, estimated at 3,000 by the Nevada Department of Agriculture which has management responsibilities for this private-land feral horse population. The management or removal of these feral horses would be necessary if habitat conditions are going to improve. Precipitation levels received from November 2017 to spring 2018 appear adequate to maintain the habitat at current levels and to fill the bighorn water developments.

Population Status and Trend

The modeled population estimate shows a slight upward trend despite the habitat conditions. Sheep inhabit Clark Mountain, the Gooseberry Hills, the Derby Dam cliffs and the area around the Eagle-Picher Mine. Trail camera photos from guzzlers show increasing numbers of untagged sheep in various age classes indicating good recruitment into the population since the initial releases in 2011 and 2012. The population has more than doubled since the reintroduction. This unit is not hunted.

Unit 202: Wassuk Range; Mineral County

Report by: Jason Salisbury

Survey Data

In September of 2017, an aerial survey conducted in the Wassuk Range yielded a sample of 122 desert bighorn sheep. The sample yielded a sex and age ratio of 41 rams:100 ewes:35 lambs.

Habitat

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

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

Population Status and Trend

Last year the Nevada Department of Wildlife was contacted by a local sportsman from Hawthorne about a decrease in the number of lambs that he previously encountered. Upon investigation, ewes and lambs were observed coughing and subsequently did not have lambs with them. It is likely that their lambs may have been exposed to and possibly died of pneumonia. Other ewe/lamb nursery groups with no coughing or clinical signs of pneumonia were also observed. Observations from the aerial survey further concluded that there were separate groups of ewes with lambs and groups with no lambs. When these were averaged out after the survey they provided a ratio of 35 lambs:100 ewes.

Over the past 3 years bighorn sheep vehicle collisions on U.S. Highway 95 have been increasing in the cliff area just north of the town of Walker Lake. Over 30 bighorn sheep have died because of vehicle collisions in that time. Two separate meetings were held among Nevada Department of Transportation (NDOT), Nevada Highway Patrol (NHP), and Nevada Department of Wildlife to discuss what could be done to reduce conflicts with vehicles and bighorn. Ideas included reducing speed limits, more highly visible signage, possible wildlife crossings, reducing or eliminating the population, installation of fencing, aversive training, and herbicide treatment along the highway. In the spring 2017, NDOT applied herbicide to reduce grasses along the roadside. It is hoped that this will reduce the green foliage and may reduce the amount of time bighorn utilize the highway corridor. This is just one step in a series of actions that may be tried to reduce bighorn and vehicles collisions.

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

Unit 204: East Walker River; Lyon County

Report by: Jason Salisbury

Survey Data

A 1.5 hour aerial composition survey was conducted in Hunt Unit 204 in September of 2017. In total 21 bighorn sheep were classified as 3 rams, 13 ewes, and 5 lambs in the East Walker drainages.

Habitat

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

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

Population Status and Trend

The East Walker River population seems to be doing well considering the small geographic area it occupies. Hopefully favorable environmental conditions will present themselves in the spring 2018. The 2018 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 2017, a 5.5-hour aerial survey yielded a sample of 462 desert bighorn sheep consisting of 114 rams, 234 ewes, and 114 lambs, which provides a sex and age ratio of 49 rams:100 ewes:49 lambs.

Habitat

During the summer of 2016, Corral Spring was considered for a potential pipe rail project. The Bureau of Land Management and the Nevada Department of Wildlife along with the livestock permittee discussed options to improve the spring and allow for more water to be stored in storage tanks. Currently we are working on an agreement to fix numerous degraded springs in the area. Improving natural waters is one of the most important things that can be done in any bighorn sheep unit.

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

In the summer 2018, the Lower Paymaster water development located in the Gillis Range will be rebuilt. The newly improved unit will have new tanks, a drinker, and an increased apron size to keep up with the demands of the sheep herd.

Population Status and Trend

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

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

Survey Data

Aerial surveys were completed in September of 2017 and resulted in the observation of 88 desert bighorn sheep classified as 20 rams, 45 ewes, and 23 lambs. The observed lamb ratio of 51 lambs:100 ewes on survey indicate an increasing population trend.

Habitat

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

Population Status and Trend

This is the third and final year of a collaborative project with the University of Nevada Reno and NDOW looking at habitat resource selection by ewes during and after lambing in the Garfield Hills. Ewes and lambs are collared to determine survival and habitat use. Two complements of sheep were released into the Garfield Hills in the fall 2015 and winter 2016. The sheep from the first release originated from the Gabbs Valley Range and the second release came from Lone Mountain. The Lone Mountain sheep complement is associated with the collaring study. The first year 12 lambs were collared after they were born in April and May 2016. By September 2016, 5 lambs had died from abandonment and predators. The second round of captures occurred in the winter 2017 in which 9 sheep were captured and only 2 of them were pregnant. It is believed that poor forage conditions relative to what they were used to on Lone

Mountain and the inability to find water until late August may have led to poor body condition and lack of pregnancy. The following year 7 sheep were captured in January 2018 with improved body condition from the previous year. Six of the 7 sheep were confirmed pregnant. Four out of the 6 lambs were born 2 to 3 weeks post-capture and 1 lamb was born in March. In a 2-year period the ewe's estrus cycle changed which allowed for lambs being born 2.5 months earlier than previously suspected. As of this report 2 of the 5 lambs have succumbed to avian predation.

In the summer 2017, the Gabbs Valley Range sheep release complement for Garfield Hills was observed with a lamb ratio of 78:100 ewes. This higher lamb ratio showed the Gabbs Valley Range source stock had faired far better to the Garfield Hills habitat resources than the translocated Lone Mountain ewes. Several factors may have contributed to the Gabbs Valley Range complement performing so well including: having similar plant phenology and forage composition as Garfield Hills, being more dependent and accustomed to water developments vs. natural spring sources, and being translocated 3 months earlier than the Lone Mountain complement.

The Hunt Unit 206, 208 desert sheep population continues to exhibit good production rates and continues to grow and occupy new terrain, especially the recently established herd in the Candelaria Hills and its seasonal use on the adjacent Miller Mountain.

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

Report by: Joe Bennett

Survey Data

An aerial survey in September 2017 yielded a sample size of 294 sheep and classified as 89 rams, 156 ewes, and 49 lambs. The most recent survey in 2016 yielded a sample size of 232 sheep which were classified as 56 rams, 127 ewes, and 49 lambs. Areas surveyed include Nivloc Mine, Argentine Canyon, Rhyolite Ride, Mineral Ridge, Emigrant Pass, and the Volcanic Hills.

Habitat

The 2015's and 2016's above-average spring precipitation should have improved rangeland conditions compared to recent drought years. The 2017's decent winter and spring precipitation should have allowed range conditions adequate resources for plant growth. The recent installment of 2 new big game guzzlers in the Mineral Ridge area near Silver Peak should distribute the herd and alleviate the detrimental effects of sheep watering on the mine.

Population Status and Trend

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

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

The presence of *Mycoplasma ovipneumoniae*, a bacterium related to pneumonia outbreaks in bighorn sheep, was documented in a ram harvested in Hunt Unit 211 during the 2013 desert sheep hunting season. During October 2014, a disease surveillance and radio marking effort was conducted in Hunt Unit 211. GPS collars were placed on 4 rams in Hunt Unit 211 during the effort, including 2 in the Silver Peak Range, and 2 in the Volcanic Hills. During the operation, biological samples were obtained from 13 sheep. Results

indicate that *Mycoplasma ovipneumoniae* is present in both the Silver Peak portion of the unit, as well as the Volcanic Hills. In addition, a lamb showing clinical signs of disease was collected in the Silver Peak Range in July 2017. Tests revealed the presence of *Mycoplasma ovipneumoniae* as well as severe pneumonia which would have likely resulted in the death of the lamb. Recent additional samples also indicate the presence of sinus tumor and lungworm in this population.

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

Unit 212: Lone Mountain; Esmeralda County

Report by: Joe Bennett

Survey Data

No aerial surveys were conducted in Hunt Unit 212 during 2017. The most recent aerial survey was conducted in September 2016. The survey yielded a sample size of 350 sheep, which were classified as 118 rams, 162 ewes, and 70 lambs.

Population Status and Trend

The Hunt Unit 212 desert sheep population is one of only a few remnant central Nevada herds that survived extirpation during the 19th and 20th centuries due to a variety of anthropogenic causes. Once regulations that provided reasonable protections to bighorn sheep were put into place, the Lone Mountain herd began increasing steadily. By the late 1980's the estimated population was over 200 animals. This population served as transplant stock during 2 successive years in the late 1980's. Immediately following these captures, the herd experienced a sharp decline, and by 1991 the herd's estimated population was less than fifty animals. The exact cause of this decline is uncertain. Due to excellent production and recruitment rates experienced over a decade now, the Hunt Unit 212 desert sheep population has increased at a phenomenal rate. Due to the steadily increasing population, and a desire to control densities, the Hunt Unit 212 herd was once again utilized as a source of transplant stock in November 2012. 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*. In April 2014, 2 adult ewes and a young ram were collected for sampling and necropsy. Results confirmed the presence of *Mycoplasma ovipneumoniae* in the Hunt Unit 212 sheep herd. Additionally in 2014, as part of a larger disease monitoring effort, several sheep were captured and sampled and 2 rams were collared to assess movements. Despite the presence of *Mycoplasma ovipneumoniae* and observations of animals showing clinical signs of disease, no significant adult mortality has been documented to date. Moreover, strong observed lamb ratios during the 2014 fall survey indicated the lamb segment of the herd only experienced 1 year of high mortality in 2013.

In 2014, a ewe hunt was established in Hunt Unit 212 in an effort to help reduce sheep densities on Lone Mountain. A ewe hunt has been available from 2014 to present. If the herd continues to show good lamb production and recruitment despite the ongoing disease issues, it will be necessary to continue the harvest of ewes to manage animal density at some level.

In January 2016, 34 ewes were captured for a University of Nevada, Reno Ph.D. research project. Of these 34 sheep, 18 ewes were translocated to the Garfield Hills. The purpose of this project is to describe 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 of field research, 26 additional ewes were captured on Lone Mountain. The adult ewes that were determined pregnant were fitted with Vaginal Implant Transmitters in order to obtain lambing locations.

As a result of ewe harvest strategies and translocation efforts, the Hunt Unit 212 desert sheep population is currently showing a decreasing trend. Since we have met our population objective, the department will be recommending a less aggressive ewe harvest strategy.

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

Survey Data

No aerial surveys were conducted in Hunt Unit 213 during 2017. The most recent aerial survey was conducted in September 2016. The survey yielded a sample size of 397 sheep, which were classified as 100 rams, 201 ewes, and 96 lambs. This survey covered Shovel Spring Basin, South Gilbert, Trough Spring, Devils Gate, and the hills north of Monte Cristo #1 guzzler.

Population Status and Trend

The Monte Cristo desert sheep population is one of only a few remnant sheep herds in central Nevada. The herd has exhibited steady growth over the past 7 to 10 years, and the population has reached a level where there is concern over animal densities. During the fall 2011, 34 bighorn were removed from the Monte Cristo Range for translocation to the Virginia Range, Hunt Unit 195 to reduce animal densities. In addition to the 2011 capture effort, a ewe hunt was established in 2014 to further reduce animal densities in the Monte Cristo Range.

During late 2013 and early 2014, bacteria that cause pneumonia in bighorn sheep, *Mycoplasma ovipneumoniae* was documented in adjacent herds in Hunt Units 211 and 212. As expected, it was not long before the pathogen was detected in the Hunt Unit 213 desert sheep population. As part of a larger disease surveillance effort for the metapopulation in Esmeralda and Mineral Counties, 10 sheep were captured from various parts of the Monte Cristo Range for pathogen testing. Four rams were also fitted with GPS collars. It is anticipated that this project will help biologists further understand the implications of the presence of *Mycoplasma ovipneumoniae* in bighorn sheep herds, as well as sheep movements between populations, and could potentially aid in the future management of disease risk.

Currently, desert sheep densities in the Monte Cristo Range are considered to be excessive. Now that the presence of *Mycoplasma ovipneumoniae* has been documented in Hunt Unit 213, translocating animals to reduce densities is currently not an option. In the presence of disease, the 213 sheep population is still producing good lamb recruitment. If the herd continues to experience current levels of lamb recruitment despite the disease exposure, it will be necessary to continue with ewe hunts as a means of controlling animal densities. Due to ewe harvest, the current population model for Hunt Unit 213 shows a slightly decreasing trend for this herd but yet still above the population objective of 400.

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

Survey Data

Aerial surveys were conducted in September 2017 in the Hunt Units 223 and 241. A relatively high number of sheep were classified during these flights consisting of 35 rams, 71 ewes, and 22 lambs which provide a ratio of 49 rams:100 ewes:31 lambs and totaling 128 sheep. This survey was slightly less successful in locating sheep in the Delamar Mountains than in previous years, although hunter observations provided larger numbers than observed during aerial surveys. No surveys were conducted in Hunt Unit 221, although recent observations have been made as well as images captured of sheep in the area.

Habitat

Habitat conditions throughout this area were reported as excellent during September described by ample green grasses and other vegetation appearing healthy throughout a range of elevations. Water

development surveys show several of the sheep guzzlers were at or near capacity, but some units fell well below average levels during the hot summer months. The Judy water development in the Delamars was rebuilt after being destroyed by fire, while 2 other water developments in the South Hiko Range were rebuilt in 2014. One water development was rebuilt in the North Hiko range to increase efficiency and storage capacity. Bighorn sheep in these areas are faced with a host of varied issues including OHV races and rock crawling courses, new power lines, development, and domestic sheep interaction. In late 2015 disease sampling efforts resulted in the detection of *Mycoplasma ovipneumoniae* within the herd. Staff will be monitoring this population in attempt to detect the progression of the disease.

Population Status and Trend

Two releases were completed in the Delamar and South Pahroc ranges in fall 2011. A total of 75 sheep were released into these areas. Bighorn released in these areas have been observed to commonly move to adjacent ranges. It appears that some of the sheep from the South Pahroc release have possibly even moved some 60 miles northwest to the Quinn Canyon Range, while others have taken up residency within Hunt Units 223 and 241. The computer-generated population estimate for 2018 is similar to the estimate for 2017. NDOW biologists determined that the inclusion of Hunt Unit 221 would allow for hunters to harvest legal rams if found in the South Egan Range although density and distribution of individuals is not known at this time. There was a noticeable increase in lambs observed in 2017 compared to 2016 which allows biologists to be optimistic during the looming threat of disease.

Unit 243: Meadow Valley Mountains; Lincoln County

Report by: Cooper Munson

Survey Data

Five and a half hours of survey time was expended in the Meadow Valley Mountains in September 2017. A total of 123 sheep were observed, being the second highest survey total, second only to the previous survey in 2015. A total of 29 rams were observed with 27% being classified as 6+ years old, as well as 68 ewes and 28 lambs. This provides a ratio of 43 rams:100 ewes:38 lambs. Sheep appeared to be in healthy condition and utilizing nearly all portions of the hunt unit.

Habitat

According to CEMP, this area should have received about 89% of the 10 year average annual precipitation during 2017. The lack of summer precipitation may have resulted in reduced habitat conditions across the landscape. Water developments were observed to be holding fair amounts of water in February, 2017 while maintenance and repairs have been accomplished on most of these developments keeping them functional and reliable water sources for wildlife. One water development unit was rebuilt to increase efficiency and capacity on the southern portion of the unit. Natural water sources seemed to provide reliable water throughout the year in spite of minimal precipitation. Wilderness, private land issues, and limited roads combine to make access into the Meadow Valley Range very difficult for sheep hunters. There is currently a threat of disease transmission between domestic sheep and goats with the wild sheep population in this area. NDOW is addressing this issue by monitoring the potential areas of contact between domestic livestock and wildlife.

Population Status and Trend

Previous releases of sheep into the Meadow Valleys and Delamars combined with poor to moderate habitat conditions have resulted in a static trend in the population. Population estimates have been consistent during the last 3 years and the estimate for 2018 is slightly above the 5 year average. Disease surveillance conducted in October 2015, detected *Mycoplasma ovipneumoniae* in 2 of 7 bighorn sampled. Two different tests were run that showed 2 animals had an active infection of *Mycoplasma ovipneumoniae* through Polymerase Chain Reaction (PCR) method and 2 animals had antibody titers in their blood detected by the enzyme-linked immunosorbent assay (ELISA) method which indicates past exposure to *Mycoplasma ovipneumoniae*.

Unit 244: Arrow Canyon Range; Northern Clark County
Report by: Pat Cummings

Survey Data

No aerial desert bighorn survey was conducted in Hunt Unit 244 in 2017. In late September 2016, an aerial survey over the Arrow Canyon Range and Battleship Hills yielded a sample of 124 sheep. The sample was comprised of 37 rams, 63 ewes, and 24 lambs. Bighorn sheep were encountered throughout much of the range, and nearly all were found within 2 linear miles of available water.

Habitat

Overall, dry conditions prevailed throughout the 2017 monsoon season and persisted through fall and early winter months (2017-2018). Ambient daily high and low temperatures trended well above averages through fall and winter months. Range conditions were largely marginal and marked by limited new vegetative growth among forage plant species. Thus, bighorn sheep subsisted on less digestible forage diets. As a consequence, bighorn sheep experienced increased reliance on water resources through otherwise cooler fall and early winter months.

Despite overall dry conditions, storm events over a 2-day period in January 2018 produced rainfall in amounts sufficient to recharge all 6 water developments in the Arrow Canyon Range and Battleship Hills. Four weeks later in February 2018, in the course of conducting water development inspections, it was noted that range conditions were greatly improved, as range plants responded to the recent moisture.

In January 2014, the 231 mile long One Nevada Transmission Line that electrically connects northern and southern Nevada was commissioned. The 500 kV transmission line runs from the Harry Allen Generating Station north through the Arrow Canyon Range about 1.5 miles south of the Arrow Canyon #1 water development. The line continues north, closely skirting the west side of the Arrow Canyon Range to the new Robinson Summit Substation located west of Ely, Nevada.

Population Status and Trend

Based on population data collected in September 2016, lamb representation (38 lambs per 100 ewes) in the aerial survey sample was high and suggestive of increased recruitment in 2017. Disease surveillance efforts in 2015 in the Arrow Canyon Range entailed the capture and sampling of 6 ewes. Subsequent Polymerase Chain Reaction (PCR) and enzyme-linked immunosorbent assay (ELISA) positive lab results confirmed *Mycoplasma ovipneumoniae* infection in the desert bighorn herd. It was reasoned the bighorn population contracted in 2015 and 2016. The 2018 population estimate remains unchanged from last year.

Unit 252: Stonewall Mountain; Nye County
Report by: Joe Bennett

Survey Data

The early September 2017 aerial survey for Hunt Unit 252 yielded 91 sheep classified as 28 rams, 58 ewes, and 5 lambs. Areas surveyed included Stonewall Proper, NE Hills, Pack Rat Canyon, Little Grand Canyon and the hills south of Vitavich. In comparison, the 2016 survey yielded 174 sheep classified as 55 rams, 108 ewes, and 11 lambs.

Population Status and Trend

Before disease prevalence in the Stonewall Mountain herd was detected in 2014, lamb recruitment allowed the herd densities to increase steadily. In an effort to help 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 (Hunt 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 for 4 consecutive years (2014-2017). To assess connectivity, movement, and disease transmission of bighorn sheep populations throughout the NTTR, a satellite collaring and disease surveillance project was initiated in fall 2015 and continues to present. Nineteen sheep in 2015 were collared to help give insight into movements of bighorn sheep populations throughout the NTTR. An additional 6 sheep were captured in November 2016 and 12 sheep in October 2017. Coupled with the disease, the 252 sheep herd experienced additive predation mortality near Vitavitch spring in 2017.

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

Unit 253: Bare Mountain; Southern Nye County

Report by: Pat Cummings

Survey Data

No aerial bighorn sheep survey was conducted in Hunt Unit 253 in 2017. In late October 2016, a brief 2.4-hour aerial bighorn sheep survey over Bare Mountain yielded a sample of 188 sheep. The sample reflected gender and age ratios of 81 rams:100 ewes:28 lambs. In comparison, in October 2014, a record aerial survey yielded a sample of 265 sheep. The largest recorded sample reflected gender and age ratios of 58 rams:100 ewes:54 lambs.

Habitat

Bighorn sheep continue to cope with environmental effects brought about by excess burros. The northern half of Bare Mountain lies within the Bullfrog Herd Management Area. The town of Beatty, Nevada is centrally located within the Herd Management Area (HMA), and US 95 divides the HMA into eastern and western portions. The Bureau of Land Management (BLM) established an appropriate management level (AML) for feral burros in the herd management area (HMA) at 58-91.

In January 2012, BLM finalized planning efforts to capture and remove excess feral burros from the Bullfrog HMA, and all burros beyond the established boundaries of the HMA. At that time, an aerial burro census resulted in 195 feral burros counted, of which 42 were encountered outside of the HMA. Undetected burros notwithstanding, the census over 6 years ago reflected a burro population 236% above the lower end of AML.

In March 2012, only 77 burros were gathered and removed due to limited short-term holding space. It is likely most or all of the 77 burros that were removed were animals in Beatty and generally distributed on and near US 95. Thus, the gather was essentially inconsequential in addressing problems related to excess burros on Bare Mountain.

In September 2015, prior to removal of 44 burros from the Beatty area, BLM estimated the population reached 243. The BLM also revised the annual rate of population expansion from 16% to 20% from 2012 through 2015. In late May 2017, BLM conducted an aerial inventory through which 620 burros were encountered in the Bullfrog HMA and some of the nearby Amargosa Desert. Although BLM has yet to issue an official burro estimate for the Bullfrog HMA, Tonopah Field Office staff indicated an unofficial 2018 population estimate of 737 may be derived by accounting for 19% growth above the raw count of 620 in 2017. Thus, the present estimate reflects a burro population that is 1,171% above the lower range (58) of AML.

Environmental conditions in early 2018 may be characterized as poor. Precipitation receipts in 2017 and early 2018 were well below normal. Collectively, water developments on Bare Mountain were not sufficiently recharged to meet the upcoming bighorn sheep demand. In the absence of near-term moisture producing storms or emergency water haul action, it is anticipated all 4 water developments will reach depletion in spring and early summer 2018.

In April 2013, a water development was constructed on the southwest side of Bare Mountain. The new development incorporated a cross-leveling design (no float valve), a steel collection apron, 5 low profile tanks and an offset steel drinker. The total storage capacity of the new project is about 11,000 gallons. The water development is located 0.5 mile northwest of existing Bare #1 (considered offline) and was originally intended to replace the older and less reliable water development.

Population Status and Trend

Evidence suggests the bighorn sheep herd was exposed to *Mycoplasma ovipneumoniae* in 2014. Since that time, indications are the bighorn population continues to contract. Important factors contributing to the population decline include ewe removals and reduced recruitment. Ewe removals through harvest under 3 hunt seasons since 2015 appear to be the principal factor driving the desired population decline. The ewe hunt seasons were implemented to reduce the bighorn population and address concerns primarily about water resource limitations.

Desert 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, desert bighorn sheep use of the area is reasoned to be primarily seasonal (late fall-winter-spring). The Beatty Wash-west Yucca Mountain area is an important movement corridor and should be recognized in land use planning.

Unit 254: Specter Range; Southern Nye County

Report by: Pat Cummings

Survey Data

In October 2017, an aerial desert bighorn sheep survey conducted over the Specter Range yielded the largest sample recorded. The 4.4-hour survey yielded a sample comprised of 66 rams, 104 ewes and 20 lambs. Given the encounter rate exceeded 40 animals per hour, bighorn sheep were well distributed throughout the range. The previous aerial survey was conducted in October 2015, and resulted in the classification of 25 rams, 34 ewes and 10 lambs.

Habitat

Environmental conditions may be characterized as poor to fair in the Specter Range. Dry conditions prevailed throughout 2017. Due to limited new vegetative growth among forage plant species, bighorn sheep generally subsisted on lower digestible forages. It was noted on water development maintenance flights conducted in February 2018 that bighorn sheep use of water sources was steady throughout the winter (2017-18).

Despite overall dry conditions, storm events over a 2-day period in January 2018 produced rainfall amounts sufficient to partially and fully recharge 6 water developments. Viewed collectively among all water developments, water storage capacity was recharged to 68%. The Redtail and Falcon developments were only recharged to 38% and 44%, respectively, and may become depleted in upcoming summer 2018. There are no known springs or seeps in the Specter Range.

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

Population Status and Trend

The fall 2017 aerial survey yielded a sample that was well above all previous survey results. At present, it is deemed imprudent to force the population model to completely account for and be entirely consistent with recent survey data. It is reasoned that additional surveys need to be conducted to accurately portray the degree of population expansion. Thus, the 2018 estimate reflects a modest increase relative to the estimate reported last year. Lamb representation in the recent survey equated to 19 lambs per 100 ewes, and may be indicative of 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 (PCR) in one ewe and definitive prior exposure in 2 rams by enzyme-linked immunosorbent assay (ELISA). The bighorn sheep population estimate is about the same as last year.

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

Unit 261: Last Chance Range; Southeastern Nye County

Report by: Pat Cummings

Survey Data

No aerial desert bighorn sheep survey was conducted in Hunt Unit 261 in 2017. In mid-October 2016, an aerial survey over the Last Chance Range yielded a sample of 141 sheep. The sample reflected sex and age rations of 57 rams:100 ewes:15 lambs.

Habitat

Range conditions in the Last Chance Range may be characterized as fair. Overall dry conditions prevailed in 2017. Likewise, precipitation receipts in early 2018 were below normal.

Based on inspections of all 7 water developments in the Last Chance Range in February 2018, 2 units in the southern portion of the range were fully recharged and of the remaining 5 units, 4 were partially recharged and 1 was fully depleted (maintenance issue/component failure). Available water stores inclusive of Point of Rocks Springs will be sufficient to meet bighorn demand throughout upcoming summer and early fall months.

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

Population Status and Trend

The 2018 bighorn sheep population estimate reflects a modest contraction that is related to low lamb representation encountered in the 2016 population survey. The current estimate reflects poor recruitment as a consequence of increased lamb mortality that is attributable to bacterial pneumonia. 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 (ELISA) of blood and Polymerase Chain Reaction (PCR) 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, and portray a herd still coping with infection.

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

Report by: Pat Cummings

Survey Data

No aerial bighorn sheep survey was conducted in Hunt Unit 262 in 2017. In fall 2016, aerial survey efforts involved 15.6 hours of flight time over the course of 4 days, and were focused over the following areas: La Madre Mountain, Brownstone Basin, Calico Hills, Red Rock Escarpment, Potosi Mountain (east and south), Bird Spring Range, Shenandoah Peak complex, Table Mountain, Little Devil Peak and Devil Peak. The survey yielded a sample of 159 bighorn sheep. The sample was comprised of 47 rams, 99 ewes and 13 lambs.

Habitat

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

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

Population Status and Trend

Bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. Based on fall aerial surveys over several years, the herd has experienced a considerable contraction marked by negligible lamb survival and reduced adult survivorship. A chronology of relevant events that were reported in recent years may be found in the 2014-15 Big Game Status book. The 2018 population estimate reflects a herd in decline.

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 sheep by Polymerase Chain Reaction (PCR) and definitive prior exposure among 6 individuals through enzyme-linked immunosorbent assay (ELISA). The results of the lab tests and low lamb representation in the fall aerial survey suggest the herd is still coping with bacterial pneumonia.

Bighorn sheep in the Spring Mountains face challenges with respect to habitat degradation, fragmentation and loss. In the La Madre Ridge area, human encroachment in the form of suburban sprawl and off highway vehicle use has degraded bighorn habitat. Increasingly, land management emphasis in the Red Rock area accommodates human recreational pursuits that often compromise habitat and wildlife conservation.

In the late 1990s, the Bureau of Land Management (Las Vegas) administratively designated a large area (approximately 3,641 acres) east of La Madre Ridge as the Lone Mountain Community Pit. The intent of the designation was to accommodate local demand for an additional source of sand and gravel to support development in southern Nevada. In the 1960s, the Bureau of Land Management identified much of the area now within the boundary of Lone Mountain Community Pit as seasonally important for desert bighorn sheep.

Unit 263: McCullough Range and Highland Range; Southern Clark County

Report by: Pat Cummings

Survey Data

No aerial desert bighorn sheep survey was conducted in Hunt Unit 263 in 2017. In October 2016, aerial

bighorn sheep surveys were conducted over the Highland Range and McCullough Range. Bighorn were encountered throughout much of the area covered over the McCullough Range; however, lamb encounters were low. In the Highland Range, sheep were encountered in the north half. Inclusive of both survey efforts, 66 rams, 160 ewes and 13 lambs were classified.

Habitat

On March 21, 2015, a fifth bighorn sheep water development was constructed in the McCullough range by members of the Fraternity of the Desert Bighorn and the Nevada Department of Wildlife personnel. The project is situated east of Hidden Valley near the crest of the range and enhances water availability in a region between the 2 southernmost existing water developments, Linda and Roy. The McCullough #6 water development is an equilibrium system (i.e., no float valve) and incorporates 4 low profile IRM tanks. Water storage capacity of the new development is 8,800 gallons. In late April 2015, the McCullough #5 water development was constructed between the 2 existing northeastern most projects, Penny and Roy. As of late April 2015, there are 6 bighorn sheep water developments situated north of McCullough Pass.

In February 2013, the Poppy water development was reconstructed. Situated in the North McCullough Wilderness, the existing 3 upright poly tanks were replaced with low profile IRM tanks. The old drinker and float valve were replaced with a new drinker to complete the leveled system. Water storage capacity increased from 4,650 gallons to 8,800 gallons.

Several projects to construct recreation trails in bighorn sheep habitat are underway or completed. The City of Henderson is constructing trails on the north end of the McCullough Range and the Bureau of Land Management will ultimately complete a network of linking trails in Sloan Canyon National Conservation Area and in 2 wilderness areas.

Population Status and Trend

Bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. The herd has experienced a considerable contraction marked by low lamb survival. A chronology of relevant events that were reported in recent years may be found in the 2014-15 Big Game Status book. In November 2015, continued disease surveillance measures entailed captures of 1 ram and 6 ewes in the McCullough Range, and 1 ram and 1 ewe in the Highland Range. Subsequent laboratory diagnostic tests detected the "Mojave" National Preserve strain of *Mycoplasma ovipneumoniae* in the McCullough-Highland bighorn sheep herd.

Bighorn sheep in the northern portion of the McCullough Range face a variety of challenges in the near future. On the west flank of the range, suburban sprawl and flood control measures have already claimed much of the lower elevation habitat. To the north, the movement corridor between the River Mountains and the McCullough Range across US Route 93 and 95 at Railroad Pass has been effectively eliminated. Additional urban sprawl southward along I-15 is expected to degrade desert bighorn sheep habitat in the Hidden Valley area.

Unit 264: Newberry Mountains; Southern Clark County

Report by: Pat Cummings

Survey Data

No aerial desert bighorn sheep survey was conducted in Hunt Unit 264 in 2017. In October 2016, 13 rams, 48 ewes and 3 lambs were encountered in the course of an aerial survey over the Newberry Mountains. The previous sample collected in 2012 was the largest recorded (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
2016	13	48	3	64	27:100:6
2012	40	65	23	128	62:100:35
2010	34	54	11	99	63:100:20
2008	23	17	11	51	135:100:65
2006	22	19	4	45	116:100:21
2003	11	16	14	41	69:100:88
2000	12	18	5	35	67:100:28
1998	7	13	11	31	54:100:85
1996	6	11	4	21	55:100:36
1994	3	6	0	9	50:100:0

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* is endemic in the Newberry Mountains bighorn sheep population. The negligible lamb representation in the recent aerial survey sample is consistent with adjacent bighorn herds struggling with *Mycoplasma ovipneumoniae*. The Mojave strain of *Mycoplasma ovipneumoniae* has been associated with bighorn die-offs marked by not only low lamb survival, but also substantial adult morbidity and mortality.

Unit 265: South Eldorado Mountains; Southeastern Clark County

Report by: Pat Cummings

Survey Data

No aerial survey was conducted in the southern portion of the Eldorado Mountains in 2017. In October 2010, 19 rams, 9 ewes and 1 lamb were observed during a 2.4-hour survey (Table 2). The next aerial bighorn sheep survey in the south Eldorado Mountains is scheduled for fall 2018.

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

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

Since 1969, survey sample sizes have varied widely; samples have ranged from 0 to 50 animals. In some years, aerial Survey Data portray a disproportionate number of rams in the unit. In many of the 21 aerial surveys conducted since 1969, the number of rams observed either equaled or far exceeded the number of ewes.

Population Status and Trend

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 2014-15 Big Game Status book. In 2015, the "Mojave" National Preserve strain of *Mycoplasma ovipneumoniae* was detected in bighorn in the Eldorado Mountains. The Mojave strain of *Mycoplasma ovipneumoniae.* has been associated with bighorn die-offs marked by not only negligible lamb survival, but also substantial adult morbidity and mortality.

Unit 266: North Eldorado Mountains; Southeastern Clark County

Report by: Pat Cummings

Survey Data

In October 2017, a 4.5-hour aerial desert bighorn sheep survey was conducted over the northern portion of Hunt Unit 266. The survey yielded a sample of 61 sheep. The sample was comprised of 16 rams, 36 ewes and 9 lambs. The majority of encounters were east and northeast of Boulder City. Four bighorn sheep carcasses were noted during the survey.

Likewise, in early November 2015, an aerial survey was conducted over the northern end of the hunt unit. The survey yielded a sample of 65 bighorn sheep comprised 15 rams, 48 ewes and 2 lambs. Adult mortalities noted during the survey included 2 ewes and 4 rams. The majority of the sheep were encountered north of Boy Scout Canyon.

Habitat

The bighorn sheep herd in the Eldorado Mountains has and will continue to face challenges. Two massive highway projects are intended to divert traffic from Hoover Dam and Boulder City. The Hoover Dam Bypass Bridge and new US Route 93 alignment was opened to traffic in October 2010. The new bridge spans the Colorado River approximately 1,500 feet downstream of the dam.

The second bypass project is designated Interstate 11 and will course around the south and east sides of Boulder City and link with the already completed western end of the US Route 93 Hoover Dam Bypass project. Thus, Phase 2 of the Boulder City Bypass will carve through bighorn sheep habitat in the northwest portion of the Eldorado Mountains. Several federal and state agencies are involved in and coordinating on numerous design and construction aspects including wildlife monitoring. The new alignment, once completed, will incorporate several crossing structures to accommodate wildlife movements and enhance highway permeability.

Since January 2015, 3 bighorn sheep capture operations were accomplished in and near the Phase 2 project area. The primary intent of the capture activities was to affix GPS collars on ewes and rams to assess movements and trans-highway movements and to measure and evaluate highway permeability during construction and post construction.

Population Status and Trend

See the report from Hunt Unit 265, Population Status and Trend section for details on disease detection and surveillance in both the north and south Eldorado Mountains.

The latest bighorn sheep captures and disease surveillance associated with Phase 2 of the Boulder City Bypass were conducted in late October 2017. As anticipated, *Mycoplasma ovipneumoniae* was detected by Polymerase Chain Reaction (PCR) test in a proportion of the nasal swab samples. The PCR detection prevalence of *Mycoplasma ovipneumoniae.* among bighorn sheep captured in 2017 was 12%, and was substantially lower than the 54% *Mycoplasma ovipneumoniae.* detection from the 2015 capture contingent. The apparent notable reduction in *Mycoplasma ovipneumoniae.* by PCR may signal a reduction in infection

rates at the population level. This pattern is consistent with the chronic shedder model that postulates following the wave of initial infections about 5-20% of the herd will be chronic carriers. Two adult rams that were *Mycoplasma ovipneumoniae.* positive by PCR in 2015 were recaptured in 2017 and again found to be shedding *Mycoplasma ovipneumoniae.*

Unit 267: Black Mountains; Eastern Clark County

Report by: Pat Cummings

Survey Data

In October 2017, a 7.6-hour aerial desert bighorn sheep survey over the Black Mountains yielded a sample of 271. The observed sex and age ratios were 55 rams:100 ewes:16 lambs. In the course of the 2-day survey, bighorn sheep were found to be broadly distributed. No aerial bighorn sheep survey was conducted in Hunt Unit 267 in 2016.

Habitat

Environmental conditions are fair due to prevailing dry conditions. Limited rains in January and late March 2018 should promote new vegetative growth and invigorate shrub species. Despite the late March storm, the seasonal drought outlook released by the National Weather Service, Climate Prediction Center calls for persistent drought from March 15 – June 30, 2018.

Population Status and Trend

Desert bighorn sheep occupying the Black Mountains and Muddy Mountains comprise a single population given the high degree of movement between ranges; however, environmental conditions and local population dynamics have differed markedly. Over the long term, aerial survey data portray a decline in the number of bighorn sheep inhabiting the Black Mountains and an increase in sheep numbers in the adjacent Muddy Mountains. The 2018 population estimate for bighorn sheep inhabiting the Black Mountains and Muddy Mountains reflects an increase over the estimate reported last year. The recent population expansion in 2018 is due to high recruitment in the larger bighorn population segment in the Muddy Mountains.

Unit 268: Muddy Mountains; Clark County

Report by: Pat Cummings

Harvest

The fourth desert bighorn ewe hunt in Hunt Unit 268 was held in October 2017. Forty tags were apportioned to the resident hunt and 5 tags were allotted to the nonresident hunt. Overall, 29 ewes were harvested in 2017. Since the inaugural hunt season in 2014, 103 ewes were harvested.

Survey Data

In October 2017, 9.8 hours of flight time were expended to conduct an aerial desert bighorn sheep survey over the Muddy Mountains. The survey was accomplished over 3 days and yielded a sample of 648 bighorn sheep, of which 6 were unclassified. The observed sex and age ratios were 94 rams:100 ewes:42 lambs. In fall 2016, 404 bighorn sheep were encountered in 5.3 hours of survey. The observed sex and age ratios in the 2016 sample were 104 rams:100 ewes:43 lambs.

Habitat

Overall, dry conditions prevailed throughout the 2017 monsoon season and persisted through fall and early winter months (2017-2018). Ambient daily high and low temperatures trended well above averages through fall and winter months. Range conditions were largely marginal and marked by limited new vegetative growth among forage plant species. Thus, bighorn sheep subsisted on lower digestible forage diets. As a

consequence, bighorn sheep experienced increased reliance on water resources through otherwise cooler fall and early winter months.

Despite overall dry conditions, storm events over a 2-day period in January and 1 day in the latter half of March 2018 produced rainfall in amounts sufficient to fully and partially recharge the 6 water developments in the Muddy Mountains. Water developments recharged to 100% of capacity included Cliff Site, White Basin, Five Ram and Jerry. Units partially recharged involved Flipper (61%) and Safari (58%). As the summer months draw near, it is anticipated water resources on Muddy Peak will be depleted by the end of June 2018. In the absence of an active monsoon season, it is further anticipated additional water developments will be depleted in July 2018.

In March 2018, maintenance work to avoid serious component failures was undertaken at White Basin and Flipper water developments. At White Basin, the existing heavily oxidized drinker and float valve assembly were replaced with new stainless steel drinker and float valve box. In addition, a new 32' x 75' hypalon collection apron was unfurled over the existing, tattered 23 year old apron. Work at Flipper entailed replacement of cracked low profile tanks with 4 new 2,300 gallon IRM tanks. The tanks were plumbed together and to the new drinker with stainless steel fittings.

In March 2013, the Cliff Site water development was reconstructed. The hypalon apron was replaced with a metal apron and the 4 upright poly tanks were replaced with low profile IRM tanks. The 2 old drinkers and float valves were replaced with a new drinker to complete the leveled system. Water storage capacity was increased from 7,800 gallons to 8,800 gallons.

In late March 2012, the Five Ram water development was upgraded. Notably, the project was fully converted to a leveled system. Thus, the float valve was eliminated. The upgrade also entailed removal of 3 aged, high profile poly tanks and installation of 5 new, low profile tanks and a drinker. The upgrade augmented the water storage capacity from roughly 10,350 gallons to about 13,600 gallons.

Population Status and Trend

In mid-October 2017, 15 ewes and 4 rams were captured, sampled (i.e., blood, tonsil and nasal swabs) and released in furtherance of disease surveillance. One ewe was sampled and subsequently euthanized. All animals were negative for *Mycoplasma ovipneumoniae by* Polymerase Chain Reaction (PCR) and enzyme-linked immunosorbent assay (ELISA). 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 *Mycoplasma ovipneumoniae.* by PCR.

In late October 2016, 10 ewes and 10 rams were captured, sampled (i.e., blood, tonsil and nasal swabs) and released in continuance of disease surveillance. All animals were negative by PCR for *Mycoplasma ovipneumoniae*; however 1 animal was positive by ELISA *Mycoplasma ovipneumoniae*. At the time in early November 2016, the uncertainty of the health status of the herd led to prompt cancelation of a scheduled bighorn sheep capture and removal project. Within 2 weeks of the late October capture of 20 bighorn sheep, an additional 10 ewes and 5 rams were captured, sampled and released. Similar to initial ELISA results, 1 animal in the later capture group was positive by ELISA for *Mycoplasma ovipneumoniae*. In an effort to rule out 2 false-positive results, serum from the second ELISA positive animal was retested in March 2017. At the time, the results of the retest were not encouraging, as again sufficient *Mycoplasma ovipneumoniae.* antibodies were detected to indicate pathogen exposure.

More recently, the negative *Mycoplasma ovipneumoniae* results by PCR and ELISA associated with the fall 2017 bighorn sheep captures were encouraging and support the likelihood that the earlier *Mycoplasma ovipneumoniae* positive results by ELISA in fall 2016 were false positives.

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 in the adjacent Muddy Mountains. The 2018 population estimate for bighorn sheep inhabiting the Black Mountains and Muddy Mountains reflects an increase over the estimate reported last year. The recent population expansion in 2018 is due to high recruitment in the bighorn population segment in the Muddy Mountains.

Unit 269: River Mountains; Clark County

Report by: Pat Cummings

No aerial desert bighorn sheep survey was conducted over the River Mountains in 2017. In mid-October 2016, 5.0 hours of flight time over the course of 2 days were expended to conduct an aerial bighorn sheep survey over the River Mountains. The survey yielded a sample of 212 bighorn sheep. The observed sex and age ratios were 60 rams:100 ewes:15 lambs.

Habitat

Environmental conditions may be characterized as poor to fair in the River Mountains. Dry conditions prevailed throughout 2017. Due to limited new vegetative growth among forage plant species, bighorn sheep generally subsisted on lower digestible forages. Limited rains in January and late March 2018 should spur new vegetative growth and invigorate shrub species. Despite the late March storm, the seasonal drought outlook released by the National Weather Service, Climate Prediction Center calls for persistent drought from March 15 – June 30, 2018.

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 is support of desert bighorn sheep conservation programs.

In fall 2013, *Mycoplasma ovipneumoniae* (*M ovi*.) was detected in a female lamb captured in Hemenway Park, Boulder City. Subsequently, in spring 2015, the more virulent Mojave National Preserve strain of *M ovi.* was confirmed. Thus since 2015, bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. A chronology of relevant events that correspond to adjacent bighorn herds may be found in the 2014-15 Big Game Status book.

Unit 271: Mormon Mountains; Lincoln County

Report by: Cooper Munson

Survey Data

Bighorn sheep surveys were conducted in the Mormon Mountains in September 2017. Surveys produced an unexpectedly low sample size with sheep dispersed throughout the range and at all elevations. A total of 91 sheep were observed, composed of 26 Rams, 48 Ewes, and 17 Lambs providing a ratio of 54 rams:100 ewes:35 lambs. Sheep were observed within close vicinities of natural water sources, livestock tanks, and guzzlers, many of which are in need of repairs and maintenance. The bulk of the sheep were observed on the Mormon Mountains with other groups located on the East Mormons and southern portions of the Tule Hills.

Habitat

Habitat conditions in the Mormon Mountains were exceptionally dry, and remained so throughout most of the year due to lack of precipitation events and receiving only 93% of 10-year average resulting in just over 5 inches of annual precipitation. Only 2 of the 5 water developments appeared to be holding

reasonable amounts of water as of February, 2018. Four of the 5 water developments are in need of upgrades that are slated to be accomplished in the coming years, but are still being utilized by wildlife. Bighorn seem to prefer some of the areas that have burned within the last decade and are showing signs of vegetation regeneration. Rams have been observed in a wide range of elevations in the area throughout the year. According to the US Drought Monitor, the US Seasonal Drought Outlook is predicting that the drought conditions in this area may persist or worsen for the coming year.

Population Status, and Trend

The Mormon Mountains bighorn population appears to be stable and healthy at this point. Following a run of static population growth, the 2018 population estimate is showing a stable trend with the 10 years of steady population levels. During a Lincoln County bighorn herd disease surveillance effort in October 2015, 6 of 10 bighorn from Hunt Unit 271 tested positive for *Mycoplasma ovipneumoniae* by enzyme-linked immunosorbent assay (ELISA) indicating past exposure to the virulent pathogen. None of the samples by Polymerase Chain Reaction (PCR) were positive, showing no active infection of *Mycoplasma ovipneumoniae.* in the herd.

Unit 272: Virgin Mountains and Gold Butte; Northeastern Clark County

Report by: Pat Cummings

Survey Data

In October 2017, an aerial desert bighorn sheep survey was conducted over Lime Ridge, Tramp Ridge, Bitter Ridge, the southern portion of the Virgin Mountains, Whitney Ridge, Bunkerville Ridge and Black Ridge. The 8.8-hour survey was conducted over 2 days and yielded a sample of 20 rams, 46 ewes and 15 lambs.

Habitat

Environmental conditions may be characterized as poor to fair in the Gold Butte region and in the Virgin Mountains, respectively. Dry conditions prevailed throughout the 2017 monsoon season and persisted through fall and early winter months (2017-2018). Ambient daily high and low temperatures trended well above averages through fall and winter months. In the Gold Buttes, due to limited new vegetative growth among forage plant species, bighorn sheep generally subsisted on lower digestible forages. It was noted on a water development maintenance flight conducted in February 2018 that Virgin #1 and #2 were fully recharged.

In July 2006, lightning strikes ignited 4 wildland fires in the southern portion of the Virgin Mountains. The Whitney Pass Fire consumed vegetation across 230 acres on the northeast end of Whitney Ridge. The Virgin Gold Fire burned to within yards of the Virgin #2 water development before a slurry drop extinguished the fire. The Virgin Gold Fire consumed mid-elevation (Mojave Desert Scrub) and upper elevation (pinyon-juniper woodland) vegetation across 2,700 acres. At its northern point, the Virgin Gold Fire burned to within 0.5 miles of the Virgin #1 water development. The Jeep Fire occurred northeast of the Virgin #1 water development in the vicinity of the Virgin Gold Fire and consumed vegetation over 196 acres. East of the Key West Mine, the Double Nickel Fire consumed vegetation across 523 acres.

In late June 2005, lightning strikes in the Gold Buttes ignited the Fork Fire and Tramp Fire. Landmarks within the burned areas included: Tramp Ridge, Gold Butte, Mica Peak, Cedar Basin, Jumbo Peak, Jumbo Basin, Anderson Ridge, Rattlesnake Peak, Garnet Valley and the north face of Bonelli Peak. Burned areas that included Tramp Ridge, Gold Butte, Cedar Basin, and Mica Peak had a few remaining small mosaics of vegetation. Areas marked by little to no remaining vegetation included Jumbo Peak, Jumbo Basin, Anderson Ridge, Rattlesnake Peak, Garnet Valley and the north face of Bonelli Peak. In addition, vegetation associated with about 11 springs and at least 7 wash complexes were affected by fire. The Fork Fire consumed plants over 44,314 acres along a 3,300 foot elevation gradient including creosote-bursage flats, Mojave Desert Scrub, and pinyon and juniper woodland. The Tramp Fire consumed vegetation over 26,817 acres.

Population Status and Trend

Since 2005, some of the ewes released in the Virgin Mountains dispersed and created home ranges in the northern portion of the Gold Buttes. Much of the precipitous bighorn sheep habitat in the Gold Buttes consists of ridges interspersed by areas of moderate terrain. Bighorn sheep released in the Virgin Mountains and Gold Buttes since 2005 have inhabited the south Virgin Mountains, Whitney Ridge, Lime Ridge, Tramp Ridge, Bitter Ridge and the Cockscomb (Arizona). Presently, there is a lack of information on the distribution and abundance of desert bighorn sheep in Iceberg Canyon, Indian Hills and Azure Ridge.

The 2018 population estimate for desert bighorn sheep inhabiting the Virgin Mountains and Gold Buttes approximates the estimate reported last year. Disease surveillance undertaken in fall 2015 entailed capturing, sampling and releasing 5 ewes in the Gold Buttes and 1 ram in the Virgin Mountains. Subsequent Polymerase Chain Reaction (PCR) and enzyme-linked immunosorbent assay (ELISA) positive lab results indicate *Mycoplasma ovipneumoniae* is present in the bighorn herd inhabiting the northeast portion of Clark County east of the Virgin River.

Unit 280: Spotted Range; Northwestern Clark County

Report by: Pat Cummings

Survey Data

In early September 2017, a 5.3-hour aerial survey yielded a sample of 111 desert bighorn sheep. Two bighorn sheep encountered in the course of the survey were not classified. The sample comprised 33 rams, 56 ewes and 20 lambs. Although lamb representation was encouraging in the recent survey, it has been low in several recent surveys (Table 3). Bighorn sheep were well dispersed and encountered throughout much of the survey area. Nearly all of the encounters were within 2 linear miles of water sources.

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

Year	Rams	Ewes	Lambs	Total	Rams:100 Ewes: Lambs
2016	20	57	18	95	35:100:32
2015	28	49	17	94	57:100:35
2014	20	67	16	103	30:100:24
2012	23	36	6	65	64:100:17
2011	28	58	10	96	48:100:17
2010	33	57	11	101	58:100:19
2009	24	29	8	61	83:100:28
2008	21	36	15	72	58:100:42
2007	24	47	28	99	51:100:60
2006	15	40	18	73	38:100:45
2005	23	49	9	81	47:100:18
2004	11	21	11	43	52:100:52
2003	7	13	1	21	54:100:8
2002	13	18	6	37	72:100:33
2001	32	26	5	63	123:100:19
2000	18	20	10	48	90:100:50

Habitat

Environmental conditions are poor to fair due to prevailing dry conditions. Limited rains in January and late March 2018 should promote new vegetative growth and invigorate shrub species. Despite the late March storm, the seasonal drought outlook released by the National Weather Service, Climate Prediction

Center calls for persistent drought from March 15 – June 30, 2018. None of the 6 water developments were noted as fully recharged during inspections conducted in February 2018. Already Spotted #3 is nearly depleted, and in the absence of moisture producing storms 1 or 2 additional developments may become depleted in upcoming summer 2018.

In the 2015-2016 status report, it was noted that on the fall 2015 aerial survey there were indications of increased military training activity. Many spent flares, associated parachutes and other debris were encountered. Some existing target areas were expanded with additional military vehicle targets.

Population Status and Trend

The bighorn sheep population in Hunt Unit 280 was established through releases in 1993 and 1996. The initial release complement comprised 2 rams, 13 ewes, and 10 lambs. The 1996 release consisted of 8 rams, 16 ewes, and 1 lamb. The River Mountains bighorn sheep herd served as source for both releases. The 2018 population estimate remains unchanged from the estimate reported last year.

Unit 281: Pintwater Range; Northwestern Clark County

Report by: Pat Cummings

Survey Data

In early September 2017, a 5.4-hour aerial survey conducted over the Pintwater Range yielded a sample of 112 desert bighorn sheep. On animal encountered in the course of the survey was not classified. The observed sex and age ratios were 70 rams:100 ewes:25 lambs. The majority of the animals encountered were within approximately 2 miles of water sources. A year earlier in fall 2016, the survey sample over the Pintwater Range was the largest recorded since the initial aerial survey undertaken in 1973. The 2016 survey sample included 153 bighorn sheep and reflected 58 rams:100 ewes:43 lambs.

Habitat

Environmental conditions in early 2018 may be characterized as poor. Precipitation receipts in 2017 and early 2018 were below normal. Collectively, water and spring developments on the Pintwater Range were not sufficiently recharged to meet the upcoming bighorn sheep demand. On the north end of the range, it is anticipated water will be available at Quartz Spring and the Indian Canyon water development. Tim Spring is centrally located on the range and is deemed reliable. In the upcoming months, it is anticipated that water will not be available at De Jesus Spring, Sand Spring, Dain Peak water development and Heavens Well water development. In April 2018, the feasibility and logistics of an emergency water haul action to augment the water store at Heavens Well are under consideration.

The maintenance status of the several water sources ranges from very poor to good, and in some cases, near future critical component failures are anticipated. Sand Spring and De Jesus Spring are in need of extensive maintenance. The questionable reliability of De Jesus Spring may be related entirely on or in part to inadequate recharge.

Population Status and Trend

The 2018 desert bighorn population estimate for the Pintwater Range reflects a modest contraction relative to the estimate reported last year.

In November 2016, 11 ewes and 10 rams were captured, sampled and marked with GPS collars in support of a Legislative Environmental Impact Statement (LEIS) being prepared by the United States Air Force. Distribution and movement data will be analyzed and modeled to assess potential impacts to bighorn sheep given the land withdrawal alternatives identified in the LEIS. Additional bighorn sheep that were captured and sampled (not collared) included 3 ewes and 2 rams.

Unit 282: Desert Range and Desert Hills; Northwestern Clark County
Report by: Pat Cummings

Survey Data

In September 2017, an aerial survey yielded a sample of 82 desert bighorn sheep. The sample included 5 individuals that were not classified. Bighorn sheep were generally encountered within 2 miles of water sources. It was noted during the survey that no water was available at the Black Top water development, and that bighorn use of the project was heavy leading up to the moment of depletion.

Habitat

Environmental conditions may be characterized as poor to fair in the Desert Range. Dry conditions prevailed throughout the 2017 monsoon season and persisted through fall and early winter months (2017-2018). Ambient daily high and low temperatures trended well above averages through fall and winter months. Due to dry conditions and maintenance problems, water availability in the Desert Range will largely cease in late spring and early summer 2018. In the absence of moisture producing storms, it appears likely that by mid-summer water may only be available at White Sage Gap.

There are no known reliable natural water sources on the Desert Range. The Black Top water development in the southern portion of the range receives heavy sheep use, and in many years often becomes fully depleted in the height of summer. As is the case elsewhere on the Desert National Wildlife Refuge, 2 water developments, Chuckwalla and Tommy, are old and require maintenance. Chuckwalla is scheduled to be rebuilt in April 2018.

In March 2011, a new water development was constructed in White Sage Gap. The new unit was situated less than 400 yards west of the older, smaller water development and was constructed to better ensure water availability on the south end of the range.

Population Status and Trend

The 2018 population estimate for desert bighorn sheep inhabiting the Desert Range approximates the estimate reported last year. Greater attention and commitment to installing and maintaining reliable water sources is necessary to initiate and sustain a population growth trajectory.

Historically, many desert bighorn sheep occupying the Desert Range are fall and winter migrants from the adjacent Sheep Range. Over the long term, the observed proportion of lambs to ewes obtained through aerial surveys has been low.

Unit 283, 284: East Desert Range and Sheep Range; Northern Clark County
Report by: Pat Cummings

Survey Data

In September and October 2017, aerial desert bighorn sheep surveys were conducted over the southern half of the East Desert Range, Maynard Hills, Enclosure Ridge and northeast, northwest, south, and southwest portions of the Sheep Range. In the course of 15 hours of survey, 186 bighorn sheep were encountered. The observed sex and age ratios were 56 rams:100 ewes:16 lambs.

Habitat

In a 3-year period (2004-2006), wildland fires ignited by lightning strikes during summer months burned vegetation along thousands of acres on the east side of the Sheep Range. In bighorn sheep habitat, fires consumed vegetation at low, mid and high elevations. Much of the fire damage occurred at low elevations. Present concerns relate to the likely establishment of fire-adapted invasive and exotic annual grasses at low and mid-elevations.

Population Status and Trend

Based on the results of fall 2017 aerial surveys, the population estimate in 2018 reflects a contraction. The decline is the result of poor lamb numbers observed 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* in recent years. Through disease surveillance measures, several strains of *Mycoplasma ovipneumoniae* were identified in southern herds. It is possible that bighorn sheep inhabiting the Sheep Range and the greater Desert National Wildlife Range are in a recovery stage.

In an effort to hasten recovery of the desert bighorn sheep population in the Sheep Range and in conformance with the Nevada Department of Wildlife's Big Game Release Plan, 35 desert bighorn sheep captured in late October 1998 from the Muddy Mountains, Arrow Canyon Range and Specter Range were released at the mouth of Joe May Canyon. Subsequent monitoring efforts and aerial survey data suggest the release was not effective in achieving the objective.

Unit 286: Las Vegas Range; North Clark County

Report by: Pat Cummings

Survey Data

In early October 2017, an aerial desert bighorn sheep survey was conducted over Gass Peak, Castle Rock, Fossil Ridge, Peek-a-boo Canyon, Quartzite Ridge, Quail Spring, area near Frozen Toe water development, Gunsight, Warm Spring, Juniper Peak and near the Hidden Valley water development. In the 8.3-hour survey, 230 bighorn sheep were encountered. The sex and age ratios were 45 rams: 100 ewes:42 lambs. This was the largest recorded sample and well surpassed the previous high sample (128) obtained in 2014.

Habitat

Dry conditions prevailed throughout 2017 and persisted through fall and early winter months (2017-2018). Ambient daily high and low temperatures trended well above averages through fall and winter months. Despite overall dry conditions, water resources will be sufficient to meet bighorn sheep demands in 2018.

In April 2016, a new water development was constructed to eventually replace the Old Hidden Valley unit. The new guzzler incorporates 4 low-profile 2,300 gallon tanks and is a leveled system (i.e., no float valve).

In 2005 and 2006, wildland fires sparked by lightning strikes during summer months burned vegetation along thousands of acres in the Las Vegas Range. In bighorn sheep habitat, fires consumed vegetation at low, mid and high elevations. Much of the fire damage occurred at low and mid elevations. Present concerns relate to the likely establishment of fire-adapted invasive and exotic annual grasses at low and mid-elevations. Members of the Fraternity of the Desert Bighorn and the Nevada Department of Wildlife staff repaired fire damage to 3 water developments (Juniper Peak, Hidden Valley and Frozen Toe).

The Las Vegas Range is situated immediately north of the Las Vegas Valley, and suburban development has recently approached the southern boundary of the Desert National Wildlife Range. Increasingly, off highway vehicle (OHV) use has resulted in proliferation of unauthorized roads and trails. Despite federal regulation prohibiting the use of unlicensed vehicles on the refuge, the newly established network of roads and trails allows OHV users access to formerly undisturbed desert bighorn sheep habitat.

Population Status and Trend

The fall 2017 aerial desert bighorn sheep survey yielded a sample that was well above all previous survey results. At present, it is deemed imprudent to force the population model to completely account for and be entirely consistent with recent survey data. It is reasoned that additional surveys need to be conducted to accurately portray the degree of population expansion. Thus, the 2018 estimate reflects a modest increase relative to the estimate reported last year.

CALIFORNIA BIGHORN SHEEP

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

The original release on the Massacre Rim (also known as the Long Valley Rim) occurred in March 1995 with a release of 21 California bighorn sheep on the west side of the Little Sheldon in Hunt Unit 033. However, the small population never thrived and numbers observed in the area slowly diminished over the next 15 years. Between 2012 and 2014, the Department released 2 different complements of bighorn sheep totaling 44 on the south end of the Massacre Rim and an additional 20 on the Nevada side of the Coleman Rim.

Prior to the release on Coleman Rim, a big game guzzler was built on the southern end of the rim in Nevada. The newly constructed water development has created a reliable water source on the Nevada side of the line for this population of California bighorn sheep. The Coleman Rim in both Oregon and Nevada now supports a viable population estimated at between 80 and 100 animals.

Following the releases, telemetry data showed bighorn sheep movements east onto the Guano Rim on the Sheldon as well as west and southwest onto the Horse Lake Rim and Vya Rim. After a few months of exploration, most of the bighorn sheep returned to the release sites; however, it is believed that a number of the sheep released on both the Coleman and Massacre rims have become established within the borders of the Sheldon. This dispersal of bighorn sheep away from the release sites may have been to avoid predation by mountain lions. The long-term drought dried up many springs on the Massacre Bench and may have contributed to changes in distribution.

In mid-to-late December 2014, 5 of the collared ewes from the various releases were killed by mountain lions. Three were killed along the Massacre Rim, 1 on Guano Rim on the Sheldon, and 1 near Bitner Table that lies to the east of the Massacre Rim. A contract to remove lions from Hunt Units 011 and 013 was started and coincided with the first release in 2012. Following the December 2014 predation events, 9 lions were removed from Hunt Unit 011 between June 2015 and mid-January 2016.

Telemetry data and observations from the ground and air indicate that the small populations of California bighorn sheep that reside within Hunt Unit 011 are stable, but at lower-than-desired levels. A supplemental release may benefit this herd.

In 2017, 5 additional telemetry collars were attached to the bighorn sheep living on the Massacre Rim. The collars will allow biologists to closely monitor the herd's movements and survival.

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

Survey Data

Helicopter surveys for Hunt Unit 012 were conducted in mid-August 2017 and biologists classified 131 California bighorn sheep. The sample provided a ratio of 39 rams:100 ewes:43 lambs. In 2016, biologists observed a ratio of 27 rams:100 ewes:51 lambs based on 66 animals observed.

Despite the increased number of animals located on the survey, densities of bighorn sheep in this unit are low when compared with most other California bighorn sheep herds, and hunters face challenges locating bighorn sheep in this unit.

All sheep appeared healthy during the survey and no issues were noted from the bighorn sheep hunters who harvested rams during the 2017 hunting season. Testing of harvested rams from this hunt unit did not detect the presence of any disease. No nasal bot fly issues were reported this year.

Bighorn sheep were captured on the southern portion of the Calico Range in January 2018. The cooperative effort with the Bureau of Land Management will help to gather important seasonal use and movement data on this portion of the Calico bighorn sheep herd. Little to no seasonal use data has been collected on this herd to date.

Habitat

Winter 2017-2018 differed dramatically from winter 2016-2017. Little snowfall occurred during 2017-2018, and excellent moisture received during the month of March 2018 helped to temper the dry winter.

The April 1, 2018 Water Supply Outlook Report shows the Northern Great Basin at just 62% of average for Median Snowpack and 81% for Water Year to Date Precipitation. This is in sharp contrast when compared with the 2016-2017 winter when snowfall and overall precipitation were near record levels. However the month of March we received substantial moisture that helped to increase these amounts.

The effects of the long-term drought are still present in herd demography, but the improved lamb recruitment this year should influence herd size trajectory.

Population Status and Trend

Two consecutive above average recruitment years has helped to reverse the long-term downward trend of this population of California bighorn sheep. Bighorn sheep ewes have been in better body condition and have responded positively to the improved habitat conditions and plentiful water. Lamb survival this past summer was observed to be exceptionally good and the ratio of the observed lamb ratio from late summer surveys was the highest observed since 2006 (prior to the long-term drought). The increased lamb survival and recruitment is expected to positively influence the downward trend this population has experienced since 2011.

Unit 013: Hays Canyon Range; Washoe County

Report by: Chris Hampson

Survey Data

Ground and aerial surveys in Hunt Unit group 011, 013 sampled 35 sheep with a ratio of 32 rams:100 ewes:53 lambs. Recruitment within Hunt Unit 013 appeared strong. Prior to the die-off in 2007, this herd had good lamb recruitment when compared with other California bighorn sheep populations within Washoe County. Excellent escape cover exists within the Hays Canyon Range and the quality habitat helps protect ewes and young lambs during their most vulnerable period.

Habitat

Habitat conditions within Hunt Unit 013 have improved over the past 2 years due to the above average precipitation received during the winters of 2015-2016 and 2016-2017. Although drier conditions were experienced last winter, precipitation received in the spring 2018 may temper conditions somewhat by mid-to-late summer and conditions should still be good due to the excellent moisture received over the past 2 years.

Population Status and Trend

Several years after an all age, all sex, die-off of bighorn sheep (population estimate of 110-120 bighorn sheep) in the Hays Canyon Range in 2007, a second attempt at establishing a population was undertaken in early 2013. Prior to the release, 5 years of monitoring including countless aerial flights, ground surveys and trail camera monitoring of guzzlers was undertaken to locate any potential survivors from the disease event. No survivors of the disease event were discovered.

Thirty bighorn sheep were released in January 2013 into Hays Canyon in Hunt Unit 013. A mountain management control project was started prior to the release to assist the bighorn sheep to once again become established in the Hays Canyon Range.

Telemetry data and observations from both ground and the air indicate that the released bighorn sheep have become established in the area of the release site in Hays Canyon. Movements of the bighorn sheep have generally been within 7 miles to the north of Hays Canyon and within 2 miles south of the release site. Two of the young collared rams from the most recent release did take a 1 week long foray to the south end of the Hays Canyon Range and then continued southeast towards Wall Canyon Reservoir and Cherry Mountain. Within 1 week the 2 rams had reversed course and returned to the release site in Hays Canyon. No other long distant forays or movements have been observed since that initial exploration.

In November 2017, 5 new telemetry collars were placed on bighorn in the Hays Canyon Range to help monitor survival and movement of bighorn sheep in this herd. All 5 sheep are alive and well as of February 2018. The collar life expectancy is 3 years.

Aerial and ground surveys showed good recruitment for this herd and current numbers are estimated at 50 animals. Mountain lion removal efforts and hunter harvest have reduced mountain lion densities and allowed the population of bighorn sheep to slowly increase. Three mountain lions have been removed from Hunt Unit 013 between March 2017 and February 2018. Hunter harvest has also taken place within the area.

Unit 014: Granite Range; Washoe County

Report by: Chris Hampson

Survey Data

Surveys in the Negro Creek area of the Granite Range located 30 bighorn sheep for a ratio of 71 rams:100 ewes:43 lambs. Lamb recruitment throughout Washoe County bighorn sheep herds has shown an upward trend over the past 2 years due to the improved habitat conditions. During the long-term drought between 2007 and 2015 recruitment levels were often in the low to mid 30s for most California bighorn sheep populations in northwestern Nevada.

Improved habitat conditions have allowed bighorn sheep to range across wider areas, making them more difficult to locate on survey and for hunters to locate them during the hunting season. Upper elevations within the Granite Range were fairly dry by mid-summer and bighorn sheep moved down in elevation to locate more reliable water and better forage.

Bighorn sheep observed on survey appeared to be in good body condition. No health issues were noted.

Department biologists in cooperation with the Bureau of Land Management Winnemucca District Field Office captured bighorn sheep from the Granite Range and fitted them with telemetry collars to aid in monitoring movements of this herd.

Habitat

Snow accumulations and overall precipitation are lower this year compared with last year throughout northwestern Nevada. The Nevada Water Supply Outlook Report shows the Northern Great Basin at just 62% of average for Median Snowpack and 81% of average for Year to Date Precipitation as of April 1, 2018. This is in sharp contrast to the past 2 winters where well above precipitation and snowpack was received. The large amount of precipitation received during March helped reduce the effects of the below average winter experienced this year.

No major wildfires occurred within the hunt unit this past year. However, over the past decade, wildfires have consumed considerable habitat in the mid-to-lower elevations of the Granite Range.

Population Status and Trend

Continued favorable recruitment will maintain an upward trend for this population of California bighorn sheep. Hunters have reported difficulty in locating mature rams within the Negro Creek subpopulation on the northeastern portion of the Granite Range over the past few years. This is partly due to improving habitat conditions that have allowed sheep to expand their range.

Units 021, 022: Virginia Mountains; Washoe County

Report by: Chris Hampson

Survey Data

Surveys for California bighorn sheep in the Virginia Mountains were conducted in mid-August 2017. The surveys located 26 bighorn sheep, of which 8 were rams, 10 were ewes, and 8 were lambs. The small sample may have biased lamb recruitment high, but does show that overall lamb recruitment for this herd was strong this year. This performance is similar to that observed for most other California bighorn sheep herds in the northwestern portion of the state. The ram ratio of 80 rams:100 ewes also may be slightly biased high, but biologists did observed a high proportion of mature rams during the survey.

Due to the fires and the firefighting activities in the area this past summer, bighorn sheep moved away from areas of disturbance. Consequently, locating bighorn sheep during our late summer survey was more challenging. Two weeks of aircraft flying overhead and personnel fighting the fires on the ground may cause bighorn sheep to move from traditional use areas to areas that have less activity.

Habitat

Wildfires affected wildlife habitat in the Virginia Mountains for the second consecutive year. Other areas affected by the fires included Stateline Peak, Seven Lakes Mountain, and areas north of the Dogskin Mountains. Native grass response following the fires is expected to be favorable this spring, but the long-term negative effects to important brush species such as bitterbrush and sagebrush will be severe.

The Department, along with our partners, re-seeded sagebrush and important grass and forb species into a large portion of the burned areas during the winter of 2017-2018. Areas reseeded were the Virginia Mountains of Hunt Unit 022, and the Stateline Peak area of Hunt Unit 021. The effort was to restore important brush species and native grass and forbs species found in the area prior to the fires.

The precipitation received during March provided a boost to precipitation totals from winter 2017-2018.

Bighorn sheep in the Virginia Mountains may expand their range into those areas that have burned in recent years. Native grass response following these fires is expected to be favorable and bighorn sheep may take advantage of the forage and openings created by the fires. Important shrub species may take years to recover.

Population Status and Trend

The recruitment observed this past summer should allow for the herd to increase this year. Sufficient intact bighorn sheep habitat exists to support the current number of animals in the Virginia Mountain bighorn sheep population.

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

Report By: Ed Partee

Survey Data

Helicopter compositions flights were conducted in Hunt Unit 031 during late August 2017. December marked 2 years since the disease event that occurred in the Montana Mountains. Since the time of the

disease and population removal, continued survey flights have been conducted in both the Montana and Double H mountains. As of August 2017, we have not seen any sheep movement back into the areas where the removal took place. The Double H Mountains continue to thrive. The animals observed on survey appeared healthy and well distributed throughout the range. During this survey ram numbers were down from previous surveys. A few groups of rams may have been missed on survey since only older age class rams were observed. Younger rams have been observed from the ground. Bighorn sheep continue to expand into unoccupied habitats to the east side of the range. With the loss of the sheep in the Montana Mountains, comparing the average over the last 5 years is difficult. During the 2017 Double H flight, 93 animals were observed with a ratio of 30 rams:100 ewes:45 lambs compared with the 81 animals during the 2016 survey. During the hunt in 2017, no reports of sick sheep in the Double Hs were reported.

Habitat

Habitat conditions this year remain good due to precipitation received this spring. Despite having a lower amount of moisture this winter, the above-average precipitation from last year should sustain conditions throughout the spring. Snowpack amounts at this point are at 60% of average compared to the 120% received in the winter of 2016-2017. The amount of moisture received in March coupled with the rehabilitation efforts on past fires has resulted in good current conditions and plenty of available forage for bighorn sheep.

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 in the Montana Mountains in 2015-2016. This herd continues to increase with good lamb recruitment into the population. From both ground and aerial observations there appears to be a strong age distribution of rams, and ewe:lamb ratios are holding stable to slightly increasing. This population is continuing to increase and should see a productive lamb crop once again this year.

The estimated population is slightly higher than the 2017 estimate.

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

Report by: Ed Partee

Survey Data

Aerial surveys were conducted over 2 days in late August 2017. This is an expansive unit. The Pueblo Mountains and the Pine Forest Range were flown this year, while McGee Mountain was flown in conjunction with the Sheldon bighorn sheep survey. The Pine Forest Range continues to make up the bulk of the survey for this unit. Weather conditions were hotter than during previous surveys, which may have influenced the number of animals observed. More rams were observed in the Pueblos on this survey than previous surveys. One hundred fifteen bighorn sheep were classified, which is lower than the 197 classified in 2016. Fewer ewes were observed in 2017. Ratios were slightly skewed towards rams, yet lamb ratios continue to be favorable.

Habitat

This unit had 2 different fires occur that affected some of the available sheep habitat. These 2 fires should have a limited short-term effect on this herd. Habitat conditions appear favorable going into the winter months. This year's precipitation differed from that experienced last year with less moisture. Despite the reduced moisture, habitat conditions remain stable due above average precipitation last year. Higher elevations remain in good condition which should support bighorn sheep throughout the summer. The precipitation received in March brought the year to date total to 82% of average.

Population Status and Trend

The population estimate for this herd has increased and reached an all-time high. Lamb ratios have dipped slightly. Bighorn sheep are well dispersed throughout this unit. Animals remain healthy in this population. Age distribution on rams remains stable with many age classes observed.

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

Harvest Results

The 2 hunters that hunted the Sheldon during the 2017 California bighorn sheep hunting season successfully harvested rams. One tag holders harvested the largest ram ever taken on the Sheldon, scoring 166.25 inches according to Boone and Crockett. The second ram taken was also a mature ram that scored 157.875. Both rams were aged at 7 years old. The hunters expended 3 and 4 days respectively hunting for the rams.

Survey Data

Composition surveys were conducted in mid-August and 83 sheep were classified on the Sheldon. The resulting ratio from the sample was 18 rams:100 ewes:45 lambs. Lamb ratios have been increasing over the past few years as the amount of moisture received in northwestern Nevada has increased.

Lamb ratios increased from 39 lambs per 100 ewes in 2016 to 45 lambs per 100 ewes in 2017. In 2015 recruitment was measure at 37 lambs per 100 ewes. This increasing trend will allow for the herd to expand in number and distribution.

Some areas on the Sheldon still have fewer bighorn sheep than they did several years ago. These areas include Alkali Peak, Devaney Mountain, and Badger Mountain. The Hell Creek drainage also appears to be down in numbers of bighorn sheep observed on survey or reported by hunters. Long-term drought conditions may have played a role in changing distribution of bighorn sheep on the Sheldon.

Harvest locations for the bighorn sheep on the Sheldon have also changed when compared harvest locations from 5 and 10 years ago. The Alkali Peak area is a good example of where sheep are no longer observed in the number that they had been in the past. No rams have been reported to be harvested from the Alkali or Devaney Peak areas since 2010. However, 1 ram was recently taken to the north of Alkali Peak and Devaney Peak in Hell Creek. Numbers of bighorn sheep in these historically important use areas remains low. During the period between 2005 and 2010, approximately 30 to 60% of the annual harvest was reported from these areas.

Habitat

Habitat conditions on the Sheldon have improved over the past few years, much like the rest of northwestern Nevada. The increase in precipitation during the past few years has improved water availability and increased flows to springs and seeps. Forage quality has improved as well. Lamb recruitment has increased with improvement in habitat conditions.

No major wildfires were reported this year, but a smaller fire recently burned on the west side of the Little Sheldon. Juniper removal continues on the Sheldon in areas important to sage-grouse. Juniper removal efforts aid big game species such as bighorn sheep.

Population Status and Trend

The population estimate for the California bighorn population on the Sheldon has increased slightly for 2018.

Unit 034: Black Rock Range; Humboldt County
Report by: Ed Partee

Survey Data

Surveys in this unit took place in late August 2017. One hundred sixty-six animals were classified. The survey yielded a ratio of 10 rams:100 ewes:40 lambs. The modeled ram ratio still remains at 77 rams:100 ewes. Bighorn sheep may have shifted their distribution with the hot drier conditions experienced during survey.

Habitat

Habitat conditions were favorable throughout most of last year. The moisture received during the 2016-2017 winter improved forage conditions. Water and forage were abundant this year with plenty of green grass in the upper elevations. As of April 1, precipitation was 82% of average, primarily due to prior year precipitation. With better than average conditions, these herds should have good recruitment and body conditions. Feral horses competing with wildlife will continue to be an issue in this area.

Hunter access has been altered by the designation of the Black Rock-High Rock Immigrant Trail National Conservation Area (NCA) and Wilderness Areas within the NCA. The BLM has marked the majority of the restricted access points and hunters who apply for this area need to understand these restrictions. Despite access issues in this area, hunter success has been high in this unit.

Population Status and Trend

Lamb ratios have remained fairly consistent with a slight drop this year compared with the 5 year average. Over the past several years, this herd expanded into new areas.

The population estimate for this herd dropped slightly compared to the 2017 estimate.

Unit 035: Jackson Mountains; Humboldt County
Report by: Ed Partee

Survey Data

This survey was conducted toward the end of August 2017. Eighty-eight bighorn sheep were classified. The sample yielded a ratio of 22 rams:100 ewes:38 lambs. This population is increasing slightly on an annual basis. All age classes of rams appear to be well represented.

Habitat

Habitat conditions for this unit looked good during survey with an above-average snow pack. Vegetation was green in the upper elevations with water still available. Habitat conditions in this unit are similar to those throughout Humboldt County. Wildlife in this unit continues to compete with feral horses. Favorable precipitation received during the past 2 years should favorably influence vegetation growth this spring.

Hunter access has been influenced by the designation of the Black Rock-High Rock Immigrant Trail National Conservation Area and Wilderness Areas (NCA). The NCA boundaries encompass bighorn sheep concentration areas of King Lear Peak and Parrot Peak. The Bureau of Land Management (BLM) has marked the majority of the restricted access points and hunters who apply for this area need to understand these restrictions.

Population Status and Trend

The population is increasing slightly. Animals continue to move into new and less concentrated areas. With continued precipitation and favorable forage conditions, this population should continue to increase. Ram harvest on average continues to be stable with no major changes in horn size.

The population estimate is slightly higher than the 2017 estimate.

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

Survey Data

A half hour helicopter survey was performed along with a 1 day ground survey in the Sahwave Mountains in mid-August 2017. These efforts resulted in 25 bighorn sheep being classified, which provided ratios of 111 rams:100 ewes:67 lambs. This herd has had favorable recruitment, with a 5-year mean of 52 lambs:100 ewes.

Population Status and Trend

As part of the Department's bighorn sheep health monitoring program, 6 California bighorn sheep were captured and sampled in early November 2017. Bighorn sheep captured included 4 ewes and 2 rams. One ewe died from capture myopathy. The 5 other bighorn sheep were disease tested and fitted with GPS/VHF collars. Disease test results indicated that this herd has had limited exposure to respiratory viruses and may be considered naive. Since November 2017, 1 ewe was killed by a mountain lion; the other 2 ewes have been using habitat south of Bob's Spring. Rams are mostly using areas from Cottonwood Canyon south to Bob's Spring.

The Sahwave herd has been increasing in number since 2012. In 2017, California bighorn sheep have been sighted in the Selenite Range and in the south end of the Seven Troughs Range. The 2018 population estimate for the Hunt Unit 041 California bighorn sheep herd is 60 animals.

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

Survey Data

This herd was surveyed in late August 2017, and 143 bighorn sheep were observed. Ratios yielded from this survey are 30 rams:100 ewes:35 lambs which is similar to the 5-year average. The time spent on survey was increased during this survey in an attempt to locate additional animals.

Habitat

Habitat conditions remain stable after the 2016-2017 winter. The upper elevations remained green throughout the year with plenty of free water available. The 2017-2018 winter received less winter precipitation, but March precipitation increased. As of April 1, 2018, 82% of normal precipitation has been received. This area should remain in good condition throughout this year.

Population Status and Trend

The 2018 population estimate for this unit is slightly lower than the 2017 estimate, mainly due to low lamb recruitment over the past 4 years. This range now has 4 main areas that are surveyed. The north end, the south end, the east side or Hinkey Summit side, and now the addition of the Capitol Peak area in the Calicos are all areas that are surveyed. Continued monitoring efforts are taking place in this unit in cooperation with Oregon. Currently there are 24 bighorn sheep marked to follow movements and moiniro lamb recruitment. This population has remained relatively constant over the last few years.

Unit 066: Snowstorm Mountains; Western Elko County
Report by: Matthew Jeffress

Hunt Results

Due to the August 2011 all-age bacterial pneumonia die-off, the 066 season was closed to ram harvest between 2012 and 2014. Since 2015, 1 ram tag has been offered annually. In 2015 and 2016 hunters each harvested 6.5 year old rams. The 2017 tag holder was unsuccessful.

Survey Data

During spring 2018, 15 ewes, 6 lambs and about 12 rams occupy the Snowstorms. The 2017 lamb crop marks the highest year of recruitment since the 2011 die-off. A combination of marked animals well distributed throughout occupied range, weeklong spring and summer ground surveys, and a February elk survey over the Snowstorms has resulted in a reliable estimate of the current population.

Habitat

Even with limited precipitation during the winter of 2017-2018, much of the Snowstorms are still benefiting from the above average snowpack received during 2015-2016 and 2016-2017. Immigrant forage kochia seedings in lower Jake Creek to Twenty-One Creek look better than they have in several years. In addition, much of the year-round California bighorn sheep habitat remains in good to excellent condition.

More than 500 horses occupy the area between the Dry Hills and Snowstorms. Many of these horses are outside identified Herd Management Areas (HMAs). In addition to growing horse numbers outside HMAs, the Owyhee Complex had an estimated 3,067 horses as of fall 2016. The BLM's Appropriate Management Level for the Owyhee Complex is 483-779. During the winter of 2016-2017, about 1,800 horses were gathered off the Owyhee Desert and Snowstorms. Some were removed from the range and some were given birth control and released on site.

Mining exploration may increase this summer. In 2011 and 2012, several drill sites were located between Snowstorm Mountain and Kelly Creek Mountain. Plans for future drilling are unknown at this time.

Population Status and Trend

As part of a greater effort to understand the dynamics of post die-off survivors and how pathogens within surviving bighorn sheep populations affect lamb recruitment, Washington State University, Idaho Fish and Game, and South Dakota State University embarked on a study entitled "Investigating the Role of Super-Shedders in Respiratory Disease Persistence and Transmission in Bighorn Sheep." As part of the study, in late 2014 the Nevada Department of Wildlife provided 11 California bighorn sheep to South Dakota State University. The project has evolved into a field experiment looking at the effects of removing super-shedder ewes from the Snowstorm herd. In late 2015 and early 2016, the 25 remaining ewes on the Snowstorms were caught and sampled and all remaining unmarked ewes were collared. The marked animals have allowed the Nevada Department of Wildlife to continue monitoring Snowstorm California bighorn sheep to assess herd performance as it relates to the removal of potential super-shedders and the amount of time elapsed since the initial die-off. Ten of the 25 sampled ewes were confirmed to be shedding *Mycoplasma ovipneumoniae* during the last round of sampling and 1 ewe was not tested because she could not be caught. The 10 positive ewes and ewe that evaded capture from 2015-2016 were all caught and resampled in early 2017. Seven of the 11 ewes were found to be shedding *Mycoplasma ovipneumoniae.* The 7 positive ewes were removed from the population. Six of the 7 were donated to South Dakota State University for continued trials with penned Snowstorm bighorn sheep. Precise recruitment values will be collected through 2021 and these data, coupled with pathogen samples collected in 2011, 2012, 2014, 2015, 2016 and 2017 will guide future management of the Snowstorm herd.

Spring and summer lamb surveys conducted on the Snowstorms last year indicate the removal of super-shedder ewes seems to improve lamb recruitment. As of early 2018, there are 6 lambs and 15 ewes in 3

sub-herds on the Snowstorms. Two of the 15 ewes were yearling ewes that had not had lambs. The 6 lambs and 13 adult ewes represent a lamb to ewe ratio of 46:100. This is the highest lamb to ewe ratio recorded since 2009, prior to the 2011 die-off. While the increased lamb ratio is favorable, increased recruitment must be observed over a series of years to document the efficacy of super-shedder removals.

Unit 068: Sheep Creek; Northern Lander and Eureka Counties

Report by: Jeremy Lutz

Hunt Results

All 6 of the 2017 ram tag holders were successful. The average age was 6 years and the average Boone & Crockett score was 148 inches. This harvest data includes the PIW ram that was harvested from the Sheep Creeks. The Sheep Creek Range held is third bighorn ewe hunt in 2017 with both ewe hunters being successful.

Survey Data

In July 2017, a post fire inventory flight following the Rooster's Comb fire was conducted resulting in 144 California bighorn observed with 61 rams, 64 ewes, and 19 lambs classified; yielding age and sex ratios of 95 rams:100 ewes:30 lambs.

In late February 2018, a monitoring flight was conducted to determine if any effects from disease or habitat loss detected. One hundred nine bighorn sheep were observed with 41 rams, 53 ewes and 15 lambs classified yielding ratios of 77 rams:100 ewes:28 lambs.

Habitat

In July 2017, a lightning-caused fire started on the north end of the Sheep Creeks and in 4 days' time, the Roosters Fire consumed over 200,000 acres, burning over 75% of the known bighorn sheep habitat in the Sheep Creeks. The fire was stopped around Battle Creek but burned everything to the east along the north facing rim as well as 90% of the Rock Creek Gorge and Black Mountain. This area typically held the majority of this population and was classified as year round habitat. Both big game guzzlers were burnt over but were modified after the fire to function and provide water until they could be rebuilt. By fall both units were rebuilt and fully functional.

A post-fire flight was conducted about 2 weeks after the Roosters Fire to assess the effects on sheep and sheep habitat. One hundred forty-four bighorn sheep were classified; the largest sample ever obtained for this population. The majority of the sheep were found in known use areas inside the fire scar around small islands of unburned habitat.

Population Status and Trend

In October 2017, 2 young rams from the Sheep Creeks were seen co-mingling with a flock of domestic weed goats at a nearby ranch, located less than a mile from known bighorn sheep habitat. Several attempts were made to find the young rams, including watching the fields, but they could not be found. Subsequently, both of the ewe hunters were asked to submit samples from their ewes to help determine if any pathogens might have been transmitted. Both samples came back negative, however a more extensive sampling and monitoring effort is planned for this fall.

Since 2012, the Department has actively managed this herd through relocation efforts and ewe harvest to maintain the population within sustainable management levels. The Hunt Unit 068 California bighorn sheep population primarily inhabits an area that also serves as winter range for several hundred deer, antelope, elk, and livestock. The Sheep Creek Range is located within the 25 allotment which is administered out of the Elko BLM Tuscarora office. This allotment has seen major landscape changes mainly due to large re-occurring and devastating fires, however despite these habitat changes a rangeland health evaluation or permit renewal has never been completed.

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, this season has been closed since 2015.

Survey Data

An aerial survey was conducted in October 2017 and 26 bighorn were classified as 11 rams, 12 ewes, and 3 lambs. Three rams and 3 ewes observed were yearlings.

Habitat

An environmental assessment is being analyzed by the BLM's Wells Field Office for many vegetation treatments within this unit group. Once the environmental assessment is completed, possible treatments may include removal of encroaching juniper, herbicide application where necessary, and creating fuel breaks with the intent of reducing large acreage wildfires. All treatments should increase the health of the sagebrush ecosystem. The environmental assessment is expected to be completed by summer 2018.

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* for both blood antibodies and presence of the organism on Polymerase Chain Reaction (PCR).

Targeted mountain lion removal is ongoing in this area. Five additional bighorn sheep (4 ewes and 1 ram) were collared in October 2017 to aid in bighorn sheep distribution mapping and to identify areas for mountain lion removal. Three male lions have been removed since the initiation of the project. One collared ewe appeared to have died from mountain lion predation in mid-October 2016.

The disease event seems to have subsided. Herd monitoring will continue to determine if the population recovers adequately. Additional observations and monitoring of the existing mature rams will determine when any future harvest is recommended.

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

Harvest Results

One Nevada resident tag was offered in this unit for the 2017 season. The hunter was successful in harvesting a 9-year-old ram. One tag will be offered to a Utah resident for the 2018 hunting season.

Survey Data

No survey was conducted this year. The next survey is scheduled for August 2018.

Habitat

The construction of an artificial water development was recently completed on the mid elevation slopes of Pilot Mountain. The placement of the unit at mid slope, rather than the lower elevation benches, is intended to reduce the probability that bighorn sheep may come into contact with domestic sheep that use the valley. There are active domestic sheep allotments and trailing routes on the east side of Pilot and

in the Leppy Hills, so the risk of disease transmission remains high.

Population Status and Trend

In 2010, the presence of bacterial pneumonia was documented in the population. The disease event severely affected lamb survival. There are believed to be about 25 bighorn sheep in the population.

In 2012, 3 bighorn sheep (2 ewes and 1 ram) were radio collared with the objectives of learning more about movement patterns and potential contact with domestic sheep. The 2 ewes moved little from where they were first captured. One of the ewes spent her time exclusively in the Silver Islands which is where the active winter allotment of domestic sheep is located. Two satellite collars were deployed on the young ram, but both failed, so little information was obtained from that animal. Bighorn sheep were tested during the collaring operation, and all had antibodies for *Mycoplasma ovipneumoniae* and 1 was still actively shedding the organism. The short-term outlook for this herd is not favorable. Lambs are being born, but few are being recruited.

Unit 101: East Humboldt Range; Elko County

Report by: Scott Roberts

Hunt Results

In the winter of 2009-2010, a pneumonia outbreak occurred the Unit 101 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 February 2018, a ground survey classified 16 sheep consisting of 3 rams (<4 years of age), 10 ewes, and 3 lambs.

Weather and Habitat

The winters of 2015-2016 and 2016-2017 both produced exceptional snowpack in the East Humboldts and provided high quality forage on all seasonal ranges. The winter of 2017-2018 was relatively mild due to warmer ambient temperatures and decreased snowpack. These unseasonable conditions resulted in much of the winter range being open for most of the year. The small overall population and the abundance of available resources should reduce competition for forage resources in the near future.

Population Status and Trend

Monitoring suggests mortality rates attributable to the pneumonia outbreak were about 90% across all age classes. This was the first measureable disease event in Unit 101 since the sheep were released in 1992. During the 1995-1996 winter, the adjacent bighorn sheep population in Unit 102 experienced considerable loss from a similar pneumonic die-off. The Hunt Unit 101 herd had been showing a strong growth trend from the original 31 animals released in 1992 to an estimated 180 animals in the fall 2009. In 2012, 15 sheep remained in Hunt Unit 101, consisting of 4 rams, 10 ewes and 1 lamb. As part of an experiment to evaluate possible disease transmission from extant mountain goats to newly reintroduced bighorn sheep, the Department removed the remaining 15 sheep from Hunt Unit 101 in 2012. The 10 ewes and 1 lamb were released in Hunt Unit 102 and the rams were sent to Washington for disease research at the Washington Animal Disease Laboratory.

After removing the remaining diseased sheep in 2012, the Department waited a year to bring in other sheep. In 2013, the Department reintroduced 20 sheep from Alberta, Canada into Hunt Unit 101. The complement of sheep included 17 pregnant ewes, and 3 rams. From 2013 to fall 2016, the bighorn sheep herd grew to about 42 animals. During late-fall 2014 and early winter 2015, the bighorn sheep again suffered a pneumonic disease event involving a new disease "spillover" of *Mycoplasma ovipneumoniae*,

probably transmitted from the extant, sympatric mountain goat herd. Since that time, the herd has stabilized around 20 animals. Winter 2017 observations of lamb recruitment were positive with a lamb ratio of 30:100 ewes.

Unit 102: Ruby Mountains; Elko County
Report by: Scott Roberts

Tag Quotas and Harvest Results

In the winter 2009-2010, a pneumonia outbreak occurred in Hunt Unit 102 bighorn sheep resulting in an estimated 90% mortality. No tags have been issued for Hunt Unit 102 since the 2009 season.

Survey Data

Following the 2009-2010 pneumonia outbreak, comprehensive aerial and ground surveys have been conducted annually. The Department has used trained volunteers to assist with conducting ground surveys in the Lamoille area to intensively survey the area. In December 2017, a ground survey was conducted and 24 bighorn sheep were observed: 8 rams, 9 ewes, and 7 lambs. This is the third consecutive year with good lamb recruitment.

Weather and Habitat

The above average snowpack during winter 2015-w016 and 2016-2017 provided high quality forage on all seasonal ranges. Weather conditions on the winter range were relatively mild this winter, which allowed for more widespread use of areas that typically unavailable during winter.

Population Status and Trend

Prior to the winter of 2009-2010, the bighorn sheep population in the Rubies was recovering from a die-off that occurred in 1996. Monitoring of the 2009-2010 disease event suggested mortality rates attributable to the pneumonia outbreak were 90% across all age classes. In 2012, 10 ewes and 1 lamb were transplanted from adjacent Hunt Unit 101 into Lamoille Canyon. At that time the sheep from both the Ruby Mountains and the East Humboldt Range shared the same pathogen profile, so there was very little risk in moving the sheep from Hunt Unit 101. Between 2013 and 2015, the sheep herd remained stable to declining and lamb recruitment varied from low to maintenance levels. Starting in 2015 this herd began exhibiting high lamb recruitment (>75 lambs:100 ewes). The strong lamb ratios are encouraging, but many of the older-aged ewes that made it through the initial die-off are dying of old age. The current population estimate for this herd is 40 adult animals.

Unit 114: North Snake Range – Mount Moriah; Eastern White Pine County
Report by: Kody Menghini

Hunt Results

In 2017, bighorn seasons in Hunt Unit 114 were split into an early and late season. A quota of 2 was established in each season. One hunter harvested in the early season and 2 hunters harvested in the late season. The 3 rams harvested in one fall season was the most ever in this unit. Despite the good success in 2017, this hunt continues to be physically and mentally demanding. Access to the Mount Moriah Wilderness area is challenging and rams are difficult to locate due to extensive tree cover.

Survey Data

Aerial herd composition surveys were conducted in August 2017 and resulted in the classification of 33 bighorn sheep. The observed sex and age ratios were 86 rams:100 ewes:50 lambs. During spring mule deer and post-season elk surveys in March 2018, 25 bighorn sheep were observed incidentally, yielding ratios of 5 rams:100 ewes:20 lambs.

Weather and Habitat

The above average winter precipitation in 2016-2017, followed by timely spring rains in 2017, improved quality and quantity of habitat available for bighorn in the short-term. Conditions deteriorated during summer and fall 2017 with warm, dry conditions. Winter 2017-2018 has been warmer and drier, although March precipitation increased substantially.

Dense mixed conifer and mountain mahogany effectively separates seasonal ranges in much of the area presently occupied by bighorn sheep. In July 2014, the Hampton Fire burned about 12,500 acres at mid-elevation in dense trees. There was massive erosion in August and September 2014 due to heavy monsoonal rains falling on bare soil. Vegetation response to the fire has varied with areas that had less tree cover pre-burn responding well with native bunch grasses and forbs, while other areas are dominated by cheatgrass. Locations that had heavy tree cover prior to the fire resulted in a hot burn that sterilized the soil. Overall, the Hampton Fire should benefit bighorn sheep.

Population Status and Trend

In January 2018, a sick bighorn sheep ewe was collected. Disease samples were taken, and the ewe had pneumonia and sinus tumors. Other bighorn sheep observed throughout the winter and spring exhibited no signs of pneumonia. The lamb ratio from the spring observations was low, but not consistent with those observed during a disease outbreak. The population has decreased slightly with a current estimate of 80 bighorn sheep. The age structure of rams includes many older age class animals.

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

Report by: Kody Menghini

Hunt Results

In 2017, 1 tag was available for the sixth consecutive year. The hunter did not harvest.

Survey Data

Aerial herd composition surveys were conducted in August 2017 and classified 29 bighorn sheep. The observed ratios were 21 rams:100 ewes:32 lambs.

Weather and Habitat

The above average winter precipitation in 2016-2017, followed by timely spring rains in 2017, improved quality and quantity of habitat available for bighorn sheep. Conditions deteriorated during the summer and fall 2017 with warm, dry conditions. Winter 2017-2018 has been warmer and drier, although March precipitation increased substantially.

Continued long-term habitat limitations exist in this unit because dense mixed conifer and mountain mahogany effectively separates seasonal bighorn sheep ranges. Pinyon-juniper trees dominate much of the lower elevations that bighorn sheep use during late-winter and spring which reduces forage availability.

Population Trend

The Department and the Great Basin National Park have worked collaboratively to collar bighorn sheep in Hunt Unit 115 since 2009. Collaring projects in February 2015, November 2016, and February 2017 resulted in the deployment of satellite GPS-VHF collars on 4 ewes and 1 ram. Population data collected for this herd support limited ram harvest. A December 20 through February 20 season was established to allow the tag holder to pursue rams outside of the Park boundary when they descend from higher elevations in late winter. This bighorn sheep population is stable with a population estimate of 40 bighorn.

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 quota had been recommended due to the uncertainty of pneumonia-related mortalities of mountain goats that share the same summer range, and in some cases winter range, as bighorn sheep in Hunt Units 101 and 102. More recently, after further assessing survey and harvest data post-die-off, there is greater confidence in adult survival rates for Hunt Unit 102, but goats in Hunt Unit 101 are still struggling with pathogens and subsequent decreases in annual survival rates. In contrast, Hunt Units 102 and 103 have experienced average to good kid production and have been able to support more liberal tag quotas relative to the population size.

All 9 tag holders hunted during the 2017 season, of which 2 were unsuccessful. Of the 7 mountain goats harvested 3 (43%) were nannies. The average age of all harvested goats was 4.7 years old. Nanny harvest continues to be closely monitored due to the naturally low productivity potential of mountain goats. In an effort to curtail nanny harvest, the Department has posted a voluntary Mountain Goat Hunting Orientation document to its website to aid hunters in identifying the gender of mountain goats in the field.

Survey Data

Aerial mountain goat surveys were conducted in Hunt Unit 101 in August 2017. The survey classified 54 mountain goats resulting in an observed ratio of 35 kids:100 adults. While this production value is encouraging, the population has significantly decreased due to the depressed kid ratios of recent years.

Hunt Units 102 and 103 were not surveyed during the reporting period.

Weather and Habitat

Snow banks that accumulate during the winter and then recede slowly throughout the summer months sustain preferred forage for goats. The winters of 2015-16 and 2016-17 were both exceptional in precipitation and snowpack received, which created ideal summer range conditions in all 3 units. Nevada's mountain goat populations are generally limited by winter range and heavy spring snow loads that have the potential to cover their forage, limit their movements, and increase their chances of fatalities from falls and avalanches. Overwinter survival should have been elevated as this past winter was generally mild, with much of the higher elevations being free of snow during much of the winter months.

Population Status and Trend

Concern for the declining Hunt Unit 101 mountain goat herd grows stronger as each year passes. This year's kid ratio leaves room for optimism but the previous 8 years of observed kid ratios have ranged from 0-17 kids:100 adults. More years of elevated recruitment are needed to curtail the long term population contraction and to maintain the minimal tag quota for Hunt Unit 101. Incidental observations during the reporting period in both Hunt Unit 102 and Hunt Unit 103 indicate lamb survival and relatively stable herds. Mountain goat surveys in all 3 units will be an agency priority in the coming year

MOUNTAIN LION

Statewide Report
Report by: Pat Jackson

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 Hunt Unit 091 remains unchanged.

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

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

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

No concerning trends were observed in adult female and overall female harvest. Overall female harvest did exceed 50% for the transient population (see Table 1), but units comprising the transient population are of poor mountain lion quality; a resident population does not occupy this area.

	Overall Female Harvest	Adult Female Harvest
East	29%	21%
South	39%	30%
North	40%	29%
Central	42%	29%
West	42%	25%
Transient	55%	14%

Eastern Region; Areas 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15
Report by: Tyler Nall

Hunt Results

The Eastern Region reported hunter harvest for mountain lions for the 2017–18 season was 87 animals (Table 2). The mean harvest for the previous 5 seasons (2012–2016) was 83. Guided hunters made up 39% of the region's annual hunter harvest. The 2017–18 sex composition of hunter harvested lions was 50 males and 37 females for a ratio of 1.4 males:1 female.

The total documented mountain lion harvest for the Eastern Region in 2017–2018, including all known take, was 100 mountain lions. The annual combined harvest comprised 56 males and 45 females.

Table 2: Eastern Region mountain lion hunter harvest by area, 2012–2017.

Area Group	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
061-068	20	14	15	18	17	25
071-081	7	9	1	9	7	17
091	0	0	0	0	0	0
101-109	31	19	17	25	29	12
111-115	32	10	9	13	21	8
121	6	2	5	6	7	3
131-134	5	2	5	4	4	0
141-145	7	6	3	10	10	11
151-156	3	2	2	1	5	11
Eastern Region Total	111	64	57	86	100	87

Livestock depredation issues in 2017–2018 resulted in the take of 1 mountain lion compared to 5 in 2016–2017. There was 1 case of depredation in protection of property and in the name of public safety. Five mountain lions were taken as part of bighorn sheep protection projects in Hunt Units 066 and 102. Other non-hunter harvest for the 2017–2018 season included 2 lions being accidentally trapped and 4 lions being taken associated with other Department predator projects.

Population Status and Trend

Mountain lion harvest has been under close scrutiny by some hunters over the last few years. There is some concern over the quantity and quality of mountain lions within the Eastern Region. A review of statistics within the region indicates that although some members of the hunting public may believe there may be locally reduced populations at times (e.g., seeing fewer mountain lions in a favorite canyon or hunting location), regionally the population is holding up well. Population size is not directly proportional to annual harvest as many factors can influence harvest pressure and effort. For example, factors such as weather conditions, hunter effort, and expenses associated with hunting can affect annual mountain lion harvest. Age and sex structure of harvested lions are good measures of mountain lion populations. Overharvest will result in detectable changes to age and sex structure in the harvest.

The mean estimated age of mountain lions taken by hunters in the Eastern Region was 3.6 years, which is slightly below the 10-year-mean (Table 3). Based on sex and estimated age ratios in the harvest, long-term harvest data analysis, and recorded mortality, the overall Eastern Region mountain lion population trend is considered to be healthy and stable (Tables 4).

Table 3: Eastern Region frequency and mean age of harvested mountain lions, 2008-2017.

Year	Males harvested	Females harvested	Mean estimated age males	Mean estimated age females	Mean estimated age all mountain lions
2008–2009	38	16	4	4.1	4.1
2009–2010	40	34	3.8	3.8	3.8
2010–2011	49	22	3.7	3.2	3.6
2011–2012	38	21	3.9	4.1	4.0
2012–2013	58	53	4.6	4.4	4.5
2013–2014	42	22	3.9	5.1	4.3
2014–2015	35	24	4.1	3.9	4.0
2015-2016	64	22	4.0	3.7	4.0
2016-2017	60	40	3.5	4.0	3.8
2017-2018	50	37	3.6	3.5	3.6

Table 4: All known take of mountain lions in Eastern Region, 2008-2017.

Year	Season Length (days)	Maximum allowable hunter harvest	Hunter harvest	Depredation take	Other take	Total take
2008–2009	365	167	54	11	3	68
2009–2010	365	143	74	18	6	98
2010–2011	365	143	71	13	3	87
2011–2012	365	232	59	11	4	74
2012–2013	365	232	111	20	3	134
2013–2014	365	122	64	10	1	75
2014–2015	365	113	56	5	4	65
2015–2016	365	113	86	15	2	103
2016-2017	365	113	100	18	2	120
2017-2018	**365**	**247**	**87**	**11**	**2**	**100**
Mean	365	163	76	13	3	92

Management Conclusions

Hunter success was down from the previous year, which can be attributed to the lack of snow for most of the season. Despite this, the hunter harvest was still above the 10 year average of 76. The maximum allowable hunter harvest objective statewide was 247, of which hunters took 87 mountain lions in the Eastern Region.

Mountain lion population trends are stable within the Eastern Region. The average age of 3.6 is slightly down from last year's 3.8. Although locating lions in some of the more accessible and popular mountain lion hunting areas may be difficult, there is a sufficient base population of mountain lions to allow for adequate reproduction and population maintenance. The dispersal of mountain lions from adjacent mountain ranges with little or no harvest is common. The base populations of prey species on which mountain lions depend are currently at stable to increasing levels regionally and are expected to continue to sustain healthy mountain lion populations.

Western Region; Areas: 1, 2, 3, 4, 5, 18, 19, 20, and 29
Report by: Carl Lackey

Harvest Results

Biologists recorded the take of 82 mountain lions between March 1, 2016 and February 28, 2017 within the Western Region (Table 5). This take included 57 animals harvested through licensed hunter harvest, and 14 by USDA-Wildlife Services. Eight of these were for predator projects in Washoe and Humboldt Counties and 6 were taken under for depredation on domestic livestock. Five lions were killed in as a result of collisions with vehicles, 3 died as a result of being accidentally caught in leg hold traps set for furbearers, 1 was killed in self-defense and two died of unknown causes.

Table 5: Western Region mountain lion harvest limits and mortalities by type for 2017–2018.

Management area	Harvest Type				
	Hunter	Depredation	Predator projects	Other	Total
1	9	4	3	1	17
2	6	1	0	2	9
3	3	0	5	0	8
4	9	0	0	0	9
5	10	0	0	1	11
18	1	0	0	0	1
19	13	1	0	5	19
20	4	0	0	2	6
29	2	0	0	0	2
Totals	**57**	**6**	**8**	**11**	**82**

Table 6: Western Region mountain lion hunter-harvest: 10-year sex and age comparisons, 2009–2018.

Year	Harvest				Mean age - years		
	Males	Females	Percent Female	Percent Adult Female ≥3 years	Males	Females	All mountain lions
2008–2009	24	14	37%	29%	3.4	3.7	3.5
2009–2010	19	14	42%	21%	4.4	3.4	3.9
2010–2011	26	24	48%	32%	3.9	5.0	4.5
2011–2012	8	10	56%	28%	4.1	2.8	3.4
2012–2013	14	25	64%	41%	NA	NA	NA
2013–2014	15	13	46%	25%	3.5	2.8	3.2
2014–2015	12	12	50%	21%	4.1	2.6	3.0
2015-2016	30	29	49%	32%	3.7	3.8	3.7
2016-2017	28	25	47%	19%	4.2	2.6	3.5
2017-2018	**35**	**22**	**39%**	**30%**	**3.3**	**3.7**	**3.4**

Note: two mortalities (unknown sex) in 2008

Population Trend

Harvest indices such as percent females killed, percent adult (≥3 yrs) females killed, and average age of all lions in the harvest are used to monitor population trends in the absence of mark-recapture, DNA, or GPS collar data. Mountain lion hunter effort is an additional indices used and is measured by the number

of days hunted for each hunter that reported a harvest. The mean for the 2017–2018 season was 3.3 days afield/hunter. Population structure and trends are based on harvest data and reports from guides and hunters. In comparison with the 10-year hunter harvest trend (Table 6), no major long-term shifts in sex ratios or age cohorts were detected, suggesting that the mountain lion population in western Nevada is remaining stable.

Management Conclusions

Although there are some yearly fluctuations within harvest categories, the mean ages and percent of females harvested has not changed substantially. Hunter harvest regulation changes implemented beginning in 1997 have only marginally affected the number of mountain lions taken during the hunt. Data indicate regulations and harvest levels are compatible with the mountain lion resource and its resiliency to absorb harvest.

Southern Region: Areas 16, 17, 21, 22, 23, 24, 25, 26 and 27

Report by: Cooper Munson

Harvest Results

The 2017-2018 mountain lion season ran from March 1, 2017 through February 28, 2018 in all areas of the Southern Region, with the exception of Area 28, which remains closed to mountain lion hunting. The harvest limits in all areas were combined to form a statewide harvest limit of 245 lions. Table 7 displays a comparison of harvest for the last 10 years. Table 8 displays the regional lion harvest for the March 1, 2017–February 28, 2018 season.

Table 7: Comparison of Southern Region Harvest by area groups for the last ten years

Area Group	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
161-164	3	11	8	5	3	2	3	7	3	3
171-173	8	4	4	3	3	7	1	2	4	2
211-212	0	0	0	0	0	0	1	0	1	1
221-223	6	3	6	12	12	8	8	10	12	5
231	6	2	4	2	9	4	5	5	5	5
241-245	4	4	7	5	6	6	2	3	4	6
251-253	3	1	1	0	1	0	0	0	0	5
261-268	2	0	1	1	1	2	0	1	0	0
271-272	0	0	0	1	0	0	0	1	0	0
Totals	32	25	31	29	35	29	20	29	29	27

Table 8: All Southern Region Mountain Lion Mortalities by Type and Distribution for 2017-2018

Management Area Groups	Hunter Harvest	Depredation Harvest	Other Harvest	Total Harvest
161-164	2			**3**
171-173	2			**2**
211-212	1			**1**
221-223	3			**5**
231	5			**5**
241-245	2		4	**6**
251-253	0	5		**5**
261-268	0			**0**
271-272	0			**0**
Totals:	**18**	**5**	**4**	**27**

Regional hunter harvest for the 2017-2018 season consisted of 18 lions.

Population Trend

The 2017-2018 Southern Region mountain lion hunter harvest consisted of 13 males and 5 females for a male to female ratio of 2.6:1 with a 5-year average ratio of 1.7:1. The 18 lions taken in the hunt was down from the previous season with 29 lions harvested during 2016-2017. The average age of harvested males was 5.1, which is slightly higher than the ten-year average harvest age of 4.6. The average age of harvested females was 3, which is below the 10-year average age of 3.9. Overall, the average age of lions harvested in the southern region is 3.4, which is slightly under the 10-year average of 4.2. The total harvest of 27 lions is within range of the average of 28.3 over the last 10 seasons (2008 – 2018).

Management Conclusions

The hunter harvest of 18 mountain lions was 64% the previous years' harvest of 28 lions and well below the average harvest in the Southern Region. Five depredation lions were taken in the southern region during the reporting period and another 4 lions were removed under predator project 37. Slightly below average precipitation was received throughout the Southern Region during 2017, which may affect the abundance, dispersal, and overall health of prey species. The western portion of the Southern Region (Areas 16, 17, & 21) accounted for 33% of the Southern Region lion harvest compared to 25% in 2016-2017 and 31% in 2015-2016. Days hunted reported by hunters was an average of 2.2 days. The average body condition reported was 3.8 (scale 1 – 5 with 1 being poor and 5 being excellent), indicating that most lions were in very good condition. The conclusion drawn from looking at the data from harvested lions as well as the Mountain Lion Harvest Reports is that the mountain lion population in the Southern Region continues to be stable although fewer lions were taken in the 2017-2018 season. Lack of seasonal precipitation in late 2017 and early 2018 may have made it more difficult for hunters to be successful, while the 2016-17 season received substantially more snowfall.

Literature Cited

Andreasen, A. M., K. M. Stewart, W. S. Longland, J. P. Beckmann, and M. L. Forister. 2012. Identification of source-sink dynamics in mountain lions of the Great Basin. Molecular Ecology 21:5689–5701.

BLACK BEAR

Western Region
Report by: Carl Lackey

The Department maintains a database containing data on black bears captured or handled since 1997. The cumulative total from 1997 through 2017 is 1,497 bears (Table 1). All bears captured and released are marked with permanently identifying individual ear tags, tattoos, or PIT tags. To date the Department has permanently marked 536 individual bears.

Table 1: Bears handled in the Western Region, 2008–2017.

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Bears handled	68	40	79	78	83	97	141	121	71	89
Cumulative total[a] (since 1997)	698	738	817	895	978	1075	1215	1337	1408	1497

[a] *Includes recaptured bears previously handled and marked in the same or preceding years.*

Harvest Analysis

The hunt structure has remained mostly constant other than variations in season length. The 2017 season was open September 15-December 1 (78 days). The harvest limits established by the Commission has remained at 20 bears each year. The Wildlife Commission increased the number of tags available for 2017 to resident and non-resident licensed hunters to 45 and 5 respectively. Applications for these tags have increased each year with 1,156 tag applications received in 2011, 1,762 in 2012; 2,021 in 2013; 2,143 in 2014; 2,339 in 2015, 2,504 in 2016 and 2,600 in 2017. These figures do not include applications for bonus points only (an additional 1,592 applications in 2017).

The Department's Black Bear Management Plan specifies annual harvest data will be analyzed along with harvest data from the most recent three years. Further, to fully evaluate the demographics of the state's bear population, the Department supplements this hunter harvest data with mark-recapture analyses to determine population size and trend. This allows the NDOW the ability to evaluate various demographics of the bear population, both short-term and long-term, and to discern any substantive changes in vital rates that may initiate a change in the bear hunt strategy.

All successful hunters were required to personally bring the hide and skull of harvested bears to a Department representative for check. Of the 82 successful hunters to date; 87% saved the bear meat, 22% were guided by professional guides, and 5% were nonresident hunters. The hunter success rate increased marginally this year to 26%, and is just below the long-term average of 30%.

The overall harvest of 13 bears in 2017 represents about 2% of the estimated population. The 3-year harvest data indicate light harvest when considering age cohorts in the harvest. The 31% females in the harvest fell considerably in 2017 to below the long-term average of 34%, but the 3-year average remains high at 42% (Table 2). Fifty-four% of the (51 of 95) bears harvested during the 7 years of the hunt have been harvested in Hunt Unit 291 (Figure 1). The NDOW biologists recommended restructuring the open units for the 2017 in an attempt to distribute hunter effort. Open units were separated into 3 Hunt Unit groups: 192, 194, 196 and 195; 201, 202, 204 and 206; and with Hunt Unit 291as a single unit. This restructuring design combined with instructions to hunters at the indoctrinations seemed to have had an effect on female harvest in 2017 (Table 2). Each unit group had a separate total harvest and female harvest limit which were set by the Wildlife Commission. Area 19 (Hunt Units 192, 194, 195 and

196) had a total harvest limit of six with a female harvest limit of three. The limits for Area 20 was set at six total bears or two females and the limit for Area 29 set at eight total bears or three females.

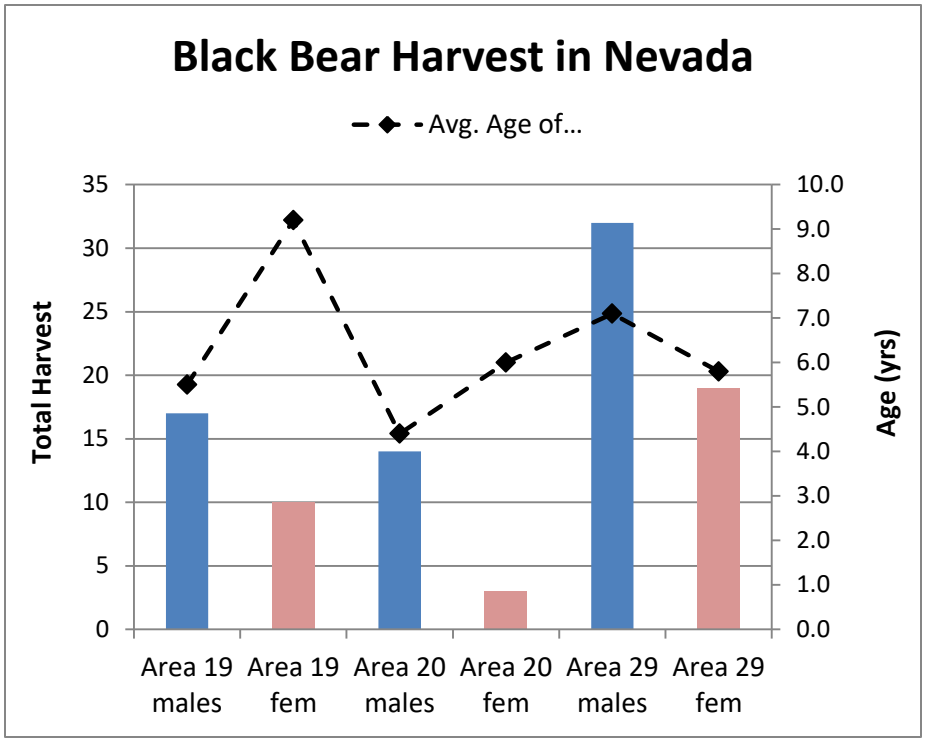


Figure 1: Number males and females harvested by unit group with average ages – all bears harvested in hunt, 2011-2016

Table 2: Hunter harvest data 2011–2016.

Data from all successful hunters	2011	2012	2013	2014	2015	2016	2017	Last 3 years	3 yr Harvest criteria indicator	All Years
Male bears harvested	9	10	10	12	8	5	9	22		63
Female bears harvested	5	1	4	6	6	6	4	16		32
% females in harvest	***36%***	***9%***	***29%***	***33%***	***43%***	***55%***	***31%***	***42%***	***Heavy harvest***	***34%***
Mean age males (years)	***5.9***	***5.1***	***4.7***	***6.3***	***6.8***	***9.4***	***4.9***	***6.6***	***Light harvest***	***6.2***
Mean age females (years)	**6.9**	**9.0**	**5.8**	**9.3**	**4.8**	**7.0**	**7.8**	**6.4**	***Light Harvest***	**6.9**
Mean age all (years)	5.9	5.5	5.0	7.9	5.9	8.1	5.8	6.5		6.3
Male:female ratio	1.8	10.0	2.5	2.0	1.3	0.8	2.3	1.4		2.0
Hunter success rate	31%	24%	31%	40%	31%	24%	26%	27%		30%
Hunter effort in days/harvest	8.3	8.7	7.8	5.1	6.7	8.8	5.2	6.8		7.1
Average days scouted	7.0	2.1	4.0	2.9	2.5	4.3	7.5	4.7		4.3
Average days hunted	8.3	8.7	8.4	5.1	6.7	8.8	5.2	6.8		7.1
Hunt Method:										
Dogs	12	7	8	13	9	8	9	NA		66
or Other	2	4	6[a]	5	5	3	4			29

[a] *Illegally harvested bear but used hounds*

Status

The modeled population estimate of black bears is 600. Viable populations of black bears exists in the Carson Range of the Sierra Nevada, the Pine Nut Mountains, Virginia Range, Peavine Mountain, Pine Grove Hills, Wassuk Range, Sweetwater Mountains, East Walker River area, and likely the Virginia Mountains and the Excelsior Range at lower densities. Random sightings and captures in historic habitat throughout Nevada have been documented and these instances are increasing; however, it is unlikely viable populations exist in these areas at this time. 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 increasing in distribution, both numerically and geographically. This numerical growth has been slowing the last few years, possibly indicating biological carrying capacity has been reached.

APPENDIX

Harvest, Survey, and Population Tables

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Harvest, Survey, and Population Tables

TABLE 1. 2017 MULE DEER POINT CLASS BY UNIT AND UNIT GROUP

Unit of Harvest	Does	Fawns		Bucks by Antler Points						Unit Buck Total	Unit Group Buck Total	% 4+ pts	TOTAL DEER
		Female	Male	1	2	3	4	5	6+				
011	3				3	8	4			15			
012				0	2	1	6	1	0	10			
013					4	5	6	4		19			
unk^					1					1	45	47%	48
014				2	7	22	6	1		38	38	18%	38
015	2		1	1	4	3	8	2	1	19	19	58%	22
021	2			1	6	21	17	2	2	49	49	43%	51
022				1	12	12	16	1	1	43	43	42%	43
031	3			6	42	43	69	7		167	167	46%	170
032	12			3	21	16	17	2		59	59	32%	71
033					4	12	13			29	29	45%	29
034	1			1	4	1	12	1		19	19	68%	20
035	3	1		4	14	30	15	1		64	64	25%	68
041	1				4	5	4			13			
042	1				3	7	6			16			
unk^							1			1	30	37%	32
043	13			2	25	28	25	2	1	83			
044	2			1	7	8	6	1		23			
045	5				4	13	5			22			
046	6			1	15	23	14	2		55			
unk^							1			1	184	31%	210
051	23	1	3	10	40	61	68	8	1	188	188	41%	215
061	28			4	54	45	43	5		151			
062	248	9	20	10	69	85	119	7	1	291			
064	7				10	23	20	4		57			
066	1				9	11	10	2	3	35			
067	57	5	8	1	15	27	23	2	2	70			
068	103	1	7	7	19	32	46	5	5	114			
unk^	2				2	1	3	1		7	725	42%	1,221
065	1		1		5	12	28	2	3	50	50	66%	52
071	17				8	17	20			45			
072	20	1	1	2	21	21	45	6	4	99			
073	18		1	2	21	16	29	4	1	73			
074	7				2	5	8		1	16			
075	21		1	1	21	45	71	14		152			
076	2				6	17	19	6	5	53			
077	21		1	2	8	10	25	4		49			
078	2		1			2	3			5			
079	1			1	1	2	4	1		9			
091						1	2			3			
unk^	2						2			2	506	54%	623
081	1					6	37	6	3	52	52	88%	53
101	41	1	4	7	37	46	51	2	4	147			
102	83	5	7	12	70	92	89	14	6	283			
103	4			5	33	9	11	1	2	61			
104	6			2	13	19	19		2	55			
105					1	4	3			8			
106						6	6	1		13			

TABLE 1. 2017 MULE DEER POINT CLASS BY UNIT AND UNIT GROUP

Unit of Harvest	Does	Fawns		Bucks by Antler Points						Unit Buck Total	Unit Group Buck Total	% 4+ pts	TOTAL DEER
		Female	Male	1	2	3	4	5	6+				
107							2			2			
108	1			3	7	11	5	1		27			
109	10					5	2		1	8			
unk^					1	2	1	1		5	609	37%	771
111	38		3	23	118	108	122	10	2	383			
112					5	9	8	1		23			
113					12	11	4			27			
unk^				1	4		1			6	439	34%	480
114	7			2	8	14	22	1		47			
115	21	1		1	20	13	42	6	1	83			
unk^										0	130	55%	159
121	5			6	49	60	60	5	1	181	181	36%	186
131	6			5	45	58	96	10	4	218			
132	4			5	13	24	35	5	4	86			
133	1			1	2	5	6	3	4	21			
134					1	1	2	1		5			
unk^					1					1	331	51%	342
141	2		2	4	50	38	25			117			
142				1	6	5	6	1		19			
143	3			1	17	15	24	1		58			
144	6		1	12	58	37	43	3	1	154			
145	1			1	12	8	9			30			
unk^				1			1			2	380	30%	395
151	3			1	17	10	4			32			
152	10		1	3	10	6	17	1	1	38			
153				1	3	4	7			15			
154	2				11	5	15			31			
155	4	1		1	7	14	11	2	2	37			
156					1	2	5			8			
unk^						1	1			2	163	40%	184
161	10		1	9	41	43	21	3		117			
162	2			1	25	31	37	3	1	98			
163	1				10	8	17	1		36			
164			1		1	6	4	1		12			
unk^					1					1	264	33%	279
171	4			2	17	11	15		1	46			
172	7				14	7	11			32			
173	16		3	9	43	39	29	1	1	122			
unk^						2				2	202	29%	232
181	2				7	13	9	2		31			
182					1	1	2	1		5			
183				1	6	10	5		1	23			
184	2			2	8	7	9	1		27	86	35%	90
192	2			3	6	19	13	2		43	43	35%	45

TABLE 1. 2017 MULE DEER POINT CLASS BY UNIT AND UNIT GROUP

Unit of Harvest	Does	Fawns		Bucks by Antler Points						Unit Buck Total	Unit Group Buck Total	% 4+ pts	TOTAL DEER
		Female	Male	1	2	3	4	5	6+				
194					2	10	23	10	3	48			
196					1	11	20	4	1	37	85	72%	85
195	1			1	1	6	11		1	20	20	60%	21
201	1			1	12	6	8			27			
204					1	2	3			6			
unk^										0	33	33%	34
202	1				5	15	6	1	1	28			
205						1				1			
206					2	2	3			7			
207				1		1	1			3			
208					1	1				2	41	29%	42
203				2	7	13	11			33	33	33%	33
211					4	6	7	2	1	20			
212					5	5	10		2	22			
213										0	42	52%	42
221	9			2	24	38	45	7	3	119			
222	5			9	34	47	67	10	4	171			
223	5		1	2	10	13	23	2		50			
unk^										0	340	47%	360
231	6			1	30	52	122	19	15	239	239	65%	245
241					1	3	26	7		37			
242					4	14	18	9	2	47			
243							1	1	1	3			
245					1	1	6	1		9			
unk^										0	96	75%	96
251					4	13	9	2	1	29			
252										0	29	41%	29
261				1	2	2	2	1		8			
262	2			4	14	15	26	2		61			
263					2			1		3			
264						1				1			
265										0			
268					2		1			3	76	43%	78
271					1	1	4	3	1	10			
272				2	2	3	7	1	1	16	26	65%	26
291	2			4	11	18	18	4		55	55	40%	57
TOTAL	**972**	**26**	**69**	**219**	**1,488**	**1,836**	**2,281**	**276**	**110**	**6,210**		**43%**	**7,277**

SPECIAL TAGHOLDER HARVEST BY UNIT

HUNT	UNIT	#
PIW	021	2
PIW	076	1
PIW	081	3
PIW	115	1
PIW	194	6
PIW	196	2

HUNT	UNIT	#
PIW	222	1
PIW	223	1
PIW	241	1
PIW	262	2
PIW	271	1

HUNT	UNIT	#
SILVER	131	1
HERITAGE	132	1
HERITAGE	242	1
DREAM	222	1

TABLE 2. 2017 MULE DEER JUNIOR HUNT HARVEST BY UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% Bucks
011 - 013	31	20	20	2 to 1	90%	12	67%	77%
014	37	20	20	2 to 1	90%	8	44%	100%
015	23	15	15	2 to 1	60%	7	78%	71%
021	62	15	15	5 to 1	93%	12	86%	83%
022	46	25	25	2 to 1	96%	16	67%	100%
031	81	65	65	2 to 1	98%	43	67%	93%
032	37	60	60	1 to 1	95%	27	47%	54%
033	10	8	8	2 to 1	100%	8	100%	100%
034	11	10	10	1 to 1	100%	9	90%	88%
035	42	40	40	1 to 1	98%	25	64%	86%
041, 042	20	15	15	2 to 1	73%	6	55%	71%
043 - 046	115	110	110	1 to 1	95%	57	54%	81%
051	141	130	130	1 to 1	99%	69	53%	82%
061, 062, 064, 066 - 068	517	475	475	1 to 1	95%	278	61%	86%
065	25	20	20	2 to 1	90%	15	83%	93%
071 - 079, 091	222	170	170	2 to 1	90%	121	79%	96%
081	37	15	15	3 to 1	87%	11	85%	92%
101 - 108	230	225	224	1 to 1	93%	125	60%	79%
111 - 113	275	275	271	1 to 1	93%	166	66%	77%
114, 115	60	60	59	1 to 1	85%	24	48%	76%
121	71	70	70	1 to 1	100%	52	74%	90%
131 - 134	179	130	130	2 to 1	92%	83	69%	87%
141 - 145	131	155	155	1 to 1	97%	99	66%	88%
151 - 155	91	90	90	1 to 1	96%	50	58%	85%
161 - 164	163	150	150	1 to 1	91%	83	61%	84%
171 - 173	127	140	139	1 to 1	94%	69	53%	58%
181 - 184	83	70	70	2 to 1	89%	27	44%	85%
192	35	15	15	3 to 1	80%	10	83%	78%
194, 196	185	25	25	8 to 1	76%	18	95%	100%
195	29	7	7	5 to 1	71%	4	80%	80%
201, 204	42	20	20	3 to 1	90%	17	94%	94%
202, 205 - 208	19	10	10	2 to 1	90%	5	56%	80%
203	29	20	20	2 to 1	80%	8	50%	100%
211, 212	21	20	20	1 to 1	100%	15	75%	100%
221 - 223	240	200	200	2 to 1	94%	112	60%	83%
231	159	85	85	2 to 1	99%	69	82%	93%
241 - 245	134	30	30	5 to 1	87%	18	69%	100%
251 - 253	28	30	30	1 to 1	83%	10	40%	100%
261 - 268	64	30	30	3 to 1	90%	23	85%	91%
271, 272	23	15	15	2 to 1	80%	7	58%	100%
291	39	20	20	2 to 1	100%	17	85%	88%
TOTALS	**3,914**	**3,105**	**3,098**	**2 to 1**	**93%**	**1,835**	**63%**	84%

Apps - # of unsuccessful 1st choice applicants plus successful 1st - 5th choice applicants for given unit group
Tags Quota - Available tags approved by the Commission
Tags for Hunt - Available tags at season opener - accounts for tags returned for any reason and alternate tags issued
Demand - # of "Apps" per tag during 1st draw
% Return - Percent of hunter questionnaires received compared to total tags available for hunt
% Hunter Success - # of successful hunters divided by # of returns

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
RESIDENT PIW ANTLERED MULE DEER ANY LEGAL WEAPON HUNT 1000								
STATEWIDE	4,679	22	22	213 to 1	82%	19	95%	79%
HERITAGE MULE DEER ANY LEGAL WEAPON HUNT 1100 AND 1201								
STATEWIDE		2	2		100%	2	100%	100%
SILVER STATE MULE DEER ANY LEGAL WEAPON HUNT 1300								
STATEWIDE	5,456	1	1	5,456 to 1	100%	1	100%	100%
DREAM TAG MULE DEER ANY LEGAL WEAPON HUNT 1500								
STATEWIDE		1	1		100%	1	100%	100%
MULE DEER LANDOWNER DAMAGE COMPENSATION HUNT 1115 AND 1215								
011			1		100%	0	0%	0%
013			4		100%	4	100%	100%
015			2		100%	0	0%	--
031			12		100%	6	50%	100%
031, 035			4		100%	4	100%	50%
032			6		100%	4	67%	100%
034			7		71%	5	100%	100%
035			3		100%	1	33%	100%
042			2		100%	0	0%	--
051			15		93%	11	79%	100%
062			9		89%	5	63%	100%
065			1		100%	1	100%	100%
065, 141			1		100%	1	100%	0%
068			3		100%	3	100%	100%
073			4		100%	0	0%	--
101			7		86%	6	100%	100%
102			27		89%	23	96%	55%
103			2		100%	1	50%	0%
114, 115			7		86%	2	33%	100%
115			2		50%	0	0%	--
121			3		100%	3	100%	100%
131			1		100%	1	100%	100%
132			12		100%	7	58%	86%
131, 132			7		71%	4	80%	100%
133			2		100%	1	50%	100%
141			2		100%	1	50%	100%
142			2		100%	2	100%	50%
143			3		133%	3	75%	50%
144			5		100%	2	40%	0%
152			4		100%	4	100%	100%
154			3		100%	2	67%	100%
172			1		100%	1	100%	100%
173			2		100%	2	100%	100%
231			66		95%	46	73%	93%

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
241			2		100%	2	100%	100%
223, 242			1		100%	0	0%	--
231, 242			6		83%	2	40%	100%
242			11		100%	9	82%	67%
241, 242			3		100%	1	33%	100%
245			2		100%	1	50%	100%
TOTALS			**257**		**94%**	**171**	**71%**	**81%**
RESIDENT ANTLERED MULE DEER ANY LEGAL WEAPON HUNT 1331								
011 - 013 Early	368	40	40	10 to 1	98%	16	41%	38%
011 - 013 Late	278	10	9	28 to 1	100%	5	56%	20%
014 Early	201	45	41	5 to 1	100%	10	24%	0%
014 Late	244	15	15	17 to 1	100%	11	73%	18%
015	144	30	31	5 to 1	87%	9	33%	67%
021	567	40	40	15 to 1	83%	25	76%	44%
022	404	50	45	9 to 1	100%	16	36%	50%
031	620	170	162	4 to 1	96%	85	54%	46%
032	204	120	112	2 to 1	93%	33	32%	24%
033 Early	82	20	18	5 to 1	100%	10	56%	40%
033 Late	90	10	10	9 to 1	100%	7	70%	57%
034	120	20	19	6 to 1	100%	6	32%	33%
035	167	70	70	3 to 1	99%	28	41%	7%
041, 042	191	40	38	5 to 1	97%	13	35%	46%
043 - 046 Early	434	200	197	3 to 1	94%	67	36%	28%
043 - 046 Late	207	80	80	3 to 1	93%	33	45%	34%
051	644	230	229	3 to 1	96%	84	38%	33%
061, 062, 064, 066 - 068 E	2028	750	728	3 to 1	95%	330	47%	35%
061, 062, 064, 066 - 068 L	1091	80	74	14 to 1	99%	40	55%	60%
065	547	55	53	10 to 1	89%	27	57%	67%
071 - 079, 091 Early	1360	325	321	5 to 1	95%	230	75%	51%
071 - 079. 091 Late	1215	80	79	16 to 1	92%	67	92%	66%
081	404	35	33	12 to 1	88%	25	86%	80%
101 - 109 Early	806	450	440	2 to 1	92%	149	37%	17%
101 - 109 Mid	640	400	393	2 to 1	93%	148	41%	39%
101 - 109 Late	535	85	79	7 to 1	95%	44	59%	52%
111 - 113 Early	1232	464	452	3 to 1	95%	218	51%	22%
111 - 113 Late	381	51	51	8 to 1	96%	32	65%	74%
114, 115 Early	165	95	91	2 to 1	90%	26	32%	27%
114, 115 Late	86	50	47	2 to 1	98%	27	59%	52%
115 Late	198	15	15	14 to 1	87%	7	54%	86%
121 Early	374	140	140	3 to 1	94%	88	67%	32%
121 Late	192	20	20	10 to 1	100%	16	80%	75%
131 - 134 Early	836	275	270	4 to 1	97%	159	61%	39%
131 - 134 Late	449	30	26	15 to 1	96%	10	40%	90%
141 - 145 Early	527	325	317	2 to 1	96%	189	62%	26%
141 - 145 Late	189	40	39	5 to 1	97%	26	68%	42%

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
151 - 156 Early	287	150	150	2 to 1	94%	60	43%	42%
151 - 156 Late	146	20	20	8 to 1	95%	12	63%	67%
161 - 164 Early	779	325	320	3 to 1	94%	115	38%	29%
161 - 164 Late	416	40	39	11 to 1	97%	17	45%	35%
171 - 173 Early	524	350	335	2 to 1	93%	86	28%	21%
171 - 173 Late	235	100	96	3 to 1	93%	34	38%	29%
181 - 184	449	150	147	3 to 1	91%	45	34%	24%
192	217	30	28	8 to 1	93%	19	73%	26%
194, 196	2268	55	53	42 to 1	85%	38	84%	75%
195	210	20	18	11 to 1	94%	7	41%	57%
201, 204	255	25	25	11 to 1	88%	15	68%	27%
202, 205, 206	236	55	53	5 to 1	94%	27	54%	22%
203	165	50	49	4 to 1	82%	18	45%	28%
211, 212	118	45	44	3 to 1	86%	24	63%	48%
221 - 223 Early	830	250	244	4 to 1	94%	107	47%	45%
221 - 223 Mid	421	150	142	3 to 1	93%	70	53%	46%
221 - 223 Late	844	25	25	34 to 1	84%	15	71%	67%
231	1645	150	147	11 to 1	95%	95	68%	51%
241 - 245	1165	90	84	13 to 1	95%	54	68%	76%
251 - 253	97	40	38	3 to 1	95%	16	44%	38%
261 - 268	582	60	60	10 to 1	82%	38	78%	43%
271, 272	108	30	29	4 to 1	93%	13	48%	46%
291	348	55	54	7 to 1	98%	33	62%	39%
TOTALS	**30,565**	**7,220**	**7,024**	**5 to 1**	**94%**	**3,274**	**50%**	**39%**

RESIDENT ANTLERED MULE DEER MUZZLELOADER HUNT 1371

011 - 013	13	2	1	7 to 1	100%	1	100%	100%
014	38	5	5	8 to 1	100%	1	20%	100%
015	8	5	3	2 to 1	100%	2	67%	50%
021	26	2	2	13 to 1	100%	1	50%	0%
022	18	4	4	5 to 1	100%	1	25%	0%
031	21	15	14	2 to 1	93%	7	54%	57%
032	12	8	7	2 to 1	100%	1	14%	100%
033	10	3	3	4 to 1	100%	1	33%	100%
034	8	2	2	4 to 1	50%	0	0%	--
035	21	20	17	2 to 1	100%	7	41%	29%
041, 042	9	3	3	3 to 1	100%	1	33%	0%
043 - 046	30	20	19	2 to 1	95%	11	61%	27%
051	46	25	22	2 to 1	91%	8	40%	25%
061, 062, 064, 066 - 068	204	65	62	4 to 1	94%	23	40%	64%
065	27	4	4	7 to 1	100%	1	25%	100%
071 - 079, 091	111	35	35	4 to 1	97%	13	38%	31%
081	120	5	5	24 to 1	100%	4	80%	75%
101 - 109	132	100	99	2 to 1	89%	33	38%	21%
111 - 113	83	30	29	3 to 1	93%	17	63%	18%
114, 115	102	50	44	3 to 1	98%	26	60%	76%

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
121	19	6	6	4 to 1	100%	1	17%	0%
131 - 134	193	35	30	6 to 1	100%	25	83%	64%
141 - 145	42	35	34	2 to 1	94%	12	38%	25%
151 - 156	23	15	15	2 to 1	100%	8	53%	25%
161 - 164	103	35	33	3 to 1	100%	10	30%	40%
171 - 173	79	70	70	2 to 1	91%	17	27%	24%
181 - 184	45	15	14	3 to 1	100%	10	71%	40%
192	36	15	15	3 to 1	100%	4	27%	25%
194, 196	89	6	5	15 to 1	80%	3	75%	67%
195	12	2	2	6 to 1	100%	2	100%	50%
201, 204	5	2	2	3 to 1	50%	1	100%	0%
202, 205, 206	16	10	10	2 to 1	100%	6	60%	60%
211, 212	13	8	8	2 to 1	88%	0	0%	--
221 - 223	62	25	19	3 to 1	100%	11	58%	55%
231	130	20	18	7 to 1	100%	11	61%	73%
241 - 245	42	4	3	11 to 1	100%	0	0%	--
251 - 253	12	5	5	3 to 1	100%	2	40%	0%
261 - 268	29	5	5	6 to 1	100%	4	80%	25%
271, 272	14	10	9	2 to 1	78%	2	29%	100%
291	17	3	2	6 to 1	100%	0	0%	--
TOTALS	**2,020**	**729**	**685**	**3 to 1**	**95%**	**288**	**44%**	**44%**

RESIDENT ANTLERED MULE DEER ARCHERY HUNT 1341

011 - 013	39	10	9	4 to 1	89%	0	0%	--
014	22	6	6	4 to 1	100%	1	17%	100%
015	17	4	4	5 to 1	100%	1	25%	0%
021	66	25	23	3 to 1	83%	4	21%	25%
022	38	15	12	3 to 1	100%	2	17%	0%
031	28	20	20	2 to 1	95%	6	32%	50%
032	63	60	57	2 to 1	98%	1	2%	0%
033	2	2	2	1 to 1	100%	1	50%	100%
034	12	10	10	2 to 1	100%	0	0%	--
035[A]	28	45	39	1 to 1	100%	2	5%	0%
041, 042	17	15	15	2 to 1	93%	4	29%	50%
043 - 046	110	140	131	1 to 1	89%	14	12%	31%
051	132	130	124	2 to 1	96%	13	11%	46%
061, 062, 064, 066 - 068	361	300	296	2 to 1	93%	45	16%	36%
065	32	10	10	4 to 1	90%	3	33%	33%
071 - 079, 091 Early	190	140	139	2 to 1	95%	37	28%	51%
071 - 079. 091 Late	91	20	20	5 to 1	100%	5	25%	80%
081	26	2	2	13 to 1	100%	1	50%	100%
101 - 109 Early	278	250	242	2 to 1	91%	34	15%	33%
101 - 109 Late	63	20	20	4 to 1	90%	4	22%	75%
111 - 113	103	50	50	3 to 1	94%	14	30%	50%
114, 115	108	100	92	2 to 1	89%	7	9%	57%
121 Early	35	20	20	2 to 1	100%	10	50%	30%

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
121 Late	29	5	4	6 to 1	100%	3	75%	33%
131 - 134	173	45	44	4 to 1	98%	31	72%	61%
141 - 145	139	180	169	1 to 1	92%	35	23%	17%
151 - 156	92	90	88	2 to 1	97%	21	25%	29%
161 - 164	206	160	152	2 to 1	95%	32	22%	22%
171 - 173[A]	156	170	161	1 to 1	93%	11	7%	45%
181 - 184	49	40	40	2 to 1	90%	1	3%	100%
192 Early	38	20	20	2 to 1	100%	7	35%	43%
192 Late	42	20	20	3 to 1	95%	3	16%	33%
194, 196 Early	114	15	14	8 to 1	86%	5	42%	60%
194, 196 Late	115	15	15	8 to 1	87%	11	85%	78%
195	25	4	4	7 to 1	100%	3	75%	67%
201, 202, 204 - 206 Early	14	8	8	2 to 1	88%	0	0%	--
201, 204 Late	17	10	10	2 to 1	70%	1	14%	0%
202, 205, 206 Late	6	6	6	1 to 1	67%	0	0%	--
203 Early	30	20	20	2 to 1	100%	2	10%	50%
203 Late	21	20	20	2 to 1	65%	1	8%	100%
211, 212	17	15	14	2 to 1	100%	2	14%	0%
221 - 223	152	75	70	3 to 1	91%	18	28%	50%
231	141	45	40	4 to 1	95%	12	32%	58%
241 - 245	75	10	8	8 to 1	88%	3	43%	100%
251 - 253	15	10	8	2 to 1	88%	1	14%	0%
261 - 268	53	10	9	6 to 1	89%	7	88%	43%
271, 272	11	10	10	2 to 1	100%	0	0%	--
291	24	8	8	3 to 1	100%	1	13%	100%
TOTALS	**3,615**	**2,405**	**2,305**	**2 to 1**	**93%**	**420**	**20%**	**42%**

EMERGENCY ANTLERLESS MULE DEER HUNT 1104

062, 067, 068 Early	1,976	350	350	6 to 1	94%	168	51%	
062, 067, 068 Late	1,171	350	349	4 to 1	86%	151	50%	
TOTALS	**3,147**	**700**	**699**	**5 to 1**	**90%**	**319**	**51%**	

RESIDENT ANTLERLESS MULE DEER ANY LEGAL WEAPON HUNT 1181

043 - 046	82	25	25	4 to 1	100%	15	60%	
051	45	30	30	2 to 1	83%	11	44%	
061 - 064, 066 - 068 Early	209	160	160	2 to 1	93%	75	50%	
061 - 064, 066 - 068 Late	161	160	160	2 to 1	82%	65	50%	
071 - 079, 091	186	170	169	2 to 1	95%	112	70%	
101, 102, 109	274	250	247	2 to 1	94%	131	57%	
114, 115 Baker Ranch E	15	15	14	1 to 1	79%	5	45%	
114, 115 Baker Ranch L	30	40	39	1 to 1	72%	19	68%	
152	19	15	15	2 to 1	87%	8	62%	
155	24	15	15	2 to 1	80%	5	42%	
TOTALS	**1,045**	**880**	**874**	**2 to 1**	**90%**	**446**	**57%**	

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
NONRESIDENT PIW ANTLERED MULE DEER ANY LEGAL WEAPON HUNT 1200								
STATEWIDE	3,300	3	3	1,100 to 1	67%	2	100%	100%
NONRESIDENT GUIDED ANTLERED MULE DEER ANY LEGAL WEAPON HUNT 1235								
011 - 013 Early	8	3	3	3 to 1	100%	0	0%	--
011 - 013 Late	5	1	1	5 to 1	100%	1	100%	100%
014 Early	3	3	3	1 to 1	100%	2	67%	50%
014 Late	1	1	0	1 to 1	0%	0	0%	--
015	2	1	1	2 to 1	100%	0	0%	--
021	6	1	1	6 to 1	100%	1	100%	100%
022	3	2	2	2 to 1	100%	1	50%	100%
031	7	6	6	2 to 1	67%	3	75%	67%
032	5	5	5	1 to 1	100%	2	40%	0%
033 Early	1	1	1	1 to 1	100%	0	0%	--
033 Late	2	1	1	2 to 1	100%	1	100%	0%
034	1	1	0	1 to 1	0%	0	--	--
035	3	3	3	1 to 1	100%	3	100%	100%
041, 042	1	1	1	1 to 1	100%	1	100%	0%
043 - 046 Early	4	7	4	1 to 1	50%	2	100%	100%
043 - 046 Late	3	3	3	1 to 1	67%	1	50%	0%
051	16	13	13	2 to 1	100%	11	85%	70%
061, 062, 064, 066 - 068 E	53	48	47	2 to 1	100%	20	43%	80%
061, 062, 064, 066 - 068 L	59	5	5	12 to 1	80%	3	75%	100%
065	6	1	1	6 to 1	100%	0	0%	--
071 - 079, 091 Early	82	13	12	7 to 1	117%	12	86%	83%
071 - 079. 091 Late	80	3	2	27 to 1	150%	1	33%	100%
081	42	1	1	42 to 1	100%	1	100%	100%
101 - 109, Early	28	26	24	2 to 1	100%	18	75%	39%
101 - 109 Mid	39	30	30	2 to 1	97%	21	72%	71%
101 - 109, Late	19	5	5	4 to 1	0%	0	--	--
111 - 113 Early	23	15	15	2 to 1	113%	7	41%	100%
111 - 113 Late	7	1	1	7 to 1	100%	1	100%	100%
114, 115 Early	7	3	3	3 to 1	100%	3	100%	100%
114, 115 Late	6	1	1	6 to 1	100%	1	100%	100%
121 Early	7	4	4	2 to 1	100%	4	100%	75%
121 Late	4	1	0	4 to 1	0%	0	0%	--
131 - 134 Early	10	10	9	1 to 1	100%	5	56%	100%
131 - 134 Late	7	1	1	7 to 1	100%	0	0%	--
141 - 145 Early	17	13	13	2 to 1	100%	8	62%	38%
141 - 145 Late	2	1	1	2 to 1	100%	1	100%	100%
151 - 156 Early	6	7	6	1 to 1	83%	4	80%	75%
151 - 156 Late	1	1	1	1 to 1	100%	1	100%	0%
161 - 164 Early	13	13	13	1 to 1	100%	6	46%	67%
161 - 164 Late	2	1	1	2 to 1	100%	1	100%	100%
171 - 173 Early	4	9	4	1 to 1	100%	3	75%	0%

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
171 - 173 Late	2	3	2	1 to 1	100%	2	100%	0%
181 - 184	3	6	3	1 to 1	67%	1	50%	0%
194, 196	25	2	1	13 to 1	200%	1	50%	100%
202, 205, 206	2	3	2	1 to 1	100%	1	50%	0%
203	3	3	3	1 to 1	100%	0	0%	--
211, 212	1	1	1	1 to 1	100%	1	100%	100%
221 - 223 Early	38	10	10	4 to 1	100%	5	50%	100%
222 - 223 Mid	48	7	5	7 to 1	140%	2	29%	100%
221 - 223 Late	107	1	1	107 to 1	100%	0	0%	--
231	57	8	8	8 to 1	100%	6	75%	100%
241 - 245	411	3	2	137 to 1	150%	1	33%	100%
251 - 253	2	1	1	2 to 1	200%	1	50%	100%
261 - 268	2	1	1	2 to 1	100%	1	100%	100%
271, 272	8	1	1	8 to 1	100%	1	100%	100%
291	2	2	2	1 to 1	100%	2	100%	100%
TOTALS	**1,306**	**318**	**291**	**5 to 1**	**99%**	**175**	**61%**	**71%**
NONRESIDENT ANTLERED MULE DEER ANY LEGAL WEAPON HUNT 1331								
011 - 013 Early	85	2	2	43 to 1	100%	1	50%	100%
011 - 013 Late	172	2	2	86 to 1	100%	2	100%	100%
014 Early	46	2	2	23 to 1	100%	1	50%	0%
014 Late	74	2	2	37 to 1	100%	1	50%	0%
015	113	2	2	57 to 1	100%	1	50%	100%
021	182	2	2	91 to 1	100%	2	100%	100%
022	51	4	4	13 to 1	100%	3	75%	33%
031	176	15	14	12 to 1	100%	11	79%	45%
032	50	8	7	7 to 1	100%	4	57%	50%
033 Early	29	2	2	15 to 1	100%	0	0%	--
033 Late	55	2	1	28 to 1	100%	0	0%	--
034	37	2	2	19 to 1	100%	1	50%	100%
035	30	5	5	6 to 1	100%	2	40%	50%
041, 042	27	4	4	7 to 1	100%	1	25%	0%
043 - 046 Early	43	16	15	3 to 1	100%	8	53%	25%
043 - 046 Late	29	7	7	5 to 1	86%	4	67%	50%
051	146	14	14	11 to 1	93%	9	69%	56%
061, 062, 064, 066 - 068 E	441	35	35	13 to 1	97%	18	53%	50%
061, 062, 064, 066 - 068 L	415	4	4	104 to 1	75%	2	67%	50%
065	59	5	5	12 to 1	100%	4	80%	100%
071 - 079, 091 Early	291	20	19	15 to 1	95%	12	67%	50%
071 - 079. 091 Late	446	6	6	75 to 1	83%	5	100%	80%
081	522	3	3	174 to 1	100%	2	67%	100%
101 - 109, Early	170	25	24	7 to 1	83%	13	65%	77%
101 - 109, Mid	113	15	15	8 to 1	93%	11	79%	82%
101 - 109, Late	229	4	4	58 to 1	100%	3	75%	0%
111 - 113 Early	180	36	32	5 to 1	91%	16	55%	56%
111 - 113 Late	86	5	6	18 to 1	100%	6	100%	33%

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
114, 115 Early	24	8	8	3 to 1	88%	3	43%	67%
114, 115 Late	87	2	1	44 to 1	100%	1	100%	100%
115 Late	379	2	2	190 to 1	50%	1	100%	100%
121 Early	42	10	9	5 to 1	89%	6	75%	33%
121 Late	55	2	2	28 to 1	100%	2	100%	50%
131 - 134 Early	134	23	20	6 to 1	100%	8	40%	50%
131 - 134 Late	302	3	3	101 to 1	100%	3	100%	67%
141 - 145 Early	76	25	24	4 to 1	88%	12	57%	42%
141 - 145 Late	40	2	2	20 to 1	100%	2	100%	50%
151 - 156 Early	36	11	11	4 to 1	91%	7	70%	57%
151 - 156 Late	37	2	2	19 to 1	100%	1	50%	100%
161 - 164 Early	148	25	22	6 to 1	95%	11	52%	64%
161 - 164 Late	98	4	2	25 to 1	100%	0	0%	--
171 - 173 Early	75	23	21	4 to 1	81%	4	24%	0%
171 - 173 Late	41	7	7	6 to 1	86%	2	33%	50%
181 - 184	42	10	10	5 to 1	100%	5	50%	80%
192	20	2	2	10 to 1	50%	1	100%	0%
194, 196	527	4	4	132 to 1	100%	3	75%	50%
195	20	2	2	10 to 1	100%	2	100%	100%
201, 204	23	2	1	12 to 1	100%	0	0%	--
202, 205, 206	40	3	3	14 to 1	100%	1	33%	100%
203	12	4	4	3 to 1	100%	4	100%	50%
211, 212	50	3	2	17 to 1	100%	1	50%	100%
221 - 223 Early	84	15	12	6 to 1	92%	5	45%	60%
222 - 223 Mid	63	15	11	5 to 1	91%	5	50%	60%
221 - 223 Late	1671	2	2	836 to 1	100%	2	100%	50%
231	475	15	14	32 to 1	93%	11	85%	90%
241 - 245	1125	7	7	161 to 1	100%	3	43%	67%
251 - 253	35	4	2	9 to 1	100%	0	0%	--
261 - 268	22	7	5	4 to 1	60%	3	100%	33%
271, 272	37	2	2	19 to 1	100%	1	50%	100%
291	36	4	3	9 to 1	100%	2	67%	50%
TOTALS	**10,153**	**499**	**462**	**21 to 1**	**93%**	**255**	**59%**	**57%**

NONRESIDENT ANTLERED MULE DEER MUZZLELOADER HUNT 1371

011 - 013	8	2	2	4 to 1	100%	2	100%	50%
014	10	2	2	5 to 1	100%	2	100%	100%
015	13	2	2	7 to 1	100%	2	100%	50%
021	30	2	2	15 to 1	100%	1	50%	0%
022	20	2	2	10 to 1	100%	2	100%	50%
031	14	2	2	7 to 1	100%	2	100%	50%
032	7	2	2	4 to 1	100%	0	0%	--
033	4	2	2	2 to 1	100%	0	0%	--
034	6	2	1	3 to 1	100%	0	0%	--
035	3	2	2	2 to 1	100%	1	50%	0%
041, 042	2	2	2	1 to 1	100%	1	50%	0%
043 - 046	7	2	2	4 to 1	100%	1	50%	0%

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
051	14	3	3	5 to 1	100%	1	33%	100%
061, 062, 064, 066 - 068	52	7	7	8 to 1	100%	1	14%	100%
065	11	2	1	6 to 1	100%	0	0%	--
071 - 079, 091	17	4	3	5 to 1	67%	2	100%	100%
081	108	2	2	54 to 1	100%	2	100%	100%
101 - 109	39	10	9	4 to 1	100%	6	67%	67%
111 - 113	10	2	2	5 to 1	100%	2	100%	50%
114, 115	85	4	3	22 to 1	100%	2	67%	100%
121	3	2	2	2 to 1	0%	0	0%	--
131 - 134	65	4	3	17 to 1	100%	2	67%	100%
141 - 145	10	4	3	3 to 1	100%	2	67%	50%
151 - 156	2	2	2	1 to 1	100%	1	50%	100%
161 - 164	22	4	3	6 to 1	100%	0	0%	--
171 - 173	7	3	2	3 to 1	50%	1	100%	0%
181 - 184	10	2	1	5 to 1	100%	1	100%	0%
192	8	3	3	3 to 1	100%	1	33%	100%
194, 196	16	2	1	8 to 1	100%	0	0%	--
195	3	2	2	2 to 1	50%	1	100%	0%
201, 204	9	2	1	5 to 1	100%	1	100%	0%
202, 205, 206	16	2	2	8 to 1	100%	2	100%	0%
211, 212	9	2	2	5 to 1	100%	1	50%	0%
221 - 223	32	2	2	16 to 1	100%	2	100%	100%
231	62	2	2	31 to 1	100%	1	50%	100%
241 - 245	79	2	2	40 to 1	100%	0	0%	--
251 - 253	9	2	1	5 to 1	100%	0	0%	--
261 - 268	7	2	1	4 to 1	100%	0	0%	--
271, 272	3	2	2	2 to 1	100%	0	0%	--
291	2	2	2	1 to 1	100%	2	100%	50%
TOTALS	**834**	**106**	**92**	**8 to 1**	**97%**	**48**	**54%**	**57%**
NONRESIDENT ANTLERED MULE DEER ARCHERY HUNT 1341								
011 - 013	19	2	1	10 to 1	100%	1	100%	0%
014	8	2	0	4 to 1	--	0	--	--
015	5	2	2	3 to 1	100%	0	0%	--
021	24	4	3	6 to 1	67%	1	50%	0%
022	6	2	2	3 to 1	100%	1	50%	0%
031	13	2	1	7 to 1	100%	0	0%	--
032	15	10	9	2 to 1	100%	2	22%	100%
033	7	2	2	4 to 1	100%	1	50%	0%
034	7	2	2	4 to 1	100%	0	0%	--
035	6	5	8	2 to 1	100%	1	13%	0%
041, 042	1	2	1	1 to 1	100%	0	0%	--
043 - 046	20	15	18	2 to 1	94%	0	0%	--
051	26	15	15	2 to 1	93%	1	7%	100%
061, 062, 064, 066 - 068	113	30	22	4 to 1	91%	3	15%	100%
065	8	2	0	4 to 1	--	0	--	--

TABLE 3. 2017 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
071 - 079, 091 Early	85	15	15	6 to 1	93%	4	29%	75%
071 - 079. 091 Late	30	2	2	15 to 1	100%	2	100%	50%
081	50	2	2	25 to 1	100%	2	100%	100%
101 - 109 Early	131	29	26	5 to 1	85%	4	18%	75%
101 - 109 Late	29	4	4	8 to 1	100%	0	0%	--
111 - 113	17	6	5	3 to 1	100%	3	60%	100%
114, 115	27	20	20	2 to 1	85%	5	29%	40%
121 Early	9	2	1	5 to 1	100%	1	100%	100%
121 Late	14	2	2	7 to 1	50%	1	100%	0%
131 - 134	108	5	4	22 to 1	100%	1	25%	100%
141 - 145	25	20	26	2 to 1	92%	7	29%	29%
151 - 156	14	10	10	2 to 1	100%	3	30%	67%
161 - 164	47	20	19	3 to 1	95%	5	28%	20%
171 - 173	29	15	15	2 to 1	100%	3	20%	67%
181 - 184	4	4	3	1 to 1	100%	0	0%	--
192 Early	5	2	2	3 to 1	100%	1	50%	0%
192 Late	7	2	1	4 to 1	100%	0	0%	--
194, 196 Early	11	2	2	6 to 1	100%	2	100%	100%
194, 196 Late	106	2	2	53 to 1	100%	1	50%	100%
195	11	2	1	6 to 1	100%	1	100%	100%
201, 202, 204 - 206 Early	2	2	1	1 to 1	0%	0	--	--
201, 204 Late	6	2	2	3 to 1	100%	0	0%	--
202, 205, 206 Late	6	3	3	2 to 1	67%	1	50%	100%
203 Early	4	3	3	2 to 1	67%	0	0%	--
203 Late	2	2	0	1 to 1	--	0	--	--
211, 212	5	2	2	3 to 1	50%	1	100%	0%
221 - 223	58	8	8	8 to 1	100%	1	13%	0%
231	168	5	4	34 to 1	100%	0	0%	--
241 - 245	142	2	2	71 to 1	100%	1	50%	100%
251 - 253	3	2	2	2 to 1	100%	0	0%	--
261 - 268	8	2	2	4 to 1	100%	1	50%	0%
271, 272	3	2	2	2 to 1	100%	0	0%	--
291	5	2	1	3 to 1	100%	0	0%	--
TOTALS	**1,449**	**300**	**280**	**5 to 1**	**93%**	**62**	**24%**	**56%**

[A]Leftover tags from 1st Draw were available to resident and nonresident applicants during 2nd Draw or remaining first come first serve applications.

Apps - # of unsuccessful 1st choice applicants plus successful 1st - 5th choice applicants for given unit group

Tag Quota - # tags available during 1st draw

Tags for Hunt- Available tags at season opener - accounts for tags returned for any reason and alternate tags issued

Demand - # of "Apps" per tag during 1st draw

% Return - Percent of hunter return cards received compared to total tags for hunt

% Hunter Success - # of successful hunters divided by # of returns

TABLE 4. % FOUR-POINT OR BETTER MULE DEER HARVEST BY UNIT GROUP, 2007 - 2017

Unit Group	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
011- 013	47%	59%	56%	51%	56%	40%	38%	38%	43%	46%	47%
014	38%	49%	60%	51%	48%	54%	41%	40%	25%	32%	18%
015	40%	50%	44%	53%	59%	47%	42%	36%	42%	33%	58%
021	60%	50%	48%	42%	56%	47%	45%	46%	65%	57%	43%
022	48%	48%	50%	48%	73%	67%	57%	51%	52%	52%	42%
031	44%	46%	54%	46%	36%	39%	48%	50%	48%	43%	46%
032	39%	34%	43%	38%	24%	27%	32%	34%	24%	23%	32%
033	45%	38%	44%	51%	49%	26%	36%	44%	33%	63%	45%
034	49%	36%	75%	62%	56%	45%	64%	45%	43%	49%	68%
035	49%	63%	60%	67%	40%	39%	45%	30%	34%	41%	25%
041, 042	41%	55%	58%	55%	43%	21%	27%	55%	46%	53%	37%
043 - 046	47%	49%	47%	47%	34%	32%	33%	35%	33%	32%	31%
051	39%	39%	46%	33%	29%	27%	38%	40%	40%	46%	41%
061,062,064,066-068	47%	47%	47%	44%	49%	46%	40%	39%	39%	40%	42%
065	64%	72%	64%	65%	71%	58%	58%	51%	54%	54%	66%
071 - 079, 091	41%	38%	43%	41%	40%	40%	33%	33%	40%	51%	54%
081	58%	59%	84%	71%	78%	65%	71%	87%	81%	79%	88%
101 - 108	33%	33%	39%	39%	37%	30%	28%	27%	29%	32%	37%
111 - 113	21%	27%	32%	27%	31%	24%	26%	25%	31%	32%	34%
114, 115	43%	44%	46%	48%	59%	40%	41%	45%	44%	50%	55%
121	20%	31%	32%	28%	32%	22%	36%	32%	31%	36%	36%
131 - 134	43%	44%	53%	43%	56%	45%	43%	42%	44%	43%	51%
141 - 145	29%	37%	36%	40%	35%	27%	30%	28%	23%	33%	30%
151, 152, 154, 155	40%	48%	54%	49%	42%	32%	31%	37%	28%	41%	40%
161 - 164	29%	46%	47%	34%	35%	34%	39%	30%	39%	44%	33%
171 - 173	33%	41%	45%	33%	36%	26%	33%	28%	33%	25%	29%
181 - 184	37%	49%	41%	40%	39%	37%	32%	36%	40%	41%	35%
192	51%	35%	35%	46%	17%	41%	54%	38%	41%	44%	35%
194, 196	61%	62%	59%	54%	68%	64%	61%	60%	72%	74%	72%
195	35%	35%	46%	52%	38%	66%	25%	74%	36%	53%	60%
201, 204	43%	30%	45%	17%	25%	42%	19%	23%	30%	21%	33%
202, 205-208	31%	44%	46%	38%	53%	27%	49%	46%	28%	28%	29%
203	38%	28%	34%	26%	35%	33%	42%	39%	38%	29%	33%
211, 212	29%	33%	42%	64%	30%	39%	44%	55%	29%	28%	52%
221 - 223	37%	48%	48%	48%	48%	42%	43%	37%	40%	49%	47%
231	51%	61%	69%	61%	65%	55%	55%	54%	61%	58%	65%
241 - 245	56%	66%	65%	76%	74%	62%	62%	65%	69%	64%	75%
251 - 253	54%	72%	54%	31%	65%	56%	53%	74%	67%	81%	41%
261 - 268	7%	25%	40%	52%	27%	35%	27%	40%	57%	47%	43%
271, 272	35%	55%	70%	90%	44%	54%	45%	65%	62%	46%	65%
291	51%	40%	41%	46%	23%	22%	46%	34%	36%	33%	40%
Statewide	**38%**	**41%**	**46%**	**42%**	**42%**	**37%**	**37%**	**37%**	**38%**	**41%**	**43%**

*Includes harvest from all hunts and weapon classes combined

TABLE 5. 2017 PRONGHORN HARVEST BY UNIT FOR ALL HUNTS

UNIT	Does	Fawns Female	Fawns Male	Yrlg Bucks	Adult Bucks	Adults Bucks Unit Group Total	All Pronghorn Unit Total	All Pronghorn Unit Group Total
011					49	49	49	49
012	4			1	46		51	
013	3			2	27		32	
014	2		1	1	35		39	
unk^					1	109	1	123
015					43	43	43	43
021					15		15	
022					19	34	19	34
031	49		5	7	73	73	134	134
032	6			1	33		40	
034	4	1	2	1	28	61	36	76
033					49	49	49	49
035	5		1		37	37	43	43
041	18		4	3	52		77	
042	11		1	3	46	98	61	138
043	2				26		28	
044					19		19	
045					7		7	
046					9	61	9	63
051					37	37	37	37
061	34	1	2	5	28		70	
062	77	1	13	10	48		149	
064	12		2		22		36	
071	32	3	9	1	27		72	
073	116	1	13	5	54		189	
unk^	0	0	0	1	1	180	2	518
065	21		3	2	71		97	
142	2			1	7		10	
144	3		1		11		15	
unk^					1	90	1	123
066	5		1	1	30	30	37	37
067	75	4	7	2	59		147	
068	82	1	10	8	57		158	
unk^	2				2	118	4	309
072	16	3	2	2	32		55	
074	5		1		16		22	
075	12		1	2	42	90	57	134
076	4			1	27		32	
077	2				7		9	
079	3				1		4	
081					5		5	
091	1			1	2	42	4	54

TABLE 5. 2017 PRONGHORN HARVEST BY UNIT FOR ALL HUNTS

UNIT	Does	Fawns Female	Fawns Male	Yrlg Bucks	Adult Bucks	Adults Bucks Unit Group Total	All Pronghorn Unit Total	All Pronghorn Unit Group Total
078	1			2	4		7	
105	5				10		15	
106	2		1		12		15	
107					1		1	
121	47	2	4	2	50		105	
unk^					2	79	2	145
101	7		3	3	2		15	
102	8		2		9		19	
103	4				4		8	
104	10		1	1	20		32	
108	10		1	1	15		27	
109	4			2			6	
144	7		1	2	10		20	
unk^	2				2	62	4	131
111	19	1	1	4	67		92	
112	1				7		8	
113	3		1		17		21	
114	7			1	29	120	37	158
115	4			1	20		25	
231					13		13	
242						33	0	38
131	21		2	2	56		81	
145	4		1		2		7	
163					5		5	
164					10	73	10	103
132					25		25	
133					11		11	
134					8		8	
245					3	47	3	47
141	45	2	7	12	38		104	
143	11			2	17		30	
151	29	2	2	4	15		52	
152	21	2	5	8	13		49	
153	27	1	4	2	20		54	
154	13		1	1	10		25	
155	18		1	4	19		42	
156	26	2	5	6	31		70	
unk^	2					163	2	428
161					18		18	
162					6	24	6	24
171					7		7	
172					11		11	

TABLE 5. 2017 PRONGHORN HARVEST BY UNIT FOR ALL HUNTS

UNIT	Does	Fawns Female	Fawns Male	Yrlg Bucks	Adult Bucks	Adults Bucks Unit Group Total	All Pronghorn Unit Total	All Pronghorn Unit Group Total
173					7	25	7	25
181	4				9		13	
182	1				7		8	
183	4			1	13		18	
184	6		1		33		40	
unk^					1	63	1	80
202					4		4	
204					2	6	2	6
203					2		2	
291					3	5	3	5
205					12		12	
206					9		9	
207					2		2	
208						23	0	23
211							0	
212					5		5	
213						5	0	5
221					9		9	
222					11		11	
223					3		3	
241					4	27	4	27
251					22	22	22	22
TOTAL	**981**	**27**	**123**	**122**	**1,978**			**3,231**

HERITAGE, SILVER STATE, DREAM AND PIW TAGHOLDER HARVEST BY UNIT

HUNT	UNIT	#
PIW	075	1
PIW	162	1
PIW	163	1

HUNT	UNIT	#
Heritage	022	1
Heritage	066	1
Silver	108	1
Dream	076	1

TABLE 6. 2017 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%15 inch or better
RESIDENT PIW ANTELOPE ANY LEGAL WEAPON HUNT 2000								
STATEWIDE	2,650	5	5	530 to 1	80%	4	100%	25%
HERITAGE ANTELOPE ANY LEGAL WEAPON HUNT 2100 & 2200								
STATEWIDE	--	2	2		100%	2	100%	100%
SILVER STATE ANTELOPE ANY LEGAL WEAPON HUNT 2300								
STATEWIDE	2,233	1	1	2,233 to 1	100%	1	100%	100%
DREAM TAG ANTELOPE ANY LEGAL WEAPON HUNT 2500								
STATEWIDE	--	1	1		100%	1	100%	0%
RESIDENT AND NONRESIDENT ANTELOPE LANDOWNER COMPENSATION HUNT 2115 AND 2215								
031			7		100%	4	57%	
032			6		100%	6	100%	
034			2		100%	2	100%	
035			4		75%	2	67%	
044			4		100%	3	75%	
046			1		100%	1	100%	
051			5		80%	4	100%	
062			4		100%	4	100%	
062, 067			2		100%	2	100%	
065, 103			2		100%	2	100%	
068			10		100%	10	100%	
073			2		100%	1	50%	
075			2		100%	2	100%	
081			1		100%	1	100%	
114, 115			2		50%	0	0%	
115			4		100%	4	100%	
121			4		75%	2	67%	
141			1		100%	1	100%	
156			2		100%	2	100%	
161			1		100%	1	100%	
161, 173			3		100%	3	100%	
164			2		100%	2	100%	
172			6		83%	5	100%	
172, 184			8		100%	8	100%	
183			1		100%	1	100%	
184			4		75%	3	100%	
221			1		100%	1	100%	
231			1		100%	1	100%	
245			1		100%	1	100%	

TABLE 6. 2017 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%15 inch or better
251			6		100%	5	83%	
TOTALS			99		94%	84	90%	

RESIDENT BUCK ANTELOPE ANY LEGAL WEAPON HUNT 2151

011	520	65	59	8 to 1	97%	39	68%	28%
012 - 014	1,210	130	128	10 to 1	98%	93	74%	22%
015	502	55	53	10 to 1	98%	39	75%	24%
021, 022	1,472	45	36	33 to 1	100%	28	78%	44%
031	713	120	117	6 to 1	97%	61	54%	13%
032, 034	583	105	98	6 to 1	97%	45	47%	14%
033 Early	547	35	27	16 to 1	100%	21	78%	19%
033 Late	179	35	31	6 to 1	94%	19	66%	39%
035	275	50	47	6 to 1	98%	28	61%	11%
041, 042 Early	965	65	58	15 to 1	91%	39	74%	26%
041, 042 Late	307	65	64	5 to 1	95%	46	75%	28%
043 - 046	338	65	65	6 to 1	94%	47	77%	28%
051	370	50	47	8 to 1	91%	29	67%	21%
061, 062, 064, 071, 073	1,298	170	166	8 to 1	95%	138	87%	32%
065, 142, 144	519	80	79	7 to 1	99%	69	88%	36%
066	216	40	40	6 to 1	90%	24	67%	26%
067, 068	638	110	106	6 to 1	96%	84	82%	42%
072, 074, 075	588	110	108	6 to 1	94%	76	75%	27%
076, 077, 079, 081, 091	557	40	38	14 to 1	100%	37	97%	56%
078, 105 - 107, 121	486	90	85	6 to 1	95%	67	83%	29%
101 – 104, 108, 109, 144	397	60	58	7 to 1	100%	47	81%	42%
111 – 114	922	150	147	7 to 1	95%	98	70%	16%
115, 231, 242	340	35	33	10 to 1	88%	24	83%	29%
131, 145, 163, 164	556	70	67	8 to 1	97%	58	89%	31%
132 – 134, 245	527	50	46	11 to 1	98%	40	89%	23%
141, 143, 151 - 156	1,022	200	191	6 to 1	94%	141	79%	26%
161, 162	321	25	23	13 to 1	91%	19	90%	32%
171 - 173	163	25	25	7 to 1	96%	22	92%	14%
181 - 184	451	55	54	9 to 1	96%	44	85%	23%
202, 204	87	8	8	11 to 1	88%	5	71%	40%
203, 291	41	8	7	6 to 1	100%	4	57%	50%
205, 206, 207, 208	147	25	24	6 to 1	92%	17	77%	12%
211 - 213	38	7	6	6 to 1	100%	5	83%	0%
221 – 223, 241	482	30	30	17 to 1	93%	22	79%	19%
251	403	25	20	17 to 1	90%	16	89%	31%
TOTALS	18,180	2,298	2,191	8 to 1	96%	1,591	76%	27%

TABLE 6. 2017 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%15 inch or better
RESIDENT BUCK ANTELOPE MUZZLELOADER HUNT 2171								
011	14	4	2	4 to 1	100%	2	100%	50%
012 - 014	21	4	4	6 to 1	100%	2	50%	0%
015	15	3	3	5 to 1	100%	0	0%	--
021, 022	23	4	3	6 to 1	100%	2	67%	100%
033	18	4	4	5 to 1	100%	1	25%	100%
065, 142, 144	15	10	10	2 to 1	100%	7	70%	57%
078, 105 - 107, 121	19	6	6	4 to 1	83%	1	20%	0%
101 – 104, 108, 109, 144	8	5	5	2 to 1	100%	5	100%	40%
111 – 114	18	15	15	1 to 1	87%	5	38%	20%
115, 231, 242	4	2	2	2 to 1	100%	2	100%	0%
131, 145, 163, 164	14	2	2	7 to 1	100%	1	50%	100%
132 - 134, 245	6	1	1	6 to 1	100%	1	100%	100%
221 – 223, 241	13	3	3	5 to 1	100%	2	67%	100%
TOTALS	188	63	60	3 to 1	95%	31	54%	48%
RESIDENT BUCK ANTELOPE ARCHERY HUNT 2161								
011	62	20	19	4 to 1	95%	6	33%	33%
012 - 014	108	20	17	6 to 1	100%	3	18%	67%
015	47	10	8	5 to 1	100%	1	13%	0%
021, 022	93	3	2	31 to 1	100%	0	0%	--
031	20	6	6	4 to 1	100%	3	50%	33%
032, 034	80	30	25	3 to 1	96%	5	21%	0%
033	58	6	8	10 to 1	88%	2	29%	50%
035	24	10	10	3 to 1	100%	3	30%	67%
041, 042	77	10	10	8 to 1	80%	4	50%	0%
043 - 046	42	20	17	3 to 1	94%	7	44%	14%
051	71	25	21	3 to 1	95%	2	10%	0%
061, 062, 064, 071, 073	104	40	36	3 to 1	97%	4	11%	50%
065, 142, 144	62	25	22	3 to 1	91%	5	25%	40%
066	24	10	8	3 to 1	100%	1	13%	0%
067, 068	58	25	25	3 to 1	96%	6	25%	17%
072, 074, 075	75	30	27	3 to 1	89%	5	21%	20%
076, 077, 079, 081, 091	29	5	3	6 to 1	100%	1	33%	100%
078, 105 - 107, 121	23	8	8	3 to 1	100%	3	38%	33%
101 – 104, 108, 109, 144	46	10	8	5 to 1	100%	6	75%	33%
111 – 114	92	25	20	4 to 1	95%	7	37%	29%
115, 231, 242	40	8	7	5 to 1	100%	2	29%	50%
131, 145, 163, 164	25	4	4	7 to 1	100%	1	25%	100%
132 – 134, 245	40	5	5	8 to 1	100%	2	40%	50%
141, 143, 151 - 156	106	45	44	3 to 1	93%	5	12%	40%
161, 162	26	2	0	13 to 1	0%	0	--	--
171 - 173	14	3	3	5 to 1	100%	1	33%	0%
181 - 184	76	25	22	4 to 1	95%	6	29%	33%

TABLE 6. 2017 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%15 inch or better
203, 291	4	2	2	2 to 1	100%	1	50%	0%
205, 206, 207, 208	20	14	14	1 to 1	86%	4	33%	50%
211 - 213	3	2	2	2 to 1	100%	0	0%	--
221 – 223, 241	21	6	6	4 to 1	100%	2	33%	0%
251	31	2	2	16 to 1	100%	2	100%	50%
TOTALS	1,601	456	411	4 to 1	95%	100	26%	31%

RESIDENT DOE ANTELOPE ANY LEGAL WEAPON HUNT 2181

012-014	189	25	25	8 to 1	92%	15	65%	
031	326	100	98	4 to 1	95%	61	66%	
032, 034	93	25	24	4 to 1	92%	15	68%	
035	72	10	10	8 to 1	90%	5	56%	
041, 042	302	55	55	6 to 1	93%	40	78%	
061 - 064, 071, 073	633	225	224	3 to 1	96%	161	75%	
065, 142, 144	96	50	50	2 to 1	98%	33	67%	
066	27	10	10	3 to 1	90%	7	78%	
067, 068	195	130	130	2 to 1	97%	86	68%	
072, 073, 074	83	45	45	2 to 1	98%	38	86%	
076, 077,079, 081, 091	31	15	15	3 to 1	100%	12	80%	
078, 105 - 107, 121	233	90	89	3 to 1	94%	66	79%	
101 – 104, 108, 109, 144	222	90	89	3 to 1	97%	68	79%	
111 - 114	177	45	45	4 to 1	100%	34	76%	
114, 115, Baker Ranch	23	10	10	3 to 1	90%	8	89%	
131, 145	95	45	45	3 to 1	91%	30	73%	
141, 143, 152, 154, 155	576	225	223	3 to 1	94%	155	74%	
151, 153, 156	353	150	148	3 to 1	95%	112	79%	
181-184	78	20	20	4 to 1	100%	17	85%	
TOTALS	3,804	1,365	1,355	3 to 1	95%	963	74%	

EMERGENCY DEPREDATION DOE ANTELOPE 2104

062, 067, 068	1462	400	385	4 to 1	95%	184	51%	
071, 073	1063	300	297	4 to 1	93%	155	56%	
TOTALS	2,525	700	682	4 to 1	94%	339	53%	

NONRESIDENT BUCK ANTELOPE ANY LEGAL WEAPON HUNT 2251

011	174	7	7	25 to 1	100%	5	71%	20%
012 – 014	258	15	14	18 to 1	93%	12	92%	50%
015	151	6	5	26 to 1	80%	2	50%	100%
021, 022	406	5	4	82 to 1	75%	2	67%	100%
031	152	15	13	11 to 1	92%	8	67%	50%
032, 034	122	12	11	11 to 1	100%	7	64%	14%
033 Early	1,282	3	3	428 to 1	100%	2	67%	0%
033 Late	123	3	3	41 to 1	100%	3	100%	33%
035	51	6	6	9 to 1	100%	5	83%	40%
041, 042 Early	266	7	6	38 to 1	100%	6	100%	33%

TABLE 6. 2017 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%15 inch or better
041, 042 Late	56	7	6	8 to 1	100%	4	67%	50%
043 - 046	34	7	7	5 to 1	71%	5	100%	20%
051	73	6	5	13 to 1	100%	5	100%	0%
061 - 064, 071, 073	199	20	18	10 to 1	100%	16	89%	31%
065, 142, 144	64	10	10	7 to 1	100%	9	90%	11%
066	46	5	5	10 to 1	100%	4	80%	25%
067, 068	137	10	8	14 to 1	88%	7	100%	29%
072, 074, 075	100	10	10	10 to 1	100%	8	80%	25%
076, 077, 079, 081, 091	322	5	4	65 to 1	100%	4	100%	50%
078, 105 - 107, 121	44	10	10	5 to 1	100%	8	80%	13%
101 – 104, 108, 109, 144	61	7	7	9 to 1	100%	7	100%	43%
111 – 114	112	15	13	8 to 1	100%	11	85%	9%
115, 231, 242	50	4	4	13 to 1	100%	2	50%	50%
131, 145, 163, 164	65	8	8	9 to 1	100%	8	100%	25%
132 - 134, 245	44	6	6	8 to 1	100%	6	100%	17%
141, 143, 151 - 156	162	25	22	7 to 1	100%	18	82%	28%
161, 162	64	2	2	32 to 1	100%	2	100%	50%
171 - 173	30	3	3	10 to 1	67%	2	100%	0%
181 - 184	46	6	6	8 to 1	100%	6	100%	50%
202, 204	25	1	0	25 to 1		0	--	--
205, 206, 207, 208	17	3	3	6 to 1	100%	3	100%	33%
221 – 223, 241	38	3	3	13 to 1	33%	1	100%	0%
251	142	3	2	48 to 1	100%	2	100%	0%
TOTALS	4,916	255	234	20 to 1	96%	190	85%	29%

NONRESIDENT BUCK ANTELOPE ARCHERY HUNT 2261

011	13	2	2	7 to 1	100%	0	0%	--
012 – 014	13	2	1	7 to 1	100%	1	100%	100%
015	14	1	1	14 to 1	100%	1	100%	0%
021, 022	18	1	1	18 to 1	100%	1	100%	0%
031	12	1	1	12 to 1	100%	0	0%	--
032, 034	20	4	3	5 to 1	100%	1	33%	0%
033	109	1	1	109 to 1	100%	1	100%	0%
035	5	1	1	5 to 1	100%	1	100%	100%
041, 042	42	1	1	42 to 1	100%	1	100%	100%
051	7	3	3	3 to 1	100%	2	67%	0%
061 - 064, 071, 073	11	4	4	3 to 1	100%	0	0%	--
065, 142, 144	4	3	3	1 to 1	100%	0	0%	--
067, 068	6	3	3	2 to 1	100%	0	0%	--
072, 074, 075	15	4	4	4 to 1	75%	0	0%	--
076, 077, 079, 081, 091	5	1	1	5 to 1	100%	0	0%	--
078, 105-107, 121	4	1	1	4 to 1	100%	1	100%	0%
101 – 104, 108, 109, 144	10	3	3	4 to 1	100%	1	33%	100%
111 – 114	12	1	1	12 to 1	100%	0	0%	--
115, 231, 242	3	1	1	3 to 1	100%	1	100%	100%

TABLE 6. 2017 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%15 inch or better
131, 145, 163, 164	2	1	1	2 to 1	100%	0	0%	--
132 - 134, 245	18	5	3	4 to 1	100%	1	33%	0%
141, 143, 151 - 156	5	1	1	5 to 1	100%	1	100%	0%
171 - 173	3	1	1	3 to 1	100%	0	0%	--
181 - 184	9	3	2	3 to 1	50%	0	0%	--
205, 206, 207, 208	2	1	1	2 to 1	100%	0	0%	--
TOTALS	362	50	45	8 to 1	96%	14	33%	36%

Apps - # of unsuccessful 1st choice applicants plus successful 1st - 5th choice applicants for given unit group

Tags for Hunt - Available tags at season opener - accounts for tags returned for any reason and alternate tags issued

Demand - Number of Apps for every one tag sold

% Return - Percent of hunt questionnaires received compared to total tags available for hunt

% Hunter Success - Number of successful hunters divided by the number of returns

TABLE 7. 2017 PRONGHORN BUCK HORN LENGTH BY UNIT GROUP

	BUCK HORN LENGTH IN INCHES													Unit Group	% 15+
Unit	<6	6	7	8	9	10	11	12	13	14	15	16	17+	Totals	inches
011	0	0	2	0	1	1	6	2	9	14	8	6	1	50	30%
012 - 014	0	0	0	4	1	7	6	12	27	24	18	6	5	110	26%
015	0	0	0	0	2	2	3	3	10	11	5	5	1	42	26%
021, 022	0	0	0	1	0	0	1	4	2	8	10	6	1	33	52%
031	1	0	0	4	2	9	4	13	11	13	9	4	0	70	19%
032, 034	0	0	0	2	2	5	4	9	16	11	6	1	0	56	13%
033	0	0	0	0	0	1	4	3	6	19	11	2	1	47	30%
035	0	0	0	3	1	6	2	5	5	7	8	0	0	37	22%
041, 042	1	0	0	0	2	1	7	16	22	22	15	8	5	99	28%
043 - 046	0	0	0	3	1	3	1	9	8	18	9	4	1	57	25%
051	0	0	0	0	0	4	4	5	12	7	2	4	0	38	16%
061,062,064,071,073	0	0	1	2	1	6	7	19	36	33	31	16	3	155	32%
065, 142, 144	0	0	0	0	0	2	4	3	14	35	23	8	2	91	36%
066	0	0	0	0	0	3	2	3	3	10	5	3	0	29	28%
067, 068	0	0	0	2	2	7	0	8	12	25	22	12	3	93	40%
072, 074, 075	0	0	1	0	2	3	2	11	17	31	15	4	4	90	26%
076,077,079,081,091	0	0	0	0	0	1	2	1	5	10	15	5	3	42	55%
078, 105 - 107, 121	0	0	0	2	1	3	2	4	19	25	15	5	1	77	27%
101–104,108,109,144	0	0	0	1	1	0	3	5	7	21	15	10	2	65	42%
111 – 114	0	0	0	2	5	9	11	22	31	19	17	3	0	119	17%
115, 231, 242	0	0	0	0	0	2	2	3	7	7	4	4	1	30	30%
131, 145, 163, 164	0	0	1	0	3	1	2	6	15	19	16	6	1	70	33%
132 – 134, 245	0	0	0	0	3	0	4	5	11	14	9	3	0	49	24%
141, 143, 151 - 156	0	0	6	5	7	5	7	18	32	37	34	9	0	160	27%
161, 162	0	0	0	1	0	2	1	0	2	9	4	4	0	23	35%
171 - 173	0	0	1	0	1	2	1	2	4	12	1	1	1	26	12%
181 - 184	1	0	0	2	3	3	4	5	7	15	11	3	1	55	27%
202, 204	0	0	0	0	0	0	0	0	1	2	0	2	0	5	40%
203, 291	0	0	0	0	0	0	0	1	1	1	2	0	0	5	40%
205, 206, 207, 208	0	0	1	2	1	0	0	5	3	6	1	4	0	23	22%
211 - 213	0	0	0	0	0	0	0	2	1	2	0	0	0	5	0%
221 – 223, 241	0	0	0	1	2	0	0	3	6	8	2	3	1	26	23%
251	0	0	0	0	0	0	0	2	4	8	5	2	0	21	33%
TOTALS	3	0	13	37	44	88	96	209	366	503	348	153	38	1898	28%

Horn length for bucks harvested from Horns Longer than Ear Hunts. *Does not include landowner compensation tags

TABLE 8. PRONGHORN HORN TRENDS - % OF BUCKS 15+ INCHES BY UNIT GROUP

Unit Group	2009	2010	2011	2012	2013	2014	2015	2016	2017
011	41%	46%	39%	32%	22%	28%	30%	31%	30%
012 - 014	44%	27%	38%	32%	15%	31%	35%	36%	26%
015	31%	49%	37%	31%	10%	21%	25%	28%	26%
021, 022	68%	55%	53%	41%	32%	55%	39%	46%	52%
031	32%	32%	20%	27%	20%	18%	27%	19%	19%
032, 034	36%	39%	37%	29%	27%	19%	18%	34%	13%
033	66%	62%	55%	36%	19%	44%	48%	34%	30%
035	35%	38%	27%	14%	16%	6%	18%	23%	22%
041, 042	53%	44%	34%	40%	31%	26%	39%	41%	28%
043 - 046			50%	40%	10%	24%	13%	33%	25%
051	23%	36%	40%	20%	24%	21%	30%	21%	16%
061, 062, 064, 071, 073	26%	30%	30%	26%	23%	31%	39%	32%	32%
065, 142, 144	30%	52%	54%	33%	42%	39%	38%	32%	36%
066	50%	47%	67%	29%	48%	36%	46%	58%	28%
067, 068	24%	32%	30%	27%	24%	31%	33%	44%	40%
072, 074, 075	33%	33%	33%	21%	28%	35%	35%	37%	26%
076, 077, 079, 081, 091	62%	51%	40%	43%	50%	54%	60%	50%	55%
078, 105 - 107, 121	26%	22%	35%	26%	8%	27%	19%	25%	27%
101 – 104, 108, 109, 144	37%	27%	27%	21%	25%	34%	45%	31%	42%
111 – 114	13%	14%	15%	13%	14%	8%	10%	17%	17%
115, 231, 242	31%	48%	11%	40%	20%	22%	24%	24%	30%
131, 145, 163, 164	29%	31%	35%	20%	27%	38%	29%	37%	33%
132 – 134, 245	43%	53%	41%	32%	38%	37%	40%	36%	24%
141, 143, 151 - 156	29%	32%	29%	31%	28%	24%	17%	28%	27%
161, 162	60%	38%	23%	32%	35%	20%	41%	29%	35%
171 - 173	44%	35%	36%	12%	27%	14%	21%	20%	12%
181 - 184	54%	30%	29%	13%	19%	21%	21%	27%	27%
202, 204	17%	0%	0%	0%	0%	0%	33%	20%	40%
203, 291	25%	20%	0%	0%		25%	0%	20%	40%
205, 206, 207, 208	0%	18%	7%	17%	13%	20%	25%	8%	22%
211, 212				50%	0%	100%	67%	29%	0%
221 – 223, 241	26%	28%	24%	12%	14%	31%	33%	28%	23%
251	64%	50%	76%	53%	46%	60%	42%	74%	33%
Statewide	**36%**	**37%**	**34%**	**28%**	**24%**	**27%**	**30%**	**32%**	**28%**

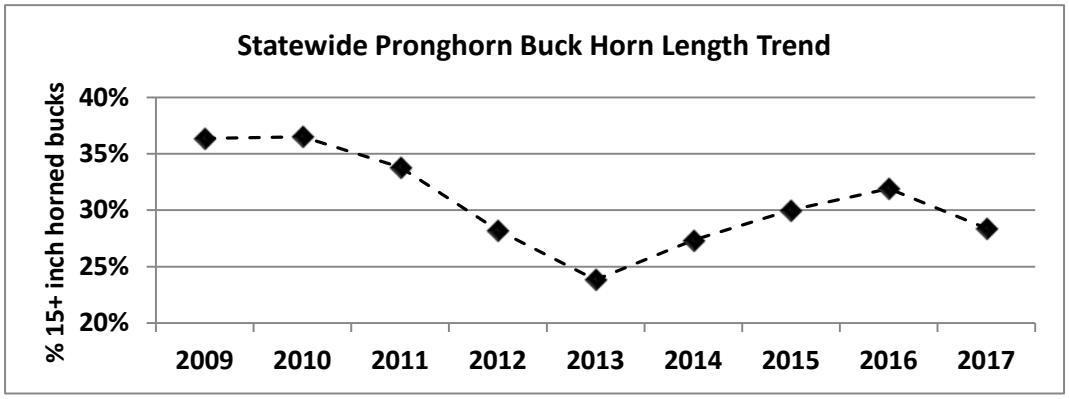


TABLE 9. 2017 ELK HARVEST BY UNIT AND UNIT GROUP FOR ALL HUNTS

	Female		Male	Unit Group	Number of Left Antler Points							Unit Group		TOTAL
Unit	Cows	Calves	Calves	Antlerless	1	2	3	4	5	6	7+	Bull Total	%6+pts	ELK
051	3			3				1	2	2	4	9	67%	12
061	41	3	1		7	1	1		9	19	6			
071	100	3	2	150	20	1	1		4	28		97	55%	247
unk^	1													
062	62	3	6		10	1		1	7	24	5			
064	2									1				
066	11				2				1	4	1			
067	13	1	1		1	2			3	10				
068	5			105				1	2	4		80	61%	185
065	2	1		3						1	1	2		5
unk^	1									1				
072	232	15	9		12	1	2	10	47	128	15			
073	88	4			4	2		3	8	13	1			
074	19			368					1	5		253	64%	621
075	60	4	5	69	1		1	3	6	19	3	33	67%	102
unk^											1			
076	56	4	2		5			2		16	4			
077	84	3	1		3	2		2	14	24	5			
079	8	2							2	4				
081	59	7	6	232	2			5	9	36	6	142	67%	374
unk^			1											
078	3													
105	5	1							3	10				
106														
107														
109	5			15						6	1	20	85%	35
091				0					2	2	1	5	60%	5
unk^									1					
101	3					1		3	5	6				
102	9	1						2	6	9				
103	6	2		21	1				3	2	2	41	46%	62
104	3									1				
108	2								2	3				
121	29	1	2	37			1	1	5	18	7	38	76%	75
108	4									1				
131	32	3					1	1	3	14	6			
132			1	40					1	2		29	79%	69
unk^	2													
111	75	2	4		4			3	10	63	12			
112	8								3	4				
113	40	4								3				
114	27		2						5	12	1			
115	10			174				1	3	13	3	140	79%	314
144	2								1	1				
145	2			4					2	1	1	6	33%	10

TABLE 9. 2017 ELK HARVEST BY UNIT AND UNIT GROUP FOR ALL HUNTS

	Female		Male	Unit Group	Number of Left Antler Points							Unit Group		TOTAL
Unit	Cows	Calves	Calves	Antlerless	1	2	3	4	5	6	7+	Bull Total	%6+pts	ELK
unk^	1													
161	17	1	2					1	6	9				
162	54	1	2					2	10	23	2			
163	1							1		2	2			
164	2									1				
171														
172	1													
173	1			83								59	66%	142
unk^										1				
221	26	2	2		1				2	23	2			
222	87	5	2		2		1	1	11	37	11			
223	6			130					3	5	1	101	78%	231
231	88	4	6	98			1	3	23	46	12	85	68%	183
241	1													
242	3			4					1	1		4	25%	8
251				0										
262				0					1	4	1	6	83%	6
TOTAL	**1,402**	**77**	**57**	**1,536**	**75**	**11**	**9**	**47**	**227**	**662**	**117**	**1,150**	**68%**	**2,686**

^ unable to verify correct unit of harvest in hunt group

HERITAGE, SILVER STATE, DREAM, AND PIW TAGHOLDER HARVEST BY UNIT

HUNT	UNIT	#
PIW	262	1
PIW	161	1
PIW	?	

HUNT	UNIT	#
Heritage	111	2

HUNT	UNIT	#
Silver State	222	1
Dream	121	1

TABLE 10. 2017 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	% Hunter Success	%6+pts	%50+in Beam

FIELD DESCRIPTIONS

Apps - # of unsuccessful 1st choice applicants plus successful 1st - 5th choice applicants for given unit group

Tags For Hunt - Available tags at season opener - accounts for tags returned for any reason and not all issued to alternates and including tags leftover after the main draw to both residents and nonresidents

Demand - # of "Apps" for every one tag sold (i.e., 4 to 1 means 4 applicants applied in Main Draw for every 1 tag sold)

% Return - Percent of hunt questionnaires received compared to total tags available

% Hunter Success - based on # of successful hunters divided by Tags for Hunt (a portion of nonreturns are assumed to be successful based on past trends); If % Return rate is below 60%, % Hunter Success are too inaccurate to report.

PIW RESIDENT ANTLERED ELK ANY LEGAL WEAPON HUNT 4000

STATEWIDE	2,608	3	3	870 to 1	67%	100%	100%	100%

HERITAGE ELK ANY LEGAL WEAPON HUNT 4100 and 4200

STATEWIDE		2	2		100%	100%	100%	100%

SILVER STATE ELK ANY LEGAL WEAPON HUNT 4300

STATEWIDE	5,764	1	1	5,764 to 1	100%	100%	100%	100%

DREAM ELK ANY LEGAL WEAPON HUNT 4500

STATEWIDE		1	1		100%	100%	100%	0%

ELK INCENTIVE ANY LEGAL WEAPON HUNT 4131 AND 4231

061, 071			3		67%	33%	100%	0%
072, 073, 074			3		67%	100%	100%	100%
075			7		86%	57%	75%	0%
076, 077, 079, 081			47		64%	70%	80%	17%
104, 108, 121			2		100%	100%	100%	50%
111-115			6		50%	83%	100%	67%
221 - 223			3		100%	0%	--	--
222, 231			6		83%	100%	60%	20%
231			9		78%	67%	40%	50%
241, 242			1		0%	0%	--	--
TOTALS			87		69%	69%	77%	26%

TABLE 10. 2017 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	% Hunter Success	%6+pts	%50+in Beam
ELK INCENTIVE MUZZLELOADER HUNT 4133 AND 4233								
061, 071			5		80%	60%	100%	67%
072, 073, 074			7		100%	100%	86%	29%
075			5		80%	40%	100%	50%
111 - 115			1		100%	100%	100%	100%
TOTALS			18		89%	56%	92%	46%
ELK INCENTIVE ARCHERY HUNT 4132 AND 4232								
072, 073, 074			1		0%	0%	--	--
076, 077, 079, 081			5		80%	60%	100%	33%
111 - 115			8		75%	50%	100%	33%
221 - 223			4		100%	75%	100%	67%
231			2		100%	50%	100%	100%
TOTALS			20		80%	55%	100%	50%
RESIDENT ANTLERED ELK ANY LEGAL WEAPON DEPREDATION HUNT 4102								
101 - 103 Early	679	50	49	14 to 1	94%	45%	33%	16%
101 - 103 Late	209	50	50	5 to 1	92%	44%	60%	16%
144, 145 Early	344	10	10	35 to 1	100%	10%	0%	0%
144, 145 Mid	61	10	9	7 to 1	100%	33%	67%	0%
144, 145 Late	101	15	15	7 to 1	87%	13%	50%	50%
TOTALS	1,394	135	133	11 to 1	93%	38%	47%	16%
RESIDENT ANTLERED ELK ANY LEGAL WEAPON HUNT 4151								
051 Early	291	10	8	30 to 1	100%	75%	67%	33%
051 Late	115	20	15	6 to 1	100%	20%	67%	0%
061, 071 Early	460	40	39	12 to 1	95%	49%	72%	22%
061, 071 Late	183	45	42	5 to 1	93%	45%	72%	0%
062, 064, 066 - 068 Early	498	45	44	12 to 1	95%	41%	67%	25%
062, 064, 066 - 068 Late	226	45	42	6 to 1	83%	57%	73%	48%
065	53	4	4	14 to 1	100%	50%	100%	0%
072, 073, 074 Early	1,019	225	208	5 to 1	92%	42%	71%	27%
072, 073, 074 Late	625	225	215	3 to 1	93%	36%	54%	10%
075 Early	81	20	17	5 to 1	100%	41%	71%	14%
075 Late	38	20	20	2 to 1	85%	40%	43%	0%
076, 077, 079, 081 Early	894	85	77	11 to 1	97%	61%	72%	17%
076, 077, 079, 081 Late	445	70	60	7 to 1	90%	50%	64%	11%
078, 105 - 107, 109 Early	154	7	6	22 to 1	100%	83%	60%	80%
078, 105 - 107, 109 Late	54	7	7	8 to 1	100%	86%	83%	33%
091	369	7	6	53 to 1	100%	83%	60%	60%
104, 108, 121	337	45	42	8 to 1	95%	62%	68%	44%
108, 131, 132	300	45	39	7 to 1	95%	54%	70%	35%

TABLE 10. 2017 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	% Hunter Success	%6+pts	%50+in Beam
111 - 115 Early	1,715	104	98	17 to 1	92%	60%	75%	48%
111 - 115 Late	482	84	79	6 to 1	90%	56%	78%	28%
161 - 164, 171 - 173 Early	1,000	5	5	200 to 1	100%	100%	100%	60%
161 - 164, 171 - 173 Mid	178	45	44	4 to 1	93%	41%	65%	13%
162 - 164, 171 - 173 Late	226	45	42	6 to 1	86%	38%	67%	20%
221 - 223 Early	1,195	71	68	17 to 1	94%	53%	77%	29%
221 - 223 Late	424	61	60	7 to 1	88%	55%	68%	35%
231 Early	1,013	50	47	21 to 1	89%	68%	63%	25%
231 Late	361	50	49	8 to 1	90%	53%	71%	18%
241, 242	128	3	2	43 to 1	100%	50%	100%	100%
262	266	4	4	67 to 1	75%	100%	67%	67%
TOTALS	13,130	1,487	1,389	9 to 1	91%	49%	69%	27%

RESIDENT ANTLERED ELK MUZZLELOADER HUNT 4156

061, 071	134	20	18	7 to 1	100%	67%	83%	42%
062, 064, 066-068	148	20	19	8 to 1	95%	47%	100%	33%
072, 073, 074	330	100	95	4 to 1	95%	43%	78%	18%
075	47	15	13	4 to 1	100%	69%	56%	0%
076, 077, 079, 081	99	20	20	5 to 1	95%	40%	71%	29%
078, 105 - 107, 109	57	6	4	10 to 1	100%	75%	100%	33%
104, 108, 121	38	5	5	8 to 1	100%	40%	100%	0%
108, 131, 132	21	4	4	6 to 1	100%	0%	--	--
111 – 115	147	27	26	6 to 1	96%	46%	75%	9%
161 - 164, 171 - 173	91	35	32	3 to 1	97%	31%	40%	10%
221 - 223	116	18	17	7 to 1	94%	41%	71%	43%
231	88	10	10	9 to 1	100%	50%	75%	0%
241, 242	10	3	2	4 to 1	100%	0%	--	--
262	9	1	1	9 to 1	100%	100%	100%	0%
TOTALS	1,335	284	266	5 to 1	96%	45%	75%	20%

RESIDENT ANTLERED ELK ARCHERY HUNT 4161

061, 071	90	35	33	3 to 1	91%	18%	67%	17%
062, 064, 066 - 068	61	20	19	4 to 1	95%	21%	75%	25%
072, 073, 074	164	65	54	3 to 1	96%	13%	86%	0%
075	19	8	8	3 to 1	88%	38%	100%	33%
076, 077, 079, 081	144	40	38	4 to 1	87%	21%	57%	0%
078, 104, 105 - 107, 109	48	6	5	8 to 1	80%	60%	100%	33%
104, 108, 121	64	10	9	7 to 1	89%	22%	100%	100%
108, 131, 132	65	10	10	7 to 1	100%	50%	100%	40%
111 – 115	329	35	32	10 to 1	97%	47%	87%	67%
161 - 164, 171 - 173	106	25	21	5 to 1	86%	19%	75%	25%

TABLE 10. 2017 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	% Hunter Success	%6+pts	%50+in Beam
221 - 223	244	25	23	10 to 1	100%	61%	100%	57%
231	172	20	19	9 to 1	89%	32%	83%	50%
241, 242	8	3	2	3 to 1	100%	50%	0%	0%
262	27	1	1	27 to 1	100%	100%	100%	100%
TOTALS	1,541	303	274	6 to 1	93%	29%	85%	40%

RESIDENT SPIKE ELK ANY LEGAL WEAPON HUNT 4651

061, 071 Early	239	35	35	7 to 1	97%	26%		
061, 071 Mid	59	25	25	3 to 1	92%	36%		
061, 071 Late	121	40	39	4 to 1	92%	33%		
062, 064, 066 - 068 Early	175	35	35	5 to 1	100%	26%		
062, 064, 066 - 068 Mid	85	35	34	3 to 1	97%	9%		
062, 064, 066 - 068 Late	75	35	35	3 to 1	86%	11%		
072, 073, 074 Early	168	30	29	6 to 1	93%	14%		
072, 073, 074 Mid	54	30	30	2 to 1	97%	13%		
072, 073, 074 Late	64	30	30	3 to 1	83%	23%		
076, 077, 079, 081 Early	186	25	25	8 to 1	96%	32%		
076, 077, 079, 081 Late	88	15	15	6 to 1	80%	20%		
078, 105-107, 109	49	6	6	9 to 1	100%	0%		
TOTALS	1,363	341	338	4 to 1	93%	22%		

RESIDENT ANTLERLESS ELK ANY LEGAL WEAPON DEPREDATION HUNT 4107

081 1st	207	75	73	3 to 1	96%	11%		
081 2nd	40	10	10	4 to 1	90%	40%		
081 3rd	183	75	72	3 to 1	92%	29%		
081 4th	66	40	40	2 to 1	88%	33%		
101 - 103	122	100	100	1 to 1	84%	10%		
121 1st	40	40	40	1 to 1	93%	8%		
121 2nd	43	20	19	3 to 1	95%	11%		
121 3rd	27	20	20	1 to 1	90%	25%		
144, 145 1st	39	10	10	4 to 1	100%	30%		
144, 145 2nd	16	10	10	2 to 1	90%	0%		
144, 145 3rd	10	10	10	1 to 1	90%	0%		
144, 145 4th	59	20	20	3 to 1	85%	5%		
251	50	20	20	3 to 1	70%	0%		
TOTALS	852	430	424	2 to 1	90%	17%		

RESIDENT ANTLERLESS ELK ANY LEGAL WEAPON HUNT 4181

051 Early	159	15	14	11 to 1	93%	14%		
051 Late	73	25	25	3 to 1	64%	4%		
061, 071 Early	1048	250	242	5 to 1	98%	28%		
061, 071 Late	287	100	97	3 to 1	87%	48%		

TABLE 10. 2017 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	% Hunter Success	%6+pts	%50+in Beam
062, 064, 066 - 068 Early	953	250	248	4 to 1	96%	22%		
062, 064, 066 - 068 Late	347	100	98	4 to 1	85%	9%		
065	59	10	7	6 to 1	100%	43%		
072 Early	640	250	239	3 to 1	93%	20%		
072 Mid	435	200	196	3 to 1	95%	21%		
072 Wilderness	421	200	198	3 to 1	95%	29%		
073 Early	84	50	50	2 to 1	90%	14%		
074 Early	116	50	49	3 to 1	96%	24%		
075 Early	75	40	40	2 to 1	100%	53%		
072 - 075 Late	1344	550	545	3 to 1	86%	29%		
076, 077, 079, 081 Early	1040	160	157	7 to 1	98%	49%		
076, 077, 079, 081 Late	553	75	73	8 to 1	96%	63%		
078, 105 - 107, 109	218	30	29	8 to 1	100%	38%		
104, 108, 121	362	40	38	10 to 1	100%	66%		
108, 131, 132	261	45	43	6 to 1	95%	49%		
111, 112 Early	1116	110	104	11 to 1	95%	43%		
111, 112 Late	318	75	75	5 to 1	93%	29%		
113 Early	109	50	50	3 to 1	96%	26%		
113 Late	115	100	100	1 to 1	90%	27%		
114, 115 Early	191	45	45	5 to 1	96%	33%		
114, 115 Late	177	55	55	4 to 1	76%	16%		
161 - 164 Early	436	80	77	6 to 1	97%	12%		
161 - 164 Late	477	120	120	3 to 1	85%	15%		
162 Wilderness	112	45	43	4 to 1	91%	51%		
221 Early	313	45	43	7 to 1	98%	42%		
221 Late	49	10	10	5 to 1	80%	30%		
222, 223 Early	705	110	108	7 to 1	94%	44%		
222 Early Wilderness	73	20	19	4 to 1	100%	58%		
222, 223 Late	293	55	55	6 to 1	76%	38%		
222 Late Wilderness	33	20	20	2 to 1	80%	45%		
231 Early	728	60	59	13 to 1	98%	32%		
231 Wilderness	31	25	25	1 to 1	96%	36%		
231 Late	416	100	99	5 to 1	89%	30%		
241, 242	62	6	6	11 to 1	100%	50%		
TOTALS	14,229	3,571	3,501	4 to 1	92%	30%		

RESIDENT ANTLERLESS ELK MANAGEMENT ANY LEGAL WEAPON HUNT 4481

Mule Deer Hunt 1331								
061 - 064, 066 - 068 Early	1,512	750	401		94%	6%		
071 - 077, 079, Early	998	325	201		92%	17%		
071 - 077, 079, Late	658	80	35		94%	31%		
101 - 103 Early	329	180	112		90%	3%		

TABLE 10. 2017 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	% Hunter Success	%6+pts	%50+in Beam
101 - 103 Mid	198	160	72		97%	0%		
101 - 103 Late	126	30	21		90%	24%		
131 - 132	485	100	97		96%	12%		
161-164 Early	536	120	118		93%	8%		
161-164 Late	222	15	15		100%	47%		
221 - 223 Early	448	30	29		97%	28%		
221 - 223 Mid	184	25	25		100%	24%		
221 - 223 Late	357	15	12		75%	8%		
231	1,064	50	49		92%	35%		
TOTALS	7,117	1,880	1,187		94%	12%		
RESIDENT ANTLERLESS ELK MUZZLELOADER HUNT 4176								
072	293	140	136	3 to 1	93%	18%		
073	73	35	35	3 to 1	97%	9%		
074	12	5	5	3 to 1	100%	0%		
075	17	15	15	1 to 1	93%	27%		
076, 077, 079, 081	126	35	34	4 to 1	94%	29%		
078, 105 - 107, 109	23	10	10	3 to 1	100%	10%		
104, 108, 121	26	4	3	7 to 1	100%	67%		
108, 131, 132	44	15	15	3 to 1	93%	27%		
111, 112	144	25	24	6 to 1	96%	33%		
113	43	15	14	3 to 1	100%	14%		
114, 115	61	20	17	4 to 1	100%	53%		
161 – 164	49	20	20	3 to 1	90%	35%		
221 - 223	149	25	24	6 to 1	92%	21%		
231	169	30	30	6 to 1	93%	30%		
TOTALS	1,229	394	382	4 to 1	95%	23%		
RESIDENT ANTLERLESS ELK MANAGEMENT MUZZLELOADER HUNT 4476								
Mule Deer Hunt 1371								
061 - 064, 066 - 068	113	20	19		95%	26%		
072 - 077, 079	68	35	24		96%	29%		
101 - 103	62	30	26		77%	4%		
131, 132	84	10	10		100%	10%		
161-164	73	30	15		100%	7%		
231	91	10	9		100%	33%		
TOTALS	491	135	103		92%	17%		
RESIDENT ANTLERLESS ELK ARCHERY HUNT 4111								
061, 071	142	65	62	3 to 1	89%	10%		
062, 064, 066 - 068	118	55	55	3 to 1	87%	5%		
072	177	85	78	3 to 1	91%	10%		

TABLE 10. 2017 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	% Hunter Success	%6+pts	%50+in Beam
073	8	8	7	1 to 1	100%	14%		
074	8	8	7	1 to 1	86%	0%		
075	8	8	8	1 to 1	75%	0%		
076, 077, 079, 081	126	55	54	3 to 1	94%	11%		
078, 105 - 107, 109	19	10	10	2 to 1	90%	30%		
104, 108, 121	17	2	2	9 to 1	100%	100%		
108, 131, 132	39	7	7	6 to 1	86%	43%		
111, 112	170	35	34	5 to 1	94%	26%		
113	68	30	30	3 to 1	87%	13%		
114, 115	88	35	33	3 to 1	94%	21%		
161 – 164	106	40	39	3 to 1	100%	5%		
221 - 223	197	45	41	5 to 1	93%	15%		
231	155	35	33	5 to 1	97%	21%		
241, 242	5	3	3	2 to 1	100%	33%		
TOTALS	1,451	526	503	3 to 1	92%	14%		
RESIDENT ANTLERLESS ELK MANAGEMENT ARCHERY HUNT 4411								
Mule Deer Hunt 1341								
061 - 064, 066 - 068	193	60	58		93%	3%		
071 - 077, 079, Early	109	130	70		96%	10%		
071 - 077, 079, Late	47	15	11		100%	0%		
101 – 103 Early	111	50	46		96%	4%		
101 – 103 Late	12	10	3		100%	0%		
131, 132	115	10	9		100%	11%		
161-164	116	20	20		100%	5%		
231	103	10	10		90%	0%		
TOTALS	806	305	227		96%	6%		
NONRESIDENT ANTLERED ELK ANY LEGAL WEAPON HUNT 4251								
061, 071 Early	83	5	4	17 to 1	100%	50%	50%	50%
061, 071 Late	75	6	6	13 to 1	83%	33%	50%	0%
062, 064, 066 - 068 Early	120	5	5	24 to 1	100%	80%	100%	75%
062, 064, 066 - 068 Late	67	5	4	14 to 1	100%	50%	50%	0%
072, 073, 074 Early	245	25	24	10 to 1	100%	63%	67%	29%
072, 073, 074 Late	151	20	17	8 to 1	71%	65%	78%	22%
075 Early	16	2	2	8 to 1	100%	50%	100%	0%
075 Late	6	2	2	3 to 1	50%	0%	--	--
076, 077, 079, 081 Early	242	13	13	19 to 1	92%	54%	86%	14%
076, 077, 079, 081 Late	110	9	9	13 to 1	89%	67%	83%	20%
078, 105 - 107, 109 Early	65	1	1	65 to 1	100%	100%	100%	0%
078, 105 - 107, 109 Late	27	1	1	27 to 1	100%	100%	100%	0%
104, 108, 121	60	6	6	10 to 1	83%	100%	100%	25%

TABLE 10. 2017 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	% Hunter Success	%6+pts	%50+in Beam
108, 131, 132	42	5	5	9 to 1	100%	60%	100%	33%
111 - 115 Early	1,509	9	8	168 to 1	75%	63%	75%	75%
111 - 115 Late	358	9	9	40 to 1	89%	44%	100%	75%
161 - 164, 171 - 173 Early	1,463	1	1	1463 to 1	100%	100%	100%	100%
162 - 164, 171 - 173 Mid	22	5	5	5 to 1	80%	40%	50%	50%
161 - 164, 171 - 173 Late	43	5	5	9 to 1	80%	20%	0%	0%
221 - 223 Early	701	8	7	88 to 1	71%	71%	100%	100%
221 - 223 Late	158	7	7	23 to 1	57%	43%	50%	0%
231 Early	210	5	5	42 to 1	100%	100%	80%	80%
231 Late	120	5	5	24 to 1	100%	80%	75%	50%
TOTALS	5,893	159	151	38 to 1	87%	60%	79%	39%

NONRESIDENT ANTLERED ELK MUZZLELOADER HUNT 4256

061, 071	61	3	3	21 to 1	100%	100%	100%	33%
062, 064, 066 - 068	69	2	2	35 to 1	100%	100%	100%	50%
072, 073, 074	209	15	14	14 to 1	100%	43%	83%	50%
076, 077, 079, 081	22	2	1	11 to 1	100%	100%	100%	0%
104, 108, 121	10	1	1	10 to 1	100%	100%	0%	100%
111 – 115	136	3	3	46 to 1	100%	33%	100%	0%
161 - 164, 171 - 173	30	4	4	8 to 1	100%	50%	100%	50%
221 - 223	49	2	2	25 to 1	100%	100%	100%	50%
231	36	1	1	36 to 1	100%	0%	--	--
TOTALS	622	33	31	19 to 1	100%	58%	89%	44%

NONRESIDENT ANTLERED ELK ARCHERY HUNT 4261

061, 071	36	5	4	8 to 1	75%	25%	100%	100%
062, 064, 066 - 068	26	4	4	7 to 1	75%	50%	100%	100%
072, 073, 074	87	10	6	9 to 1	100%	33%	100%	0%
076, 077, 079, 081	48	5	5	10 to 1	100%	40%	100%	50%
078, 105-107, 109	32	1	1	32 to 1	100%	100%	100%	100%
104, 108, 121	23	1	1	23 to 1	100%	0%	--	#DIV/0!
108, 131, 132	14	1	1	14 to 1	100%	100%	100%	100%
111 – 115	965	4	3	242 to 1	67%	33%	100%	100%
161 – 164, 171 – 173	36	3	3	12 to 1	100%	33%	100%	100%
221 - 223	396	3	3	132 to 1	100%	67%	100%	0%
231	127	2	2	64 to 1	100%	50%	100%	0%
TOTALS	1,790	39	33	46 to 1	91%	42%	100%	57%

NONRESIDENT ANTLERLESS ELK ANY LEGAL WEAPON HUNT 4281

061, 071 Early	118	40	34	3 to 1	97%	56%
061, 071 Late	28	15	15	2 to 1	80%	53%
062, 064, 066 - 068 Early	137	35	34	4 to 1	91%	21%

TABLE 10. 2017 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	% Hunter Success	%6+pts	%50+in Beam
062, 064, 066 - 068 Late	34	15	15	3 to 1	87%	33%		
072 Early	91	35	35	3 to 1	89%	46%		
072 Mid	69	30	29	3 to 1	97%	59%		
072 - 075 Late	163	65	65	3 to 1	68%	38%		
108, 131, 132	24	5	4	5 to 1	100%	0%		
111, 112 Early	81	10	9	9 to 1	100%	56%		
111, 112 Late	55	8	8	7 to 1	100%	50%		
161 - 164 Early	36	10	10	4 to 1	100%	40%		
161 - 164 Late	30	15	15	2 to 1	100%	13%		
231 Early	33	5	5	7 to 1	100%	40%		
231 Late	29	10	10	3 to 1	80%	30%		
TOTALS	928	298	288	4 to 1	87%	41%		

NONRESIDENT ANTLERLESS ELK MANAGEMENT ANY LEGAL WEAPON HUNT 4481

Mule Deer Hunt 1331								
071 - 077, 079, Early	60	20	1		100%	100%		
071 - 077, 079, Late	97	6	1		100%	0%		
TOTALS	157	26	2		100%	50%		

NONRESIDENT ANTLERLESS ELK MUZZLELOADER HUNT 4276

072	10	7	7	1 to 1	71%	0%		
076, 077, 079, 081	8	4	4	2 to 0	100%	25%		
108, 131, 132	5	2	2	3 to 1	100%	0%		
TOTALS	23	13	13	2 to 1	85%	8%		

NONRESIDENT ANTLERLESS ELK ARCHERY HUNT 4211

072	6	5	5	1 to 1	80%	0%		
076, 077, 079, 081	6	6	6	1 to 1	100%	17%		
108, 131, 132	6	1	1	6 to 1	0%	--		
TOTALS	18	12	12	2 to 1	83%	8%		

ANTLERLESS ELK PRIVATE LANDS HUNT 4781

062 Early			3		100%	100%		
062 Late			4		100%	100%		
077, 081			11		91%	45%		
231			8		63%	63%		
TOTALS	0	0	26		85%	65%		

RESIDENT JUNIOR ANTLERLESS ELK MANAGEMENT HUNT 4407

072 - 077, 079	193	170	100		88%	13%		
TOTALS	193	170	100		88%	13%		

TABLE 11. 2017 BULL ELK HARVEST ANTLER LENGTH BY UNIT GROUP

	Count of Antlers by Class Size						Percent of Antlers by Class Size				Avg Main Beam
Unit Group	**5"- 29"**	**30"- 43"**	**44"-49"**	**50"+**	**Total**	**% Response**	**5"- 29"**	**30"- 43"**	**44"-49"**	**50"+**	**Length***
051	0	1	4	2	7	78%	0%	14%	57%	29%	46
061, 071	6	25	22	15	68	101%	9%	37%	32%	22%	42
062, 064, 066 - 068	5	16	16	24	61	95%	8%	26%	26%	39%	45
065	0	1	1	0	2	100%	0%	50%	50%	0%	45
072, 073, 074	25	90	70	47	232	97%	11%	39%	30%	20%	42
075	5	13	10	3	31	94%	16%	42%	32%	10%	39
076, 077, 079, 081	9	52	45	21	127	97%	7%	41%	35%	17%	42
078, 104, 105 107, 109	0	5	6	9	20	100%	0%	25%	30%	45%	48
091	0	1	1	3	5	100%	0%	20%	20%	60%	48
101, 102, 103	5	18	8	6	37	90%	14%	49%	22%	16%	40
104, 108, 121	1	11	10	16	38	100%	3%	29%	26%	42%	46
108, 131, 132	3	5	9	11	28	97%	11%	18%	32%	39%	46
111-115	11	24	41	60	136	97%	8%	18%	30%	44%	46
144, 145	0	2	3	1	6	100%	0%	33%	50%	17%	44
161 - 164, 171 - 173	3	23	16	14	56	95%	5%	41%	29%	25%	43
221, 222, 223	6	21	33	39	99	98%	6%	21%	33%	39%	46
231	2	25	29	24	80	94%	3%	31%	36%	30%	45
241, 242	1	0	0	1	2	50%	50%	0%	0%	50%	40
262	0	2	0	4	6	100%	0%	33%	0%	67%	49
TOTAL	**82**	**335**	**324**	**300**	**1,041**	**96%**	**8%**	**32%**	**31%**	**29%**	44

*****Antler length is obtained from measurements of the longest main beam reported on harvest questionnaires. Average main beam length is rounded to the nearest inch.

TABLE 12. % BULL ELK MAIN BEAM ANTLER 50+ INCHES BY UNIT GROUP 2008-2017

Note: Historic main beam data has been updated to exclude spike hunt results from 2014-2017

Unit Group	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
051								100%	100%	29%
061, 071	16%	18%	23%	17%	12%	10%	11%	21%	21%	22%
062, 064, 066 - 068	50%	29%	49%	55%	24%	27%	37%	30%	25%	39%
065							50%			0%
072, 073, 074	29%	33%	33%	31%	32%	23%	30%	26%	26%	20%
075	11%	12%	18%	11%	37%	13%	12%	28%	23%	10%
076, 077, 079, 081	23%	28%	28%	27%	23%	18%	33%	22%	23%	17%
078, 104, 105 107, 109	60%	40%	63%	58%	40%	42%	42%	44%	35%	45%
091	25%	40%	33%	100%	33%	0%	67%	25%	71%	60%
101, 102, 103	11%	38%	22%	23%	14%	15%	5%	11%	4%	16%
104, 108, 121	27%	43%	29%	48%	34%	38%	42%	29%	34%	42%
108, 131, 132	21%	33%	40%	38%	20%	16%	70%	30%	19%	39%
111-115	28%	28%	28%	39%	40%	46%	48%	48%	40%	44%
144, 145					30%	20%	33%	11%	0%	17%
161 - 164, 171 - 173	31%	26%	18%	40%	40%	40%	44%	32%	44%	25%
221 - 223	24%	25%	27%	28%	32%	34%	47%	43%	39%	39%
231*	18%	25%	24%	36%	42%	40%	39%	35%	29%	30%
241, 242									100%	50%
262	0%	0%	67%	0%	33%	0%	20%	20%	0%	67%
Statewide	**25%**	**27%**	**29%**	**32%**	**29%**	**26%**	**35%**	**32%**	**30%**	**29%**

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

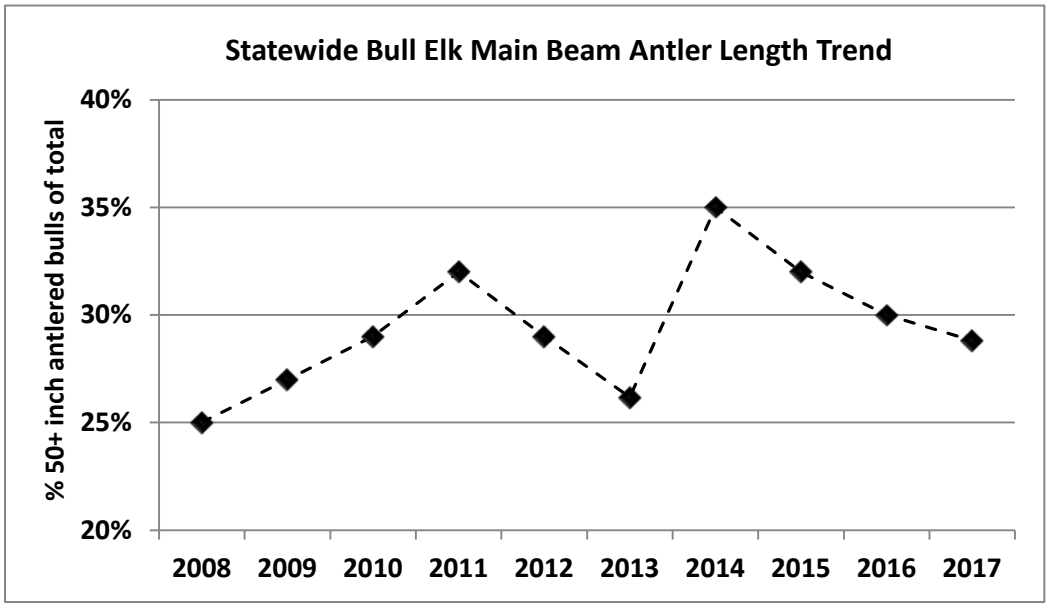


TABLE 13. 2017 BIGHORN SHEEP AND MOUNTAIN GOAT HUNT RESULTS

Unit Group	Apps	Tag Quota	Tags* for Hunt	Demand	% Returns	# Succ. Hunters	% Hunter Success	Avg Age	160+
RESIDENT PARTNERSHIP IN WILDLIFE (PIW) DESERT BIGHORN RAM HUNT 3000									
Statewide	2,688	1	1	2,688 to 1	100%	1	100%		
HERITAGE DESERT BIGHORN RAM HUNT 3100 and 3200									
Statewide		2	2		100%	2	100%		
SILVER STATE DESERT BIGHORN RAM HUNT 3300									
Statewide	4,976	1	1	4,976 to 1	100%	1	100%		
DREAM DESERT BIGHORN RAM HUNT 3500									
Statewide		1	1		100%	1	100%		
RESIDENT DESERT BIGHORN RAM HUNT 3151									
044, 182	409	12	12	35 to 1	100%	12	100%	5.8	6
045, 153 Early	144	4	4	36 to 1	100%	4	100%	6.3	
045, 153 Late	53	4	4	14 to 1	100%	4	100%	5.7	
131, 164	78	4	4	20 to 1	100%	2	50%	6.5	1
132	38	3	3	13 to 1	100%	3	100%	5.0	
133, 245	20	4	4	5 to 1	100%	3	75%	5.3	1
134	34	5	5	7 to 1	80%	3	60%	7.0	1
161 Early	113	5	5	23 to 1	100%	4	80%	5.3	1
161 Late	53	3	3	18 to 1	100%	3	100%	6.0	
162, 163	158	9	7	18 to 1	100%	7	100%	5.5	2
173	74	5	5	15 to 1	100%	4	80%	5.0	2
181	634	16	16	40 to 1	100%	16	100%	7.3	8
183	332	14	14	24 to 1	100%	14	100%	6.0	7
184	113	4	4	29 to 1	100%	3	75%	4.1	
202	158	6	6	27 to 1	100%	6	100%	5.3	
204	26	1	0	26 to 1	0%				
205	254	15	14	17 to 1	100%	14	100%	6.1	8
206, 208	66	7	7	10 to 1	100%	6	86%	6.5	
207	80	10	10	8 to 1	100%	10	100%	5.0	1
211	87	10	9	9 to 1	100%	8	89%	6.7	3
212 Early	114	7	5	17 to 1	100%	5	100%	7.2	
212 Late	50	6	6	9 to 1	100%	6	100%	7.4	
213 Early	90	8	8	12 to 1	100%	8	100%	5.7	
213 Late	42	8	8	6 to 1	100%	8	100%	5.6	
223, 241, 221	65	4	2	17 to 1	100%	2	100%	7.0	1
241	22	3	3	8 to 1	100%	3	100%	5.7	2
243	46	4	4	12 to 1	100%	1	25%	6.0	
244	71	6	6	12 to 1	100%	6	100%	7.8	4
252	175	8	8	22 to 1	100%	8	100%	6.1	1
253	1,723	6	6	288 to 1	100%	6	100%	7.3	5

TABLE 13. 2017 BIGHORN SHEEP AND MOUNTAIN GOAT HUNT RESULTS

Unit Group	Apps	Tag Quota	Tags* for Hunt	Demand	% Returns	# Succ. Hunters	% Hunter Success	Avg Age	160+
254	52	3	3	18 to 1	100%	2	67%	5.5	
261	62	5	5	13 to 1	100%	5	100%	6.8	2
262	201	5	5	41 to 1	100%	4	80%	8.4	5
263	336	9	9	38 to 1	100%	8	89%	8.3	7
264, 265	80	5	3	16 to 1	100%	2	67%	7.5	
266	66	1	1	66 to 1	100%	0	0%		
267	182	8	7	23 to 1	100%	7	100%	7.1	4
268	1,649	22	22	75 to 1	100%	22	100%	7.6	14
271, 242	150	10	10	15 to 1	100%	10	100%	7.8	7
272	53	2	2	27 to 1	100%	2	100%	7.5	2
280	36	3	3	12 to 1	100%	3	100%	9.7	2
281	62	7	7	9 to 1	100%	6	86%	7.7	3
282	109	5	4	22 to 1	100%	4	100%	8.3	4
283, 284	51	6	6	9 to 1	100%	6	100%	7.4	2
286	58	3	3	20 to 1	100%	3	100%	8.0	2
TOTAL	**8,469**	**295**	**282**	**29 to 1**	**100%**	**263**	**93%**		**108**

*There were 13 tagholders across all units that returned their tag too late to be reissued to an alternate (Tags for Hunt)

NONRESIDENT DESERT BIGHORN RAM HUNT 3251

044, 182	274	2	2	137 to 1	100%	2	100%	5.8	6
161	176	2	2	88 to 1	100%	2	100%	5.7	1
173	83	1	1	83 to 1	100%	1	100%	5.0	2
181**	629	2	2	315 to 1	100%	2	100%	7.3	8
183	203	2	2	102 to 1	100%	2	100%	6.0	7
184	59	1	1	59 to 1	100%	1	100%	4.1	
205	222	2	2	111 to 1	100%	2	100%	6.1	8
207	135	2	2	68 to 1	100%	2	100%	5.0	1
211	178	2	2	89 to 1	100%	2	100%	6.7	3
212 Early	165	1	1	165 to 1	100%	1	100%	7.2	
212 Late	151	2	2	76 to 1	100%	2	100%	7.4	
213 Early	109	2	2	55 to 1	100%	2	100%	5.7	
213 Late	119	2	2	60 to 1	100%	2	100%	5.6	
261	54	1	1	54 to 1	100%	1	100%	6.8	2
262	381	1	1	381 to 1	100%	1	100%	8.4	5
263	886	1	1	886 to 1	100%	1	100%	8.3	7
267	436	1	1	436 to 1	100%	1	100%	7.1	4
268	4,043	4	4	1,011 to 1	100%	4	100%	7.6	14
242*, 271	455	2	2	228 to 1	100%	2	100%	7.8	7
283, 284	88	1	1	88 to 1	100%	1	100%	7.4	2
TOTAL	**8,846**	**34**	**34**	**261 to 1**	**100%**	**34**	**100%**		

TABLE 13. 2017 BIGHORN SHEEP AND MOUNTAIN GOAT HUNT RESULTS

Unit Group	Apps	Tag Quota	Tags* for Hunt	Demand	% Returns	# Succ. Hunters	% Hunter Success	Avg Age	160+
RESIDENT DESERT BIGHORN EWE HUNT 3181									
212	116	31	31	4 to 1	100%	16	52%		
213	88	45	45	2 to 1	100%	30	67%		
253	59	18	18	4 to 1	94%	10	56%		
268	173	40	40	5 to 1	98%	27	68%		
TOTAL	**436**	**134**	**134**	**4 to 1**	**99%**	**83**	**62%**		
There were 17 tagholders across all units that retained their tags but did not hunt									
NONRESIDENT DESERT BIGHORN EWE HUNT 3281									
212	35	3	3	12 to 1	100%	2	67%		
213	21	5	5	5 to 1	100%	5	100%		
253	5	2	2	3 to 1	100%	2	100%		
268	35	5	4	7 to 1	100%	2	50%		
TOTAL	**96**	**15**	**14**	**7 to 1**	**100%**	**11**	**79%**		
RESIDENT PARTNERSHIP IN WILDLIFE (PIW) CALIFORNIA BIGHORN RAM HUNT 8000									
Statewide	2,499	1	1	2,499 to 1	100%	1	100%		
HERITAGE CALIFORNIA BIGHORN RAM HUNT 8100 & 8200									
Statewide		1	1		100%	1	100%		
DREAM CALIFORNIA BIGHORN RAM HUNT 8500									
Statewide		1	1	0 to 1	100%	1	100%		
RESIDENT CALIFORNIA BIGHORN RAM HUNT 8151									
012	481	3	3	161 to 1	100%	3	100%	7.3	
014	178	3	3	60 to 1	100%	2	67%	7.0	
021, 022	431	3	3	144 to 1	100%	2	67%	6.5	1
031	1,334	4	4	334 to 1	100%	4	100%	7.0	2
032	1,748	12	12	146 to 1	100%	12	100%	6.4	1
033	146	2	2	73 to 1	100%	2	100%	7.0	1
034	576	8	8	72 to 1	100%	8	100%	7.8	
035	259	3	3	87 to 1	100%	3	100%	6.8	
041	534	1	1	534 to 1	100%	1	100%	5.0	1
051	345	4	4	87 to 1	100%	4	100%	6.6	2
066	131	1	1	131 to 1	100%	0	0%		
068	547	5	5	110 to 1	100%	5	100%	5.8	1
TOTAL	**6,710**	**49**	**49**	**137 to 1**	**100%**	**46**	**94%**		**9**

TABLE 13. 2017 BIGHORN SHEEP AND MOUNTAIN GOAT HUNT RESULTS

Unit Group	Apps	Tag Quota	Tags* for Hunt	Demand	% Returns	# Succ. Hunters	% Hunter Success	Avg Age	160+
NONRESIDENT CALIFORNIA BIGHORN RAM HUNT 8251									
012	810	1	1	810 to 1	100%	1	100%	7.3	
032	5,464	2	2	2,732 to 1	100%	2	100%	6.4	1
034	698	1	1	698 to 1	0%	0	0%	7.8	
035	603	1	1	603 to 1	100%	1	100%	6.8	
TOTAL	**7,575**	**5**	**5**	**1,515 to 1**	**80%**	**4**	**80%**		
RESIDENT CALIFORNIA BIGHORN EWE HUNT 8181									
Statewide	252	2	2	126 to 1	50%	2	100%		

RESIDENT ROCKY MOUNTAIN BIGHORN RAM HUNT 9151								**Avg Age**	**170+**
091	1,698	1	1	1,698 to 1	100%	1	100%	9.0	
114 Early	1,595	2	2	798 to 1	100%	1	50%	8.0	
114 Late	456	2	2	228 to 1	50%	1	50%	6.0	
115	509	1	1	509 to 1	0%		0%		
TOTAL	**4,258**	**6**	**6**	**710 to 1**	**67%**	**3**	**50%**		**0**

RESIDENT MOUNTAIN GOAT HUNT 7151

Unit Group	Apps	Tag Quota	Tags* for Hunt	Demand	% Returns	# Succ. Hunters	% Hunter Success	% Male Harvest
101	1,671	1	1	1,671 to 1	100%	1	100%	100%
102	2,347	6	6	392 to 1	100%	5	83%	40%
103	671	1	1	671 to 1	100%	1	100%	100%
TOTAL	**4,689**	**8**	**8**	**587 to 1**	**100%**	**7**	**88%**	**57%**

NONRESIDENT MOUNTAIN GOAT HUNT 7251

102	3,834	1	1	3,834 to 1	100%	0	0%	--

Apps - # of unsuccessful 1st choice applicants plus successful 1st - 5th choice applicants for given group

Tags for Hunt - Available tags at season opener - accounts for tags returned for any reason and alternate tags issued

Demand - # of "Apps" for every one tag sold (i.e., 4 to 1 means 4 applicants applied in Main Draw for every 1 tag sold)

% Return - Percent of hunter questionnaires received compared to total tags available

% Hunter Success - based on # of successful hunters divided by Tags for Hunt (includes did not hunts)

Avg Age - Average age of rams from all tagholders for given unit group and season including residents and nonresidents.

160+/170+ - # of rams scoring 160+ B&C points for Desert and California and 170+ for Rocky Mountain subspecies from all tagholders (resident and nonresident) for given unit group.

TABLE 14. BIGHORN SHEEP RAM HARVEST HISTORY

Year/ Unit Group	# Tags Issued	Percent Success	Average Days Hunted	Average Age	Average B&C Score	Maximum B&C Score
DESERT BIGHORN BY YEAR						
1998	115	83%	7.3	5.8	152 1/8	172
1999	127	92%	5.8	6.0	147 4/8	179 2/8
2000	132	86%	5.9	6.3	147 4/8	173 2/8
2001	143	86%	5.8	6.2	150 5/8	178 2/8
2002	140	80%	6.4	6.3	148 4/8	183 2/8
2003	133	90%	6.2	6.4	150 7/8	173
2004	138	92%	6.1	6.1	150 3/8	174 6/8
2005	149	91%	4.7	6.5	153 1/8	176 5/8
2006	154	92%	5.5	6.7	152 3/8	177 6/8
2007	172	87%	6.1	6.4	149 5/8	172 7/8
2008*	173	88%	5.8	6.3	152 3/8	178 5/8
2009*	193	89%	5.2	6.2	153 4/8	177 4/8
2010*	216	86%	5.7	6.5	154 1/8	189 6/8
2011*	222	87%	4.9	6.6	153 6/8	181 6/8
2012	281	86%	5.7	6.5	154	182 2/8
2013	275	91%	5.8	6.3	153 2/8	182 3/8
2014	287	89%	4.6	6.4	152 2/8	183 3/8
2015	307	93%	4.7	6.4	152 5/8	182
2016	311	92%	4.4	6.5	153 6/8	182 7/8
2017	334	90%	4.5	6.7	154 4/8	178 7/8
Total/Avg	**4,605**	**87%**	**5.7**	**6.4**	**151 7/8**	**189 6/8**

* Includes Rocky Mtn Rams harvested in Unit 131

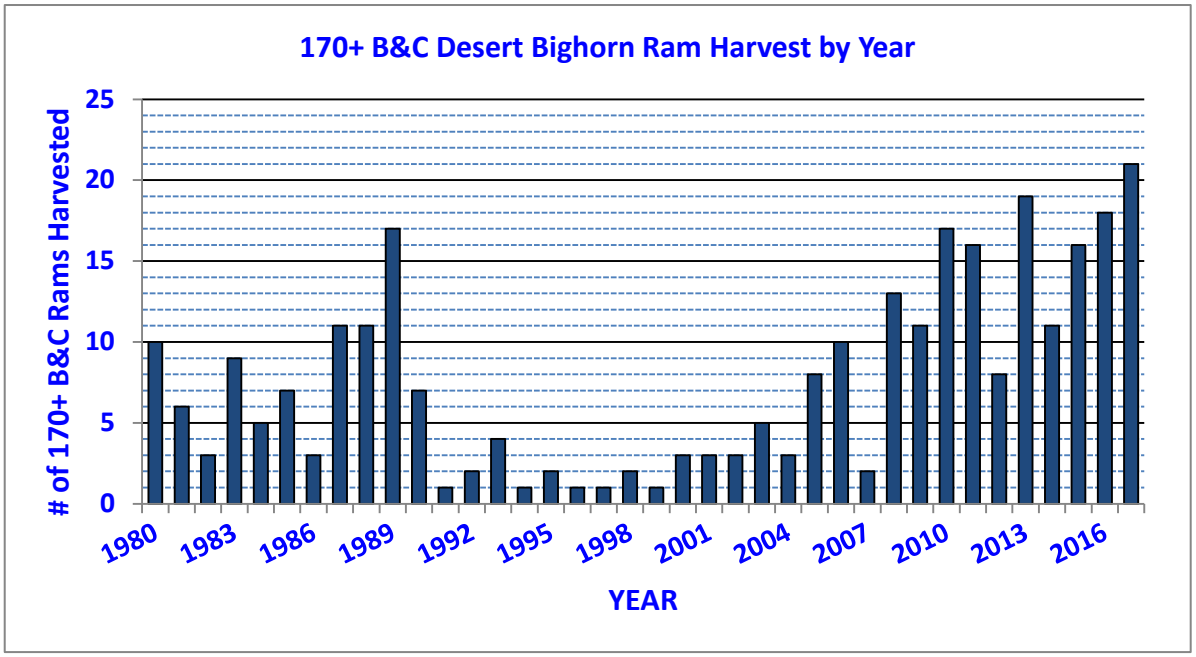


TABLE 14. BIGHORN SHEEP RAM HARVEST HISTORY

Year/ Unit Group	# Tags Issued	Percent Success	Average Days Hunted	Average Age	Average B&C Score	Maximum B&C Score
DESERT BIGHORN BY UNIT GROUP 2007 - 2017						
044, 182	105	91%	4.4	5.6	148 6/8	172 7/8
045, 153	35	94%	6.7	5.9	149 5/8	165 6/8
131*, 164*	48	90%	6.3	5.8	147 2/8	189 6/8
132	15	93%	6.6	5.9	148 4/8	165 7/8
133, 245	36	72%	6.3	6.1	150 5/8	165 7/8
134	54	80%	5.6	5.6	149 4/8	161 5/8
161	124	87%	5.4	6.1	152 4/8	172 7/8
162, 163	60	90%	3.9	5.7	151 2/8	167
173	60	85%	5.4	6.2	149 4/8	175 3/8
181	124	94%	4.7	6.9	157 6/8	172
183	110	98%	3.6	6.0	154 2/8	170 2/8
184	59	80%	5.9	5.4	143 7/8	164
202	38	92%	2.4	5.8	149 3/8	165
204	13	85%	5.3	5.4	143 2/8	163 4/8
205	102	89%	5.4	6.3	153 2/8	177 2/8
206, 208	42	81%	6.4	6.4	148 7/8	164 6/8
207	88	95%	4.5	5.5	146 5/8	164 7/8
211	86	92%	4.8	6.6	147 3/8	171 1/8
212	106	94%	3.5	7.1	149 3/8	167 5/8
213	127	92%	3.2	6.0	140 4/8	159 3/8
221	4	100%	3.8	6.0	149 3/8	158
223, 241	30	70%	7.7	6.0	152 5/8	175 6/8
241	17	65%	10.1	5.7	152 4/8	176 5/8
243	37	51%	8.0	6.4	152 1/8	182 3/8
244	46	89%	6.9	7.5	156 5/8	175 6/8
252	75	95%	5.7	6.8	159 6/8	179 2/8
253	84	99%	4.0	7.3	166 2/8	181 7/8
254	28	86%	6.2	6.9	150 6/8	167 6/8
261	67	85%	5.6	7.1	150 4/8	168 3/8
262	67	87%	5.4	7.3	160 6/8	178 7/8
263	103	95%	6.3	6.7	160 5/8	181 1/8
264, 265	48	90%	5.5	6.3	152 2/8	169 3/8
266	35	91%	4.8	6.0	151 4/8	174 2/8
267	77	97%	3.6	6.7	157 4/8	181 6/8
268	261	95%	4.2	6.8	157 3/8	183 3/8
271	106	92%	5.3	6.8	154 5/8	175 4/8
272	26	58%	10.4	5.5	152 1/8	176 2/8
280	36	56%	5.7	8.2	155 1/8	167 6/8
281	55	85%	4.7	7.3	154 3/8	169 7/8
282	42	83%	6.0	6.8	158 5/8	176

TABLE 14. BIGHORN SHEEP RAM HARVEST HISTORY

Year/ Unit Group	# Tags Issued	Percent Success	Average Days Hunted	Average Age	Average B&C Score	Maximum B&C Score
283, 284	66	76%	8.3	6.6	155 4/8	171 2/8
286	28	89%	5.6	6.0	154 6/8	182 7/8

* Includes Rocky Mtn or possible hybrid Desert/Rocky Rams

ROCKY MOUNTAIN BIGHORN BY YEAR

1998	5	100%	1.4	7.6	169 6/8	176 2/8
1999	5	100%	6.4	7.4	159	176
2000	4	100%	4.3	7.5	164 2/8	173 3/8
2001	3	67%	5.7	6.0	174 2/8	178 1/8
2002	3	100%	3.0	6.7	167 6/8	183 1/8
2003	6	100%	4.7	6.8	168 1/8	183 4/8
2004	6	83%	3.2	8.0	176 7/8	189 4/8
2005	6	83%	8.5	7.4	174 5/8	178 2/8
2006	6	83%	2.7	7.0	170 1/8	190 5/8
2007	9	100%	3.2	6.1	172	190 5/8
2008	13	92%	6.4	6.8	169 4/8	191 5/8
2009	11	100%	3.8	7.9	172 2/8	195 4/8
2010	4	100%	3.0	5.8	153 6/8	160 1/8
2011	5	60%	8.0	7.7	159 5/8	167 2/8
2012	8	88%	5.1	7.0	158	174 7/8
2013	7	100%	6.3	6.6	153 3/8	170
2014	5	80%	12.0	7.0	150	154 6/8
2015	4	25%	12.0	7.0	146 5/8	146 5/8
2016	5	40%	11.6	5.5	151 5/8	155 6/8
2017	6	67%	12.7	7.0	166 3/8	167 6/8
Total/Avg	121	85%	6.0	7.1	165 4/8	195 4/8

ROCKY MOUNTAIN BIGHORN BY UNIT GROUP 2007-2017

074	17	100%	2.9	6.6	157 5/8	176 7/8
091	5	100%	6.6	8.0	157 1/8	169 3/8
114	25	60%	11.5	6.2	153	170
115	7	71%	10.0	8.0	157 7/8	172 5/8

TABLE 14. BIGHORN SHEEP RAM HARVEST HISTORY

Year/ Unit Group	# Tags Issued	Percent Success	Average Days Hunted	Average Age	Average B&C Score	Maximum B&C Score
CALIFORNIA BIGHORN BY YEAR						
1998	41	78%	6.1	6.8	149 6/8	167
1999	47	77%	6.8	6.2	144 6/8	167 2/8
2000	43	91%	5.5	6.9	145 5/8	166 5/8
2001	37	92%	5.0	7.4	148 5/8	184 7/8
2002	41	83%	5.8	6.4	146 3/8	165 7/8
2003	39	87%	6.1	6.8	148 6/8	168 7/8
2004	35	91%	5.7	7.3	152 2/8	166
2005	39	90%	7.1	6.6	149 5/8	167 1/8
2006	42	88%	7.3	6.8	151 5/8	171 3/8
2007	43	100%	6.4	6.8	147 4/8	165 2/8
2008	42	95%	6.1	7.1	152 3/8	172 4/8
2009	48	98%	7.0	7.3	155 3/8	169 6/8
2010	52	100%	6.4	7.4	156	175 1/8
2011	57	95%	6.2	7.0	153 6/8	173 2/8
2012	59	90%	6.1	7.0	149	169 4/8
2013	67	91%	6.4	7.2	153 5/8	171 7/8
2014	66	88%	6.1	7.0	153 1/8	174
2015	63	89%	5.3	6.8	153	172 7/8
2016	57	95%	6.7	6.8	152 1/8	172 3/8
2017	57	93%	8.6	6.7	151 1/8	177 4/8
Total/Avg	975	91%	6.4	6.9	151 1/8	184 7/8
CALIFORNIA BIGHORN BY UNIT GROUP 2007-2017						
012	95	85%	7.3	7.3	152 1/8	169 7/8
014	35	91%	5.9	6.5	144 1/8	166 2/8
021, 022	30	93%	6.2	6.4	151 5/8	166 6/8
031	80	99%	4.0	7.3	158 5/8	173 4/8
032	108	99%	5.3	7.4	155 2/8	175 1/8
033	44	86%	9.0	7.1	149	166 2/8
034	93	95%	5.9	7.5	153 3/8	172 4/8
035	32	88%	6.9	6.8	148 3/8	168 7/8
041	3	100%	7.0	8.3	167 7/8	172 3/8
051	30	97%	10.9	6.5	152	177 4/8
066	19	84%	7.6	6.9	154 1/8	167 7/8
068	43	100%	7.4	5.4	145	165 4/8

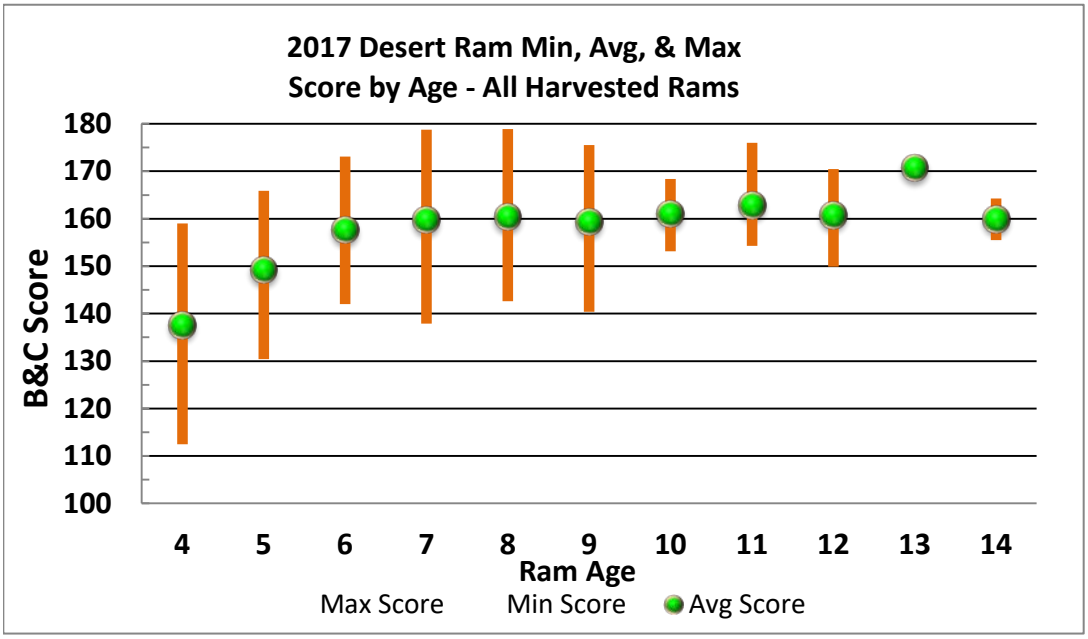
TABLE 15. BIGHORN SHEEP RAM HARVEST AVERAGE AGE TRENDS 2010 - 2017

Unit Group	2010	2011	2012	2013	2014	2015	2016	2017
DESERT BIGHORN								
044, 182	6.0	5.8	5.1	5.1	5.4	6.0	5.5	5.8
045, 153	6.0	5.5	8.0	4.3	6.6	5.4	5.5	6.1
131, 164	6.2	5.3	4.8	6.4	4.8	5.8	5.3	6.5
132	7.0	6.0	7.5	5.7	5.0		6.0	5.0
133, 245	9.0	7.0	5.0	5.7	4.0	6.0	8.0	5.3
134	6.4	4.5	4.6	5.3	5.5	5.3	6.6	7.0
161	7.2	5.6	6.0	4.8	5.4	5.3	5.3	5.7
162, 163	6.0	5.8	5.4	4.0	4.7	6.1	5.9	5.5
173	6.8	6.0	6.3	8.8	5.5	7.0	4.8	5.0
181	5.8	7.3	7.3	7.1	7.0	7.1	6.6	7.3
183	6.3	6.5	5.8	5.6	5.5	6.1	6.6	6.0
184	5.7	5.8	4.5	7.0	6.0	3.6	5.0	4.1
202, 204	5.6	6.5	6.5	5.5	5.4	6.0	6.2	5.3
205	7.2	7.0	6.0	6.0	6.2	6.0	7.2	6.1
206, 208	9.5	4.5	6.5	6.7	6.8	6.4	5.0	6.5
207	5.3	5.8	5.6	4.6	6.2	6.6	5.3	5.0
211	8.0	7.0	6.6	5.4	6.9	6.0	6.3	6.7
212	7.0	7.2	7.2	7.2	7.1	6.6	7.0	7.3
213	6.4	5.7	6.4	5.7	5.9	6.3	6.4	5.6
223, 241	6.7	7.3	6.7	4.0		6.5	5.3	7.0
241	6.0		3.0		9.0	5.5	5.7	5.7
243	9.0		8.0	6.3	5.5	6.0	6.3	6.0
244	8.8	10.3	5.7	6.0	6.6	8.3	8.0	7.8
252	6.2	6.8	6.4	6.6	8.1	7.3	7.6	6.1
253	6.6	7.7	8.4	8.0	7.0	7.6	6.6	7.3
254		6.3	8.0	5.0	5.5	7.0	7.3	5.5
261	6.4	7.8	7.1	7.9	7.2	7.2	6.0	6.8
262	7.0	7.6	8.5	7.8	7.3	7.5	6.7	8.4
263	7.8	7.3	6.8	5.8	6.9	6.3	6.3	8.3
264, 265	5.3	7.5	6.0	6.5	6.8	5.5	6.8	7.5
266	6.0	7.3	5.8	6.0	6.0	7.0		
267	5.3	6.8	7.5	7.0	5.9	7.4	6.7	7.1
268	5.9	7.2	6.8	6.9	6.8	6.1	7.3	7.6
271, 242	6.1	6.6	6.8	7.5	6.4	7.9	7.6	7.8
272	6.0	2.0	8.0	8.0	5.0	3.0		7.5
280	9.5	3.5	7.0	6.5	13.0	6.0	9.0	9.7
281	7.0	6.4	8.3	7.3	7.6	7.0	6.4	7.7
282	5.0	7.5	7.6	6.8	7.0	6.0	7.5	8.3
283, 284	6.0	5.5	7.0	6.1	5.5	7.3	8.0	7.4
286	6.0	7.5	5.0	5.0	8.0	5.5	7.0	8.0

TABLE 15. BIGHORN SHEEP RAM HARVEST AVERAGE AGE TRENDS 2010 - 2017

Unit Group	2010	2011	2012	2013	2014	2015	2016	2017

Cells are gray if average age fell below 6.0, the statewide harvest objective



CALIFORNIA BIGHORN

Unit Group	2010	2011	2012	2013	2014	2015	2016	2017
014	10.0	6.7	5.3	6.8	5.8	5.4	7.7	7.0
021, 022	6.0	5.0	6.7	6.3	6.5	7.3	6.0	6.5
031	7.2	7.6	7.4	7.6	7.4	7.0	7.8	7.0
032	7.5	7.1	8.8	7.8	7.6	6.9	7.4	6.4
033	7.8	7.8	6.2	6.0	6.0	10.0	4.0	7.0
034	7.0	7.3	7.7	7.8	7.9	7.2	6.4	7.8
035	9.0	6.5	5.0	9.0	7.0	6.0	6.4	6.8
041						11.0	9.0	5.0
051	3.0	10.0	7.5	7.0	5.3	6.0	6.8	6.6
066						6.0	6.0	
066, 068	6.6	6.5						
068			3.5	5.2	4.6	6.8	6.0	5.8

Cells are gray if average age fell below 6.0, the statewide harvest objective

ROCKY MOUNTAIN BIGHORN

074	5.5	7.5	7.0	5.3	7.0			
091			9.0	6.0		7.0		9.0
114	6.0		2.0	6.5	6.0		6.0	6.3
115		8.0	8.0	11.0	8.0		5.0	

TABLE 16. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2002 - 2017

Year	Harvest	Average Age	Average Left Horn	Average Right Horn	Average Days Hunted
Unit 101 - East Humboldt Range					
2002	7	4.6	8.4	8.6	2.1
2003	8	3.5	8.6	8.6	1.9
2004	6	2.7	8.3	8.3	1.6
2005	5	3.0	7.9	7.9	2.2
2006	5	4.5	8.1	7.9	2.0
2007	5	4.8	8.8	8.9	1.8
2008	5	5.0	9.1	9.1	2.8
2009	7	7.0	9.2	9.3	1.7
2010	6	6.8	8.2	7.8	3.8
2011	3	3.0	8.3	8.3	2.0
2012	2	5.5	8.3	8.2	3.0
2013	1	4.0	8.3	8.4	5.0
2014	5	7.0	8.4	8.5	1.8
2015	6	6.2	8.0	8.2	2.2
2016	3	5.3	8.2	7.8	10.5
2017	1	7.0	9.4	9.3	1.0
5-Year Avg.	**3**	**6.2**	**8.3**	**8.3**	**4.3**
Long-term Avg.	**5**	**4.9**	**8.5**	**8.4**	**2.8**
Unit 102 - Ruby Mountains					
2002	11	5.1	9.1	9.0	2.9
2003	13	5.0	9.1	9.2	5.2
2004	12	5.3	8.6	8.9	5.1
2005	18	4.6	8.7	8.6	2.6
2006	18	4.0	8.5	8.7	3.9
2007	22	4.9	9.0	8.9	2.6
2008	21	3.9	8.6	8.4	4.4
2009	20	4.5	8.7	8.8	3.4
2010	13	5.6	8.6	8.9	3.9
2011	7	4.9	8.8	8.9	3.3
2012	3	4.7	8.4	8.6	6.7
2013	4	6.3	8.5	7.3	4.0
2014	6	5.5	8.6	7.0	3.2
2015	5	5.0	8.1	8.8	7.4
2016	7	6.1	8.8	9.1	5.4
2017	5	4.8	8.7	8.3	8.3
5-Year Avg.	**5**	**5.6**	**8.6**	**8.1**	**5.8**
Long-term Avg.	**12**	**4.8**	**8.7**	**8.7**	**4.2**

TABLE 16. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2002 - 2017

Unit 103 - Pearl Peak Area, Southern Ruby Mountains

Year	Harvest	Average Age	Average Left Horn	Average Right Horn	Average Days Hunted
2002	1	4.0	7.6	7.5	4.0
2003	1	2.0	7.8	7.5	2.0
2004	1	4.0	9.3	9.5	4.0
2005	1	5.0	7.0	9.0	1.0
2006	2	7.0	9.4	8.9	3.5
2007	2	4.5	9.0	8.9	3.0
2008	1	3.0	9.0	9.3	7.0
2009	1	8.0	9.3	9.3	3.0
2010	1	3.0	9.3	8.9	6.0
2011	1	5.0	9.0	9.0	3.0
2012	1	6.0	9.9	9.9	7.0
2013	1	5.0	9.0	9.3	2.0
2014	1	6.0	9.4	8.3	2.0
2015	1	2.0	7.3	7.5	6.0
2016	1	6.0	8.5	8.1	6.0
2017	1	2.0	8.5	9.0	2.0
5-Year Avg.	**1**	**4.4**	**8.4**	**8.5**	**6.2**
Long-term Avg.	**1**	**4.7**	**8.7**	**8.8**	**4.5**

ALL UNITS

Year	Hunter Success	# of Tags	Harvest	# of Billies	# of Nannies	% Nannies
2002	78%	23	19	18	1	5%
2003	96%	23	22	19	3	14%
2004	83%	24	20	17	3	15%
2005	85%	28	24	22	2	8%
2006	90%	29	26	23	3	12%
2007	100%	29	29	23	6	21%
2008	93%	29	27	21	6	22%
2009	96%	28	27	19	8	30%
2010	100%	20	20	12	8	40%
2011	100%	11	11	8	3	27%
2012	100%	6	6	4	2	33%
2013	86%	7	6	4	2	33%
2014	100%	12	12	9	3	25%
2015	100%	12	12	11	1	8%
2016	85%	13	11	8	3	27%
2017	78%	9	7	4	3	43%
Total/Avg.	**92%**	**303**	**279**	**222**	**57**	**20%**

TABLE 17. 2017 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 6151									
Statewide	2,449	45	40	55 to 1	38	95%	7	12	32%
NONRESIDENT BLACK BEAR HUNT 6251									
Statewide	149	5	3	30 to 1	3	100%	1	1	33%

BLACK BEAR HARVEST RESULTS

Year	Gender	Harvest	Mean Age	3-yr Average Age	Average Days Hunted by Successful Tagholders
2017	Males	9	4.9	6.6	6.8
	Females	4	7.8	6.4	

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
194	5	1	6
196	0	0	0
201	1	0	1
204	0	1	1
291	3	2	5
TOTAL	9	4	**13**

TABLE 18. FALL 2017 AND SPRING 2018 MULE DEER SURVEY COMPOSITION

UNIT GROUP	2017 FALL TOTAL	2017 Bucks: 100 Does	2017 Fawns: 100 Does	2017 Fawns: 100 Adults	2018 Spring TOTAL	2018 Fawns: 100 Adults	*Spring 2017 Fawns: 100 Adults*
011 - 013, 033	465	39	58	**42**	274	**38**	***36***
014	196	31	51	**39**	151	**41**	***32***
015	--	--	--	**--**	306	**42**	***40***
021	--	--	--	**--**	450	**43**	***36***
022	--	--	--	**--**	65	**35**	***41***
031	300	31	62	**47**	493	**49**	***39***
032	92	22	36	**30**	100	**45**	***43***
034	96	40	44	**32**	80	**43**	***51***
035	185	34	61	**46**	300	**40**	***35***
041, 042	--	--	--	**--**	--	**--**	***--***
043 - 046	569	23	39	**31**	569	**30**	***41***
051	702	33	43	**32**	414	**39**	***43***
061,062,064, 066-068	--	--	--	**--**	3,897	**36**	***28***
065	406	31	46	**35**	--	**--**	***--***
071 - 079, 091	5,445	26	35	**28**	1,637	**27**	***20***
081	--	--	--	**--**	--	**--**	--
101 - 109	4,546	38	48	**35**	4,401	**35**	***26***
111 - 113	2,402	32	44	**33**	2,352	**30**	***31***
114 - 115	579	46	45	**31**	367	**29**	***36***
121	--	--	--	**--**	1,534	**38**	***33***
131 - 134	833	35	53	**39**	--	**--**	***39***
141 - 145	1,592	32	52	**39**	1,880	**39**	***40***
151, 152, 154-156	1,292	33	50	**38**	1,501	**32**	***31***
161 - 164	1,061	32	49	**37**	735	**31**	***32***
171 - 173	1,232	36	53	**39**	510	**28**	***33***
181 - 184	--	--	--	**--**	--	**--**	***33***
192	102	24	38	**31**	115	**47**	***41***
194, 196	383	37	57	**41**	633	**45**	***46***
195	--	--	--	**--**	--	**--**	--
201 - 206	--	--	--	**--**	--	**--**	***--***
203	--	--	--	**--**	--	**--**	--
211, 212	--	--	--	**--**	--	**--**	--
221 - 223	1,413	39	42	**30**	--	**--**	***35***
231	1,323	26	41	**32**	--	**--**	***40***
241 - 244	470	47	52	**35**	--	**--**	***--***
251 - 253	--	--	--	**--**	--	**--**	--
261 - 268	--	--	--	**--**	--	**--**	--
271, 272	--	--	--	**--**	--	**--**	--
291	--	--	--	**--**	--	**--**	--
2017-18 TOTALS	**25,684**	**33**	**45**	**34**	**22,764**	**35**	
2016-17 TOTALS	*31,771*	*30*	*48*	*37*	*31,646*		*31*

Spring fawn/100 adults ratios that are higher than its fall ratio are assumed to be biased high.

Units with (--) were not surveyed.

TABLE 19. LATE SUMMER/FALL/WINTER 2017 PRONGHORN SURVEY COMPOSITION

UNIT GROUP	BUCKS	DOES	FAWNS	TOTAL	2017 BUCKS: 100 DOES	2017 FAWNS: 100 DOES	*2016 FAWNS: 100 DOES*
011	97	330	125	552	29	**38**	*40*
012 - 014	156	235	109	500	66	**46**	*52*
015	71	226	106	403	31	**47**	*53*
021 - 022	25	82	36	143	31	**44**	*40*
031	27	60	16	103	45	**27**	*20*
032, 034, 035	45	157	56	258	29	**36**	*44*
033	133	246	61	440	54	**25**	*37*
041, 042	91	221	89	401	41	**40**	*45*
043-046	71	181	75	327	39	**41**	*36*
051	46	106	46	198	43	**43**	*27*
061 - 064, 071, 073	281	446	210	937	63	**47**	*52*
065, 142, 144	108	250	129	487	43	**52**	*47*
066	*53*	*96*	*18*	167	55	**19**	*--*
067 - 068				--	--	**--**	*39*
072, 074, 075	153	348	125	626	44	**36**	*39*
076, 077, 079, 081, 091	125	275	60	460	46	**22**	*25*
078, 105 - 107, 121	208	417	156	781	50	**37**	*44*
101 - 104, 108	180	303	109	592	59	**36**	*37*
111 - 114	412	803	246	1,461	51	**31**	*45*
115, 231, 242				--	--	**--**	*30*
131, 145, 163, 164	124	336	116	576	37	**35**	*38*
132 - 134, 245	70	129	44	243	54	**34**	*33*
141, 143, 151 - 155	414	839	396	1,649	49	**47**	*48*
161, 162				--	--	**--**	*28*
171 - 173				--	--	**--**	*29*
181 - 184	86	217	24	327	40	**11**	*55*
202, 204	6	15	5	26	40	**33**	*44*
203, 291	8	22	12	42	36	**55**	*38*
205, 206	23	55	20	98	42	**36**	*39*
211 - 213				--	--	**--**	*42*
221 - 223, 241				--	--	**--**	*42*
251				--	--	**--**	*28*
2017 TOTALS	**3,013**	**6,395**	**2,389**	**11,797**	**47**	**37**	42
2016 TOTALS	*2,681*	*6,554*	*2,774*	*12,009*	*41*	*42*	39

Units with (--) were not surveyed.

TABLE 20. LATE SUMMER/FALL 2017 DESERT BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2017 Rams:100 Ewes	2017 Lambs:100 Ewes	*2016 Lambs:100 Ewes*
044, 182	83	175	70	328	47	**40**	--
045/153	14	61	30	105	23	**49**	*46*
131, 164	12	44	5	61	27	**11**	*41*
132	28	36	21	85	78	**58**	*43*
133, 245				--	--	**--**	*33*
134	22	36	10	68	61	**28**	*35*
153				--	--	**--**	--
161	108	198	81	387	55	**41**	--
162				--	--	**--**	--
163				--	--	**--**	*42*
173	9	31	13	53	29	**42**	--
181	143	207	58	408	69	**28**	*47*
183	86	143	65	294	60	**46**	*37*
184	23	77	26	126	30	**34**	*44*
195	15	22	7	44	68	**32**	*20*
202	28	69	24	121	41	**35**	*41*
204	3	13	5	21	23	**39**	*33*
205, 207	114	234	114	462	49	**49**	*51*
206, 208	20	45	23	88	44	**51**	*33*
211	89	156	49	294	57	**31**	*39*
212				--	--	**--**	*43*
213				--	--	**--**	*48*
223, 241 (Hikos)	17	52	17	86	33	**33**	*21*
241 (Delamars)	18	19	5	42	95	**26**	*13*
243	29	68	26	123	43	**38**	--
244				--	--	**--**	*38*
252	28	58	5	91	48	**9**	*10*
253				--	--	**--**	*28*
254	66	104	20	190	64	**19**	--
261				--	--	**--**	*15*
262				--	--	**--**	*13*
263				--	--	**--**	*8*
264				--	--	**--**	*6*
265				--	--	**--**	--
266	16	36	9	61	44	**25**	--
267	87	159	25	271	55	**16**	--
268	255	272	115	642	94	**42**	*43*
269 (River Mtns)				--	--	**--**	*15*
271	26	48	17	91	54	**35**	--
272	20	46	15	81	44	**33**	--
280	33	56	20	109	59	**36**	*32*
281	40	57	14	111	70	**25**	*43*
282	23	45	9	77	51	**20**	*38*
283, 284	61	108	17	186	57	**16**	*26*
286	55	123	52	230	45	**42**	*45*
2017 TOTALS	**1,571**	**2,798**	**967**	**5,336**	**56**	**35**	
2016 TOTALS	*1,701*	*3,044*	*1,022*	*5,767*	*56*	*34*	

TABLE 21. LATE SUMMER/FALL 2017 CALIFORNIA BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2017 RAMS: 100 EWES	2017 LAMBS: 100 EWES	*2016 LAMBS: 100 EWES*
011, 013	6	19	10	35	32	53	*36*
012	28	72	31	131	39	43	*51*
014	10	14	6	30	71	43	*48*
021, 022	8	10	8	26	80	80	*35*
031	16	53	24	93	30	45	56
032	48	50	17	115	96	34	55
033	9	51	23	83	18	45	39
034	11	111	44	166	10	40	46
035	12	55	21	88	22	38	80
041	10	9	6	25	111	67	44
051	26	87	30	143	30	35	28
066	*11*	*15*	*6*	*32*	73	40	*21*
068	61	64	19	144	95	30	*29*
2017 TOTALS	**256**	**610**	**245**	**1111**	**42**	**40**	
2016 TOTALS	*230*	*528*	*236*	994	44	45	

TABLE 22. SUMMER/WINTER/EARLY SPRING 2017- 2018 ROCKY MOUNTAIN BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2017-18 RAMS: 100 EWES	2017-18 LAMBS: 100 EWES	*2016-17 LAMBS: 100 EWES*
074	11	12	3	26	92	25	*36*
091				--	--	--	*8*
101	*3*	*10*	*3*	16	30	30	--
102	*8*	*9*	*7*	24	89	78	--
114	12	14	7	33	86	50	*29*
115	4	19	6	29	21	32	*55*
2017-18 TOTALS	**38**	**64**	**26**	**128**	**59**	**41**	
2016-17 TOTALS	*29*	*52*	*16*	*97*	*56*	*31*	

Units with (--) were not surveyed.

TABLE 23. AUGUST 2017 MOUNTAIN GOAT SURVEY COMPOSITION

UNIT GROUP	ADULTS	KIDS	TOTAL	2018 KIDS/ 100 ADULTS	*2017* KIDS/ 100 ADULTS
101	40	14	54	35	8
102			--	--	19
103			--	--	--
2018 TOTALS	**40**	**14**	**54**	**35**	
2017 TOTALS	*118*	*18*	*136*	*15*	

TABLE 24. FALL/WINTER 2017 - 2018 ROCKY MOUNTAIN ELK SURVEY COMPOSITION

UNIT GROUP	BULLS	COWS	CALVES	TOTAL	2017-2018 BULLS/ 100 COWS	2017-2018 CALVES/ 100 COWS	*2016-2017 CALVES/ 100 COWS*
051	9	17	12	38	53	71	*59*
061, 071	377	1,372	598	2,347	28	44	*37*
062, 064, 066-068	139	334	181	654	42	54	*42*
065	8	12	7	27	67	58	*38*
072, 074	511	266	112	889	192	42	*33*
073	11	31	17	59	36	55	*29*
075	54	55	27	136	98	49	*46*
076, 077, 079, 081				--	--	--	*40*
078,104, 105-107	78	124	41	243	63	33	*46*
091				--	--	--	*51*
104,108,121	78	239	116	433	33	49	*33*
108,131 - 132	102	86	56	244	119	65	*44*
111-115, 221, 222, 223	501	1,542	516	2,559	33	34	*39*
161 - 164	77	179	65	321	43	36	*42*
171 - 173	0	2	0	2	0	0	--
231	83	61	34	178	136	56	*56*
241, 242				--	--	--	*69*
262				--	--	--	*30*
2017-2018 Totals	**2,028**	**4,320**	**1,782**	**8,130**	**47**	**41**	
2016-2017 Totals	*2,704*	*5,455*	*2,069*	10,228	50	38	

Units with (--) were not surveyed.

TABLE 25. 2018 MULE DEER POPULATION ESTIMATES

UNIT GROUP	2018 ESTIMATE*	*2017 ESTIMATE**
011 - 013	1,300	*1,200*
014	850	*900*
015**	260	*270*
021**	470	*490*
022	650	*700*
031	1,800	*1,800*
032***	1,150	*1,150*
033	430	*400*
034***	280	*290*
035	850	*850*
041, 042	750	*750*
043 - 046	2,300	*2,900*
051	2,300	*2,500*
061,062,064, 066 - 068	9,100	*9,200*
065	800	*800*
071 - 079, 091	8,500	*8,900*
081	900	*900*
101 - 108	14,800	*14,000*
111 - 113	5,000	*5,200*
114 - 115	1,400	*1,600*
121	2,700	*2,700*
131 - 134	4,700	*4,300*
141 - 145	4,500	*4,200*
151, 152 ,154, 155	2,200	*2,200*
161 - 164	4,300	*4,100*
171 - 173	4,000	*4,200*
181 - 184	1,250	*1,250*
192**	540	*420*
194, 196**	1,050	*1,000*
195	500	*500*
201, 204**	550	*600*
202, 205 - 208**	450	*500*
203	500	*600*
211, 213	400	*400*
221 - 223	4,300	*4,150*
231	3,300	*3,300*
241 - 245	1,100	*1,100*
251 - 254	400	*400*

TABLE 25. 2018 MULE DEER POPULATION ESTIMATES

261 - 268	500	*500*
271, 272	240	*240*
291	600	*600*
TOTAL	**92,000**	***92,000***
Percent Change	**0%**	

*Estimates - Values generated from computer models that reconstruct age and sex classes based on sampled herd composition, harvest data, and population demographic variables. The confidence limits around these estimates may be as high as + or - 20%.

**Estimate based on apportionment of an interstate herd

***Estimate includes deer that primarily inhabit agricultural fields

TABLE 26. 2018 ROCKY MOUNTAIN ELK POPULATION ESTIMATES

UNIT GROUP	**2018 ESTIMATE***	*2017 ESTIMATE**
051	130	180
061, 071**	1,500	1,500
062, 064, 066 - 068**	500	550
065	140	120
072, 073, 074	2,100	2,800
075	150	220
076, 077, 079, 081	1,000	1,300
078, 105 - 107, 109	340	350
091	370	400
104, 108, 121	750	700
108, 131, 132	370	330
111 - 115, 221, 222, 223	4,400	4,500
145	30	30
161 - 164	800	850
171 - 173	100	140
231	500	450
241, 242	150	150
262	180	180
TOTAL	**13,500**	*15,000*
Percent Change	**-10%**	

*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. Apportionment derived by spatial analysis of telemetry data from radio collared elk seasonally occupying Nevada, Idaho, and the Duck Valley Indian Reservation.

TABLE 27. 2018 PRONGHORN POPULATION ESTIMATES

UNIT GROUP	2018 ESTIMATE*	*2017 ESTIMATE**
011	900	850
012-014	2,000	1,700
015	950	850
021, 022	650	550
031	1,500	1,500
032, 034, 035	2,000	2,000
033**	1,200	1,200
041, 042	2,000	1,900
043 - 046	700	650
051	700	700
061, 062, 064, 071, 073	1,700	2,100
065, 142, 144	950	900
066	400	430
067, 068	1,000	1,200
072, 074, 075	1,200	1,200
076, 077, 079, 081, 091	625	600
078, 105 - 107, 121	1,100	1,100
101 - 104, 108, 109, 144	1,100	1,000
111 - 114	1,800	1,600
115, 231, 242	500	450
131, 145, 163, 164	900	900
132 - 134, 245	600	600
141, 143, 151 - 156	2,700	2,500
161, 162	450	370
171 - 173	360	370
181 - 184	950	650
202, 204	110	110
203, 291	75	70
205 - 208	310	310
211 - 213	90	90
221 - 223, 241	400	390
251	300	210
TOTAL	***30,000***	***29,000***
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 28. 2018 DESERT BIGHORN POPULATION ESTIMATES

UNIT GROUP	2018 ESTIMATE*	*2017 ESTIMATE**
044, 182	500	*450*
045	250	*230*
131, 164	110	*130*
132	120	*100*
133, 245	120	*130*
134	220	*210*
153	20	*20*
161	450	*400*
162	50	*50*
163	310	*300*
173	190	*190*
181	500	*450*
183	475	*450*
184	160	*170*
195	140	*120*
202	200	*200*
204	70	*70*
205, 207	750	*700*
206, 208	300	*300*
211	450	*450*
212	340	*360*
213	450	*490*
223, 241	170	*180*
243	160	*160*
244	130	*130*
252	190	*230*
253	200	*220*
254	100	*80*
261	150	*160*
262	140	*150*
263	200	*230*
264	70	*80*
265, 266	90	*110*
267, 268	1000	*900*
269 (River Mtns)	210	*220*
271	300	*300*
272	90	90
280	130	120
281	210	220
282	140	140
283, 284	230	250
286	150	130
TOTAL	***10,100***	*10,100*
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. 2018 CALIFORNIA BIGHORN POPULATION ESTIMATES

UNIT GROUP	2018 ESTIMATE*	*2017 ESTIMATE**
011, 013	70	*70*
012	150	*140*
014	130	*140*
021, 022	110	*110*
031	140	*130*
032	370	*350*
033	100	*90*
034	260	*270*
035	220	*210*
041	60	*55*
051	160	*150*
066	30	*30*
068	130	*110*
TOTAL	**1,900**	*1,900*
Percent Change	**0%**	

TABLE 30. 2018 ROCKY MOUNTAIN BIGHORN POPULATION ESTIMATES

UNIT GROUP	2018 ESTIMATE*	*2017 ESTIMATE**
074	30	*20*
091	25	*25*
101	20	*25*
102	30	*35*
114	80	*90*
115	40	*40*
TOTAL	**230**	**240**
Percent Change	**-4%**	

TABLE 31. 2018 MOUNTAIN GOAT POPULATION ESTIMATES

UNIT GROUP	2018 ESTIMATE*	*2017 ESTIMATE**
101	65	*65*
102	200	*200*
103	45	*45*
TOTAL	**310**	*310*
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 32. BIG GAME POPULATION ESTIMATE HISTORY, 1983 - 2018

YEAR	MULE DEER	ANTELOPE	ELK	DESERT BIGHORN	CALIFORNIA BIGHORN	ROCKY MOUNTAIN BIGHORN	MOUNTAIN GOAT
1983	120,000	11,000		3,200			
1984	129,500	11,500		3,100			
1985	155,500	12,000		3,300			
1986	180,000	12,500		3,500			
1987	220,000	13,000		3,500			
1988	240,000	13,500		3,600			
1989	212,000	14,000		3,700			
1990	202,000	15,000	2,000	3,800	480	140	
1991	180,000	16,500	2,400	4,000	530	150	
1992	183,500	18,000	2,700	4,100	650	190	190
1993	148,500	16,000	2,900	4,800	700	210	200
1994	115,000	15,000	3,100	4,700	800	220	210
1995	118,000	15,500	3,500	4,500	900	230	220
1996	120,000	15,000	4,000	4,900	1,000	230	230
1997	125,000	14,500	4,600	5,000	1,100	240	170
1998	132,000	15,000	5,000	5,200	1,200	250	200
1999	134,000	14,500	5,500	5,300	1,300	250	240
2000	133,000	16,000	5,900	4,900	1,400	210	280
2001	129,000	17,000	6,400	4,900	1,400	190	320
2002	108,000	18,000	6,600	5,300	1,500	210	340
2003	109,000	18,000	7,200	5,000	1,500	240	350
2004	105,000	18,500	7,400	5,200	1,500	290	370
2005	107,000	20,000	8,000	5,500	1,500	340	400
2006	110,000	21,500	8,200	5,800	1,600	360	410
2007	114,000	24,000	9,400	6,200	1,700	480	420
2008	108,000	24,000	9,500	6,600	1,700	500	450
2009	106,000	24,500	10,900	7,000	1,800	550	470
2010	107,000	26,000	12,300	7,400	1,900	240	340
2011	109,000	27,000	13,500	7,600	2,100	230	310
2012	112,000	28,000	15,100	8,600	2,000	220	290
2013	109,000	28,500	16,500	8,900	2,100	260	340
2014	108,000	27,500	17,500	8,900	1,900	260	340
2015	99,000	28,500	18,500	9,600	1,900	230	350
2016	94,000	29,000	16,000	9,700	1,800	210	330
2017	92,000	29,000	15,000	10,100	1,900	240	310
2018	92,000	30,000	13,500	10,100	1,900	230	310
10-YR AVG	*103,000*	*28,000*	*14,900*	*8,800*	*1,900*	*270*	*340*
%Diff to AVG	**-11%**	**7%**	**-9%**	**15%**	**0%**	**-15%**	**-9%**

TABLE 33. BIG GAME TAG SALES AND HARVEST HISTORY BY SPECIES, 1988 - 2017

	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
10-YR AVG	19,133	7,945	3,612	2,294	7,124	2,442	260	232	57	53	7	5	15	14
%Diff to AVG	-14%	-8%	41%	45%	37%	10%	28%	30%	0%	0%	-12%	-44%	-39%	-50%

TABLE 34. NEVADA MOUNTAIN LION TAG SALES, SPORT HARVEST, AND HUNTER SUCCESS, 1979 - 2017

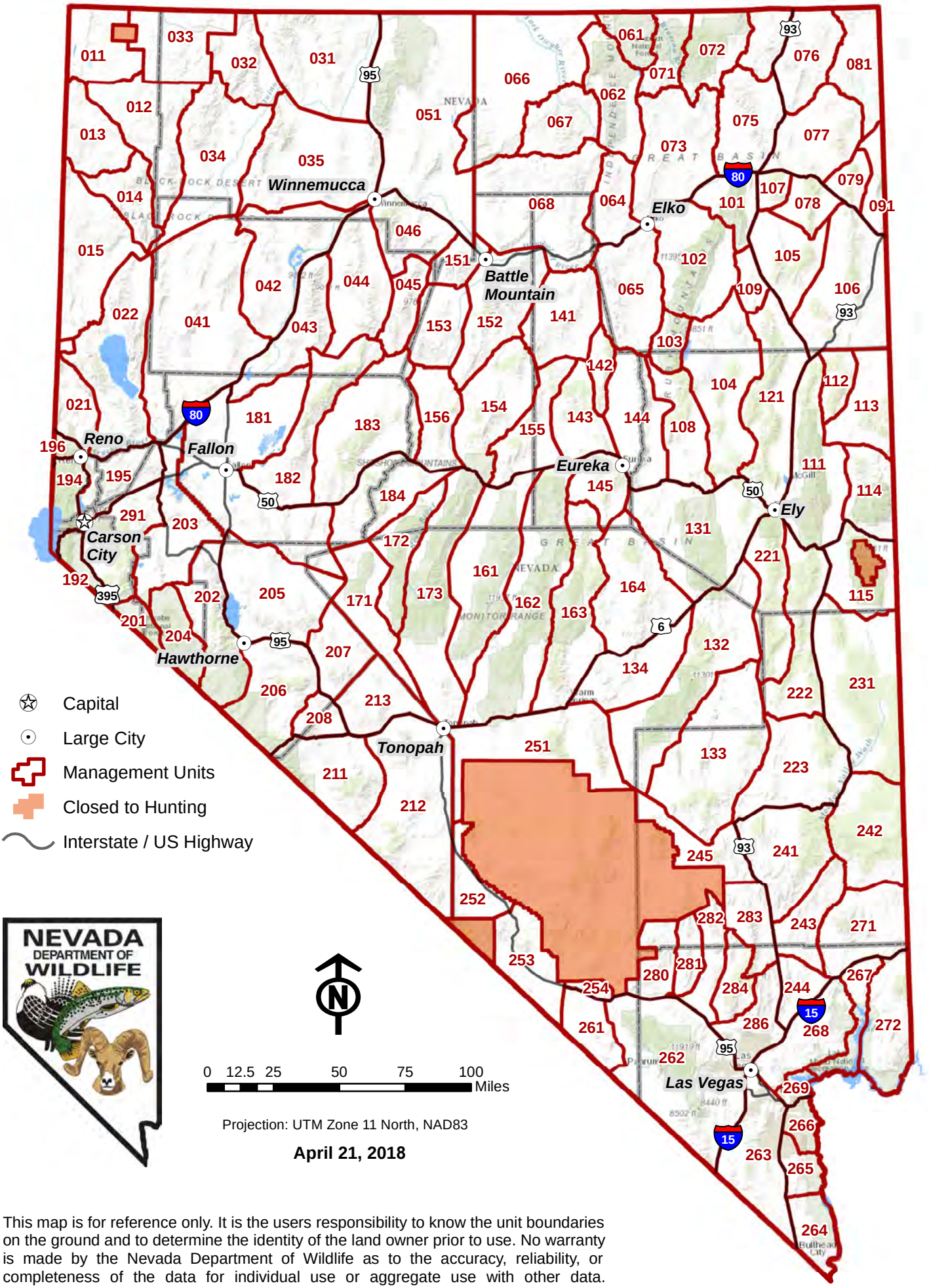
	Tag Sales			Harvest			Hunter Success		
Year	Resident	Nonresident	Total	Resident	Nonresident	Total	Resident	Nonresident	Total
1979 - 1980	235	46	281	30	17	47	13%	37%	17%
1980 - 1981	313	61	374	24	14	38	8%	23%	10%
1981 - 1982	527	62	589	36	24	60	7%	39%	10%
1982 - 1983	519	61	580	41	20	61	8%	33%	11%
1983 - 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*	3,735	216	3,951	132	30	164	4%	14%	4%
Totals	**63,153**	**6,968**	**70,121**	**3,057**	**1,892**	**4,951**			
Avg. (40 yrs)	**1,619**	**179**	**1,798**	**78**	**49**	**127**			
10-Year Avg	**4,481**	**331**	**4,812**	**97**	**44**	**141**			

*Tag sales reported for 2017-2018 are incomplete due to transition to new licensing vendor. Reported sales will be updated in 2019.

TABLE 35. NEVADA MOUNTAIN LION DEPREDATION HARVEST
(Conducted by APHIS and Private Citizens)

Year			Males	Females	Unknown	Total
1976	-	1977	10	7	1	18
1977	-	1978	17	7	0	24
1978	-	1979	16	8	0	24
1979	-	1980	12	11	0	23
1980	-	1981	19	3	0	22
1981	-	1982	20	17	0	37
1982	-	1983	11	10	0	21
1983	-	1984	13	12	0	25
1984	-	1985	12	16	0	28
1985	-	1986	16	9	0	25
1986	-	1987	22	15	0	37
1987	-	1988	21	20	0	41
1988	-	1989	26	23	0	49
1989	-	1990	23	24	0	47
1990	-	1991	37	20	0	57
1991	-	1992	27	22	0	49
1992	-	1993	32	17	0	49
1993	-	1994	21	15	0	36
1994	-	1995	16	8	0	24
1995	-	1996	13	10	0	23
1996	-	1997	11	9	0	20
1997	-	1998	12	10	0	22
1998	-	1999	8	3	0	11
1999	-	2000	8	8	0	16
2000	-	2001	5	10	0	15
2001	-	2002	8	11	0	19
2002	-	2003	7	6	0	13
2003	-	2004	16	12	0	28
2004	-	2005	9	7	0	16
2005	-	2006	15	4	0	19
2006	-	2007	10	9	0	19
2007	-	2008	18	19	0	37
2008	-	2009	10	16	0	26
2009	-	2010	16	15	0	31
2010	-	2011	13	17	2	32
2011	-	2012	12	17	1	30
2012	-	2013	8	12	1	21
2013	-	2014	9	10	1	20
2014	-	2015	8	9	1	18
2015	-	2016	22	12	0	34
2016	-	2017	11	10	0	21
2017	-	2018	21	21	0	42
Total			**641**	**521**	**7**	**1169**
Average			**15**	**12**	**0**	**28**

NEVADA Game Management Units 2018



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.