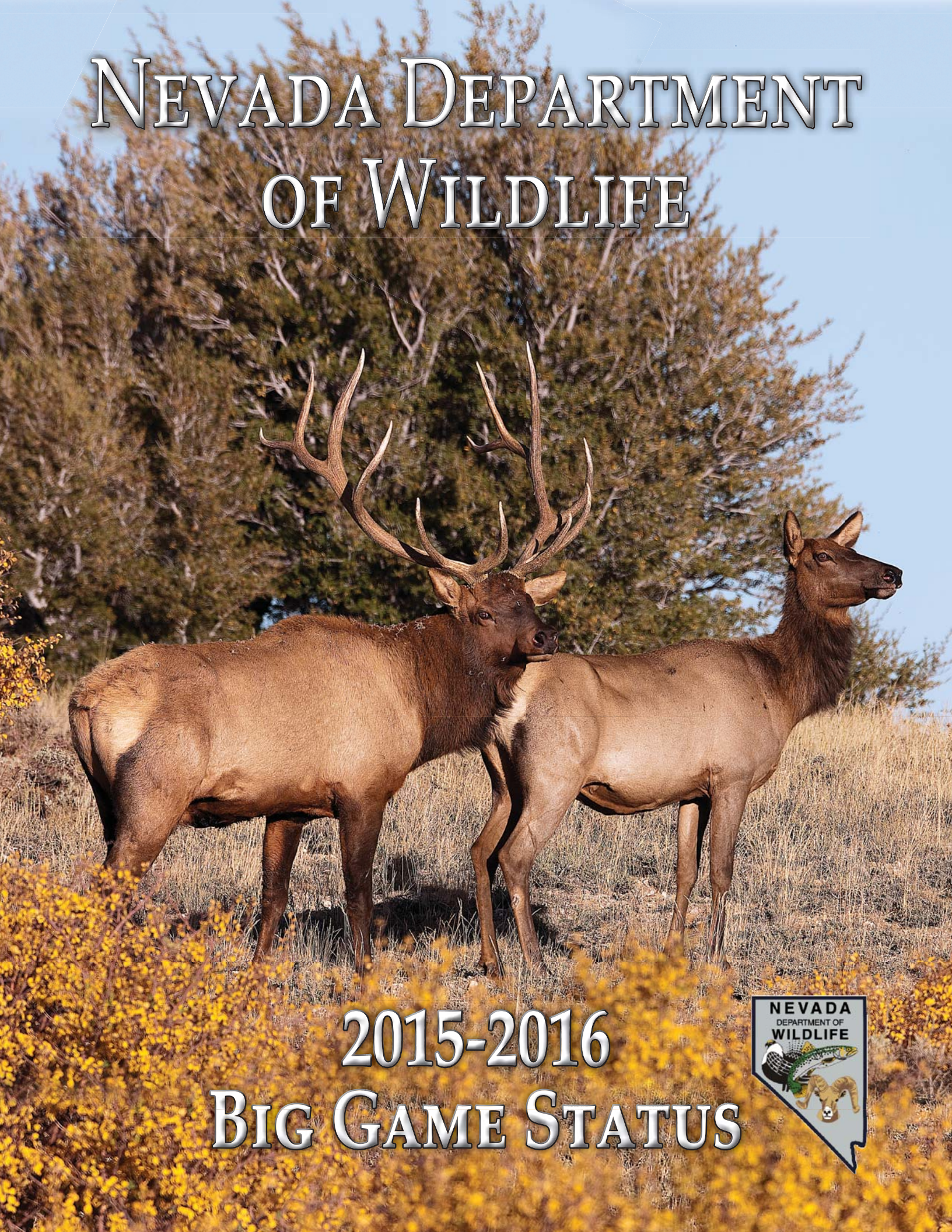
Nevada Department of Wildlife



2015-2016 Big Game Status

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NEVADA DEPARTMENT OF WILDLIFE

2015-2016 BIG GAME STATUS

This Program Receives Federal Aid for the Nevada Department of Wildlife (NDOW) Wildlife Restoration, Game Management Grant F15AF00365.

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Federal Aid Project

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BIG GAME STATUS STATEWIDE SUMMARY

MULE DEER

Nevada hunters purchased 20,998 mule deer tags in 2015 which was down from the 22,643 sold in 2014. The decrease in tag sales was reflective of a decrease in the 2015 quotas approved by the Nevada Board of Wildlife Commission. Total harvest for 2015 was approximately 9,140 mule deer including bucks and does. Hunt return questionnaires indicated a statewide success rate of 47% for all deer hunters, which was higher than the reported 44% during 2014. Total buck harvest was about 7,500 and of those bucks harvested about 38% had 4 (or greater) antler points on one side.

The 2015 post-season aerial survey resulted in about 14,800 mule deer classified statewide compared to 19,500 in 2014. This was primarily due to the availability of helicopters and personnel changes during fall of 2015. Statewide fawn production was slightly higher during 2015 with 54 fawns:100 does counted during post-season surveys. The statewide observed buck ratio was 33 bucks:100 does for 2015, which was considerably higher than the ratio of 30 bucks:100 does observed during the 2014 survey. This buck ratio is indicative of the continued conservative management of buck harvest and desire for increased trophy opportunity from Nevada sportsman. The 2015 spring deer surveys classified 36,496 total deer with a ratio of 29 fawns:100 adults which was well below the long-term average.

Nevada's mule deer populations have been declining over the past several years. The 2015 population is estimated to be about 94,000 mule deer, down from the estimated 99,000 in 2014. This is likely due to the moderately severe conditions experienced throughout much of northeastern Nevada during the winter of 2015-16. Population models were adjusted again this year to better incorporate recent trends in harvest data, survey results, and radio telemetry information. During the past 4 years, much of Nevada has experienced severe to extreme drought conditions, which has directly impacted mule deer populations across the state. Tag quota recommendations have been lowered in many areas of the state in response to these population changes and to appease the demand for lower hunter densities and more mature bucks available for harvest.

To address declining mule deer populations and concerns from sportsmen about hunting opportunities across the state, the Nevada Department of Wildlife continues to work with land management agencies to implement habitat enhancement projects throughout the state. Large-scale habitat projects targeted for sage grouse may also benefit mule deer in the long-term. Other improvements to habitat include water developments as well as spring and riparian fencing projects which will help improve water availability and high quality forage in some areas. Additional predation management projects will be considered in some areas to address poor fawn recruitment where appropriate. Please refer to the November 2015 Predation Management Plan available on www.ndow.org for details on past and current predator control projects for mule deer.

PRONGHORN ANTELOPE

The 2015 hunting season was the sixth straight year of record setting numbers of pronghorn tags and harvest. There were a total of 4,105 pronghorn tags, of which 1,110 were for Horns Shorter than Ear Hunts. Over 20,500 individual applicants for pronghorn hunt tags in the 2015 First Draw. A total of 1,800 adult bucks and 800 pronghorn from the Horns Shorter than Ear Hunt were harvested in 2015. An upward trend exists for percent of bucks with horn length 15" or more (30% in 2015 vs. 24% in 2013).

In 2015, game biologists classified a total of 12,500 pronghorn during composition surveys with a strong buck and fawn ratio of 38 bucks:100 does:39 fawns. This fawn ratio was primarily from surveys conducted in the fall and early winter months. Many biologists who had substantial winter snowfall on their pronghorn winter ranges applied moderate to high mortality rates to fawns in their population models that will likely result in a reduced 2-yr old age class in 2017.

The 2016 statewide estimate for pronghorn is at an all-time high of 29,000 compared to 21,500 a decade ago. This increase, attributable to decades of fires that have increased pronghorn habitat, is no more evident than the Unit Group 141, 143, 151 – 156 in north central Nevada. This herd has doubled in size since 2008 to over 2,100. Its positive growth has provided ample pronghorn doe hunting opportunities since 2013. This herd growth also allowed for a January 2016 aerial netgun capture that resulted in 52 pronghorn translocated for the first time to reintroduce pronghorn to their historic range on Colville Confederated Tribal Lands north of the Columbia River in northeastern Washington State.

ROCKY MOUNTAIN ELK

In 2015, the sale of 11,271 total elk tags, including 2,247 antlerless elk management tags, resulted in the harvest of 3,365 elk statewide. In comparison, 2014 had 11,016 total tags, including 2,065 antlerless elk management tags, and harvest of 3,474 elk. The reported elk harvest in 2015 consisted of 1,237 bulls and 2,128 antlerless elk. Harvest data indicate 72% of the bulls harvested in 2015 were 6-points or better and 30% of harvested bulls had a main beam length of 50+ inches (above the long-term average). Both metrics demonstrate bull quality remains high in the Silver State.

Several new hunt strategies were implemented in 2013 in an effort to increase elk harvest while attempting to address hunter congestion concerns. These strategies, which included September antlerless hunts, management antlerless tags combined with mule deer antlered hunts and bull hunts, wilderness only antlerless hunts, and spike hunts, continue to show success.

The Department's Elk Management on Private Lands Program, which provides benefits to participants in the form of elk tags that can be sold for monetary compensation in return for supporting elk use on privately owned rangelands, continues to be a success. In 2015, participating private landowners received 119 total elk-incentive tags worth an estimated $1,190,000.

There were 10,882 elk classified during the 2015-16 aerial winter composition surveys; yielding a statewide calf ratio of 48 calves:100 cows. In comparison, 2014 saw the classification of 12,947 elk and an identical calf ratio which was the highest observed in 10 years. However, the intensity of cow elk harvest can inflate observed calf ratios substantially, and this must be kept in mind when considering observed ratios and trend data. Despite the high observed recruitment rate, the statewide population estimate decreased by 14%, going from 18,500 last year to 16,000 for 2016. This substantial drop in the statewide population estimate can largely be explained by an improved understanding of elk distribution patterns in northern Elko County, and specifically in Unit Group 061, 071. Data obtained from an elk GPS collar deployment project indicate that a large number of elk that had previously been included in the 061, 071 elk population estimate actually reside almost entirely in Idaho and on Duck Valley Indian Reservation lands. The removal of these animals from the 061, 071 population estimate is the primary reason the statewide total dropped so dramatically in a single year. In addition, significant antlerless elk harvest continues to result in decreasing trends in a number of populations.

Nevada's elk harvest management continues to be based on meeting population objectives within the guidelines of the state's Elk Species Management Plan. Only 6 unit groups are currently above these objectives when confidence limits are considered. Harvest management strategies in these unit groups will continue to be aimed at bringing elk herds to objective levels, while harvest management strategies in areas where populations are at or below objective will be designed to maintain or increase local populations accordingly.

DESERT BIGHORN SHEEP

The Nevada Department of Wildlife made 307 ram tags available in 2015, compared to 287 in 2014. Hunter success was a bit stronger than last year at 93% compared to 89% in 2014. Hunters averaged 4.7 days in the field compared to the historic average of 5.9 days and 4.6 in 2014. The 2015 statewide average age of harvested rams was 6.4 years matching the 10-year average. The statewide average unofficial Boone and Crockett score was 152 5/8 points, a slight increase from 152 2/8 in 2014. There were 16 170+ Boone and Crockett rams harvested from 12 different units statewide.

The first ewe hunts were implemented in 2014 in bighorn herds with population estimates above sustainable management levels (SML). For the 2015 ewe hunts, there were a total of 176 applicants for the 140 desert bighorn ewe tags in 4 separate units. A total of 99 ewes were harvested for a 71% hunter success a slight drop from the previous year's 74%.

The statewide desert bighorn surveys classified 5,291 desert bighorn. Observed lambs were 32 lambs per 100 ewes compared to 33 in the 2014 survey. The average includes a wide variation in recruitment rates among desert bighorn herds with 7 having single digit lamb ratios and 5 herds having a lamb ratio of 50 or greater. The statewide 2016 desert bighorn population estimate of 9,700 is essentially unchanged from 2015.

Beginning in 2014 a set of criteria were used for herds above SML to evaluate if disease and resulting herd response were too great of a risk to use a herd as transplant stock and/or to implement a ewe hunt to control the herd. One of the criteria was having pathogen profiles of herds to make an informed decision. Therefore a concerted effort to conduct disease surveillance the fall 2014, led to the decision to use source stock herds having the same strain of *Mycoplasma ovipneumoniae* for relocation to the Garfield Hills fall and winter 2015. In November 15 ewes and lambs from the Gabbs Valley Range and 18 from Lone Mountain in late January 2016 were captured and translocated to the Garfield Hills to build a resident herd within suitable and essentially unoccupied bighorn habitat where recent installation of water developments has addressed the past limiting factor of water availability.

Again this past fall 2015, an aggressive disease surveillance effort was undertaken to get pathogen profiles on herds with no previous information. Disease sampling was conducted through both passive disease surveillance and active disease investigation. Samples were screened for bacteria, virus, parasites and trace mineral levels in addition to genetic analysis and archiving. From late October 2015 through January 2016, a total of 167 animals from 18 desert bighorn herds were sampled. The first priority area was Lincoln and northern Clark Counties with mountain ranges that have gone through past dieoffs or unknown declines such as the Mormon Mountains, Hiko Range, and Delamar Mountains, have documented ram movements among herds, and have varied herd performance. The second priority area was the Nevada Test and Training Range (NTTR) and Nevada National Security Site (NNSS) where pioneering herds with single digit lamb ratios in 2014 and 2015 and known ram movement into adjacent public land herds like the Bare Mountains, have generated great concern for disease transmission and potential long-term impacts to lamb recruitment.

Of the 18 herds tested all but the Muddy Mountain sheep show evidence of exposure to *Mycoplasma ovipneumoniae ovipneumoniae* by the presence of antibodies in the blood. In 9 herds (Arrows, Bare Mountain, Delamar Mountains, Gold Buttes, Hiko Range, McCullough Range, River Mountains and Specters) the bacteria were recovered on a nasal swab. Tests are currently being conducted to determine what strain of *Mycoplasma ovipneumoniae* is being carried in each of these 9 herds. Different strains may cause varying levels of sickness and mortality in a herd. In addition to testing for *Mycoplasma ovipneumoniae*, all animals were screened for parasites as well as other bacterial and viral pathogens that may contribute to pneumonia in bighorn sheep.

To date, a total of 65 hunter harvest tissue samples have been screened for the presence of *Mycoplasma ovipneumoniae*. Testing has not shown any new hunt units infected with the bacteria other than those confirmed with our disease surveillance efforts.

The results of this on-going testing will provide wildlife managers within Nevada as well as across the west with critical information to make informed management decisions to prevent as well as mitigate the effects of pneumonia in bighorn sheep.

CALIFORNIA BIGHORN SHEEP

A total of 63 tags were issued for California bighorns for the 2015 season. Fifty-six tag-holders were successful in harvesting a ram for a success rate of 86%. Successful hunters spent an average of 5.2 days to harvest their rams, while unsuccessful hunters spent an average of 7.5 days. The average Boone and

Crockett score was 150 inches, with only one ram scoring over 170. The number of applicants again increased in 2015 with a total of 6,242 for resident tags and 6,685 for non-resident tags.

The ewe hunt in Unit 068 was open for the second season with a total of 10 tags available. Six hunters were successful, 2 hunters did not hunt, 1 unsuccessful and 1 did not report. The average age of harvested ewes was 4.5 years of age and successful hunters reported spending an average of 2.3 days during the hunt. This ewe hunt was initiated due to habitat type conversion to predominately non-native invasive vegetation from past wildfires, livestock overutilization, and chronic drought.

Game biologists classified a total of 989 California bighorns on aerial survey in 2015, compared to 981 in 2014. These included 248 rams, 533 ewes, and 208 lambs which provide a ratio of 47 rams:100 ewes:39 lambs; very similar to the 2014 ratios.

The statewide estimate of 1,800 dropped approximately 5% from the 2015 estimate of 1,900. About half of the units with California bighorns are showing slight decreases while half are showing slight increases. The die-off in Unit 031 is largely responsible for the drop in the California bighorn population estimate.

In December 2015, while conducting a bighorn capture, disease surveillance and marking event in Unit 031, the Nevada Department of Wildlife was alerted to the start of a pneumonia outbreak in the Montana Mountains. Testing revealed the presence of the bacteria *Mycoplasma ovipneumoniae* which can predispose bighorns to pneumonia. Ground and air monitoring indicated a rapid loss of approximately 75% of the herd. The neighboring Double H herd was immediately sampled and found to be negative for *Mycoplasma ovipneumoniae*. Due to the severity of the die-off and the close proximity of the still healthy Double H herd, the decision was made to lethally remove the remaining Montana Mountain animals. A total of 27 bighorns were removed of which 10 were recovered for examination. All animals had pneumonia and many were in poor body condition. This was the first time Nevada has culled a herd to prevent the spread of disease to other bighorns, although several other states have undertaken similar actions. The Nevada Department of Wildlife will continue to monitor the Montana Mountains for the presence of sheep as well as the health of adjacent herds.

Above-average precipitation occurred during the summer and fall of 2015 as well as heavy snow during the winter of 2015-16. Timely rains during spring 2016 should provide good range conditions. Unfortunately, this also fueled a robust crop of cheatgrass which may lead to wildfires later in the year. Chronic drought conditions in previous years combined with excessive feral horse numbers may have limited potential growth in many herds.

ROCKY MOUNTAIN BIGHORN SHEEP

Only 1 Rocky Mountain bighorn ram was harvested in 2015. The ram was actually harvested in the Silver Islands of Utah as part of the Unit 091 interstate hunt. Four total tags were available in Units 091, 114 and 115. Aerial and ground surveys in 2015 and 2016 classified 89 Rocky Mountain bighorns statewide with a ratio of 42 rams:100 ewes:56 lambs. Unfortunately this lamb ratio does not represent the true uncertainty that many of Nevada's Rocky Mountain bighorn herds are faced with. The 2016 statewide Rocky Mountain bighorn population estimate has declined from a high of 550 in 2009 to 210 in 2016. The Mount Moriah herd is the largest herd at 90 animals and the other 5 herds only average 24 adults.

The Badlands/Contact herd experienced its most recent pneumonia die-off in 2014 with a previous disease event in 1999-2000 after which time, the population was stagnant at approximately 50 animals for over a decade and now may have 15 adults remaining (possibly suppressed by both predation and disease). The Pilot Range/Leppy Hills/Utah population with known domestic sheep trailing and grazing within its occupied habitat, last went through a pneumonia disease event in 2010 and has averaged 4 lambs:100 ewes through 2015 and now numbers 30 animals. One bright spot is the Mount Moriah herd that experienced good lamb recruitment the last 3 years and increased to an estimated 90 animals in 2016. Another potential bright spot is the Ruby Mountains. Ground surveys conducted late fall 2015 detected 26 bighorn with a 77 lambs:100 ewe ratio, the first good lamb ratio since the 2009-2010 die-off. Guarded optimism exists that there may be good lamb recruitment beyond just 1 year. Unfortunately, the adjacent

East Humboldt herd experienced a disease event in the fall and winter 2015 - 2016, likely from disease transmission from sympatric mountain goats carrying *Mycoplasma ovipneumoniae.* Adult mortalities may have reduced the population from 45 to less than 20 animals. The south Snake Range herd that summers on Great Basin National Park despite moderate lamb recruitment has been stagnant for several years at 30 animals.

MOUNTAIN GOAT

There were 13 mountain goat tags issued for the 2015 hunting season; however 1 tag was turned in prior to the season. All 12 tag holders that hunted were successful and only 1 (8%) was a nanny. The average age of harvested billies in Units 101 and 102 was approximately 6.5 and 5.5 years, respectively. The single billy harvested in Unit 103 was aged at 2.5 years. All 3 units saw a decline in the average age of harvested mountain goats from 2014 to 2015. It was great to see nanny harvest accounting for less than 10% of the total harvest in 2015 compared to 25 – 40% of the total harvest from 2009 - 2014. All tag holders continue to be encouraged to take the non-mandatory Mountain Goat Hunting Orientation on the Nevada Department of Wildlife's website to help hunters determine sex of mountain goats in the field.

Aerial mountain goat surveys were conducted in January and February 2016. The survey conducted in Unit 101 observed 63 mountain goats, with a ratio of 13 kids:100 adults. Five kids:100 adults was the average from 2011 – 2015. For Unit 102, a sample of 93 mountain goats was observed with resulting ratio of 15 kids:100 adults. Due to inclement weather, some areas were excluded from the survey and the observed kid ratio is likely biased low. In Unit 103, 10 mountain goats were observed on survey, 3 of which were kids, for an observed age ratio of 43 kids:100 adults.

Precipitation received in the East Humboldts and Ruby Mountains during the 2015-16 winter was well above average and in some months, at some sites, exceeded 170% percent of normal. These conditions should create ideal conditions to produce high quality forage on summer range.

Concern for the Unit 101 mountain goat herd still remains. The 2015 kid ratio of 13 was improved compared to single digit ratios since 2011, but is still well below the 27 – 41 kids:100 adults observed from 2003 - 2009. Studies to date support the findings that increased kid mortality is due to pneumonia associated with the bacteria *Mycoplasma ovipneumoniae*. This pattern of young of the year loss has been documented throughout the west with pneumonia-caused lamb mortalities following all age die-offs in bighorn sheep herds. *Mycoplasma ovipneumoniae* was isolated from both bighorn sheep and mountain goats in the Ruby and East Humboldt mountain ranges during the latest die-off in 2009-10. In addition, during mountain goat captures from 2013 - 2015 in support of the East Humboldt Range Mountain Goat Disease Research Project, active *Mycoplasma ovipneumoniae* infection was detected (pathogen is being shed and spread throughout the herd) from a portion of the captured mountain goats each year .

Little to no kid recruitment from 2011-2015 in Unit 101 has resulted in a decrease in the population from 100 in 2015 to 85 estimated in 2016. For Unit 102, as a result of the stable kid recruitment values observed over the last several years, the 2016 population estimate continues to be 200. The Unit 103 population estimate remains stable at 45 individuals despite strong observed kid recruitment.

MOUNTAIN LION

Mountain lion quotas for the 2015-2016 season were 113 for the eastern region, 83 for the western region, and 49 for the southern region. None of these quotas were reached. Mountain lion harvest was up from the 2014-2015 season, likely due to substantial increases in snowfall. Seventy-five male and 28 female lions were harvested in the eastern region. Thirty male and 29 female lions were harvested in the western region. Twenty-one male and 8 female lions were harvested in the southern region. 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-one resident and 4 nonresident tags were issued for the 2015 black bear season; 8 male and 6 female bears were harvested. Human-bear conflicts were down from 704 in 2014 to 566 in 2015. The majority of these conflicts resulted from bears accessing garbage or other human food sources. Various bear sightings have been reported around the state, a good indicator that black bears are naturally recolonizing native black bear habitat. Several black bear research projects are nearing an end, one project that involved collaboration between the Nevada Department of Wildlife, Colorado Parks and Wildlife, the Nature Conservancy, Wildlife Conservation Society and the US Department of Agriculture Wildlife services has been written and submitted to Biological Conservation.

WEATHER AND CLIMATE EFFECTS

This year's summary of Nevada weather and climatic data was obtained from Natural Resources and Conservation Service's (NRCS) SNOTEL sites throughout northern Nevada from October 2015 through April 2016. Precipitation for the water year 2016 (October – April) was above average for most water basins, from 100% - 120% of the long-term average (Figure 1). Water basin measurements from SNOTEL sites for snow water equivalent (SWE) data (snowpack) through 1 April 2016 ranged between 92% to 126% of the long term median, with the lowest being the Walker River Basin, while the highest was in the Snake River Basin (Figure 2). Due to the increase in snowpack, Nevada's upper elevation summer ranges should provide high quality forage for many of our big game animals going into next winter. With the above average precipitation, antler growth and body condition is expected to improve coming out of several years of poor range conditions.

Although the increased precipitation was much needed for many of Nevada's wildlife and game species, there were some downsides to the added snow levels. Several mountain ranges in eastern Nevada experienced higher than average snow levels and cold temperatures came early in the year and were sustained through late February. For some species, such as mule deer, migrations between summer and winter ranges were interrupted by those early storms. Animals in poor condition coming into winter likely experienced decreased survival rates, especially for young of the year. This was apparent on some of the spring mule deer surveys, where fawn to doe ratios were well below long term averages.

Despite the above-average precipitation, many of Nevada's ranges and water sources are still being affected by the long-term and persistent drought conditions experienced during the past 4-5 years. According to the US Drought Monitor, as of 19 April 2016 approximately 23% of Nevada is considered to be in "Extreme Drought" conditions, mostly in the western portion of the state. The long term outlook from the Climate Prediction Center predicts above average moisture going forward through 2016, so hopefully this will be bring additional reprieve to many of Nevada's wildlife habitats.

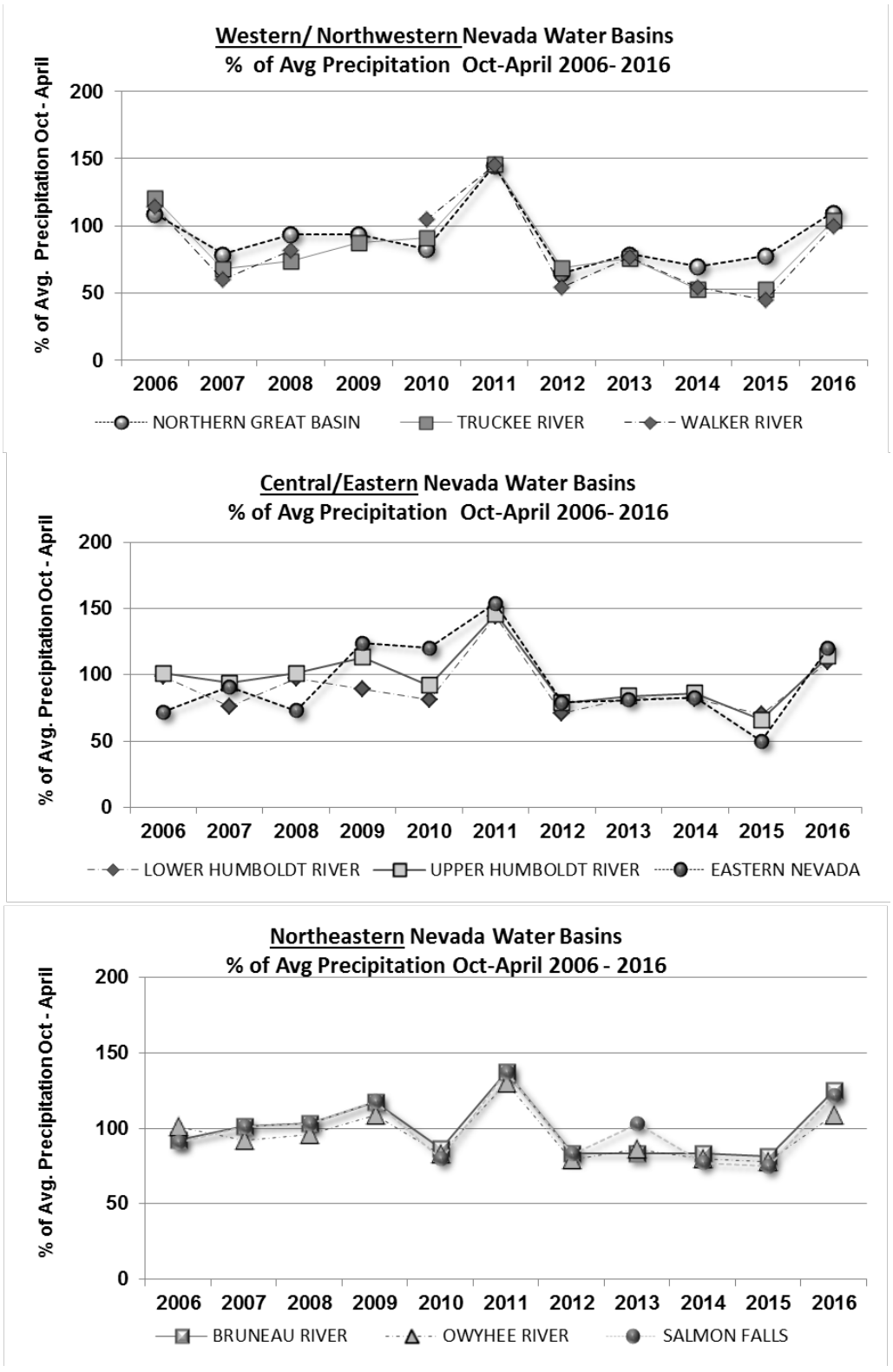

Figure 1. Trends in percent of average October – April precipitation for Nevada water basins from 2006 – 2016 (SNOTEL sites, Natural Resources Conservation Service).

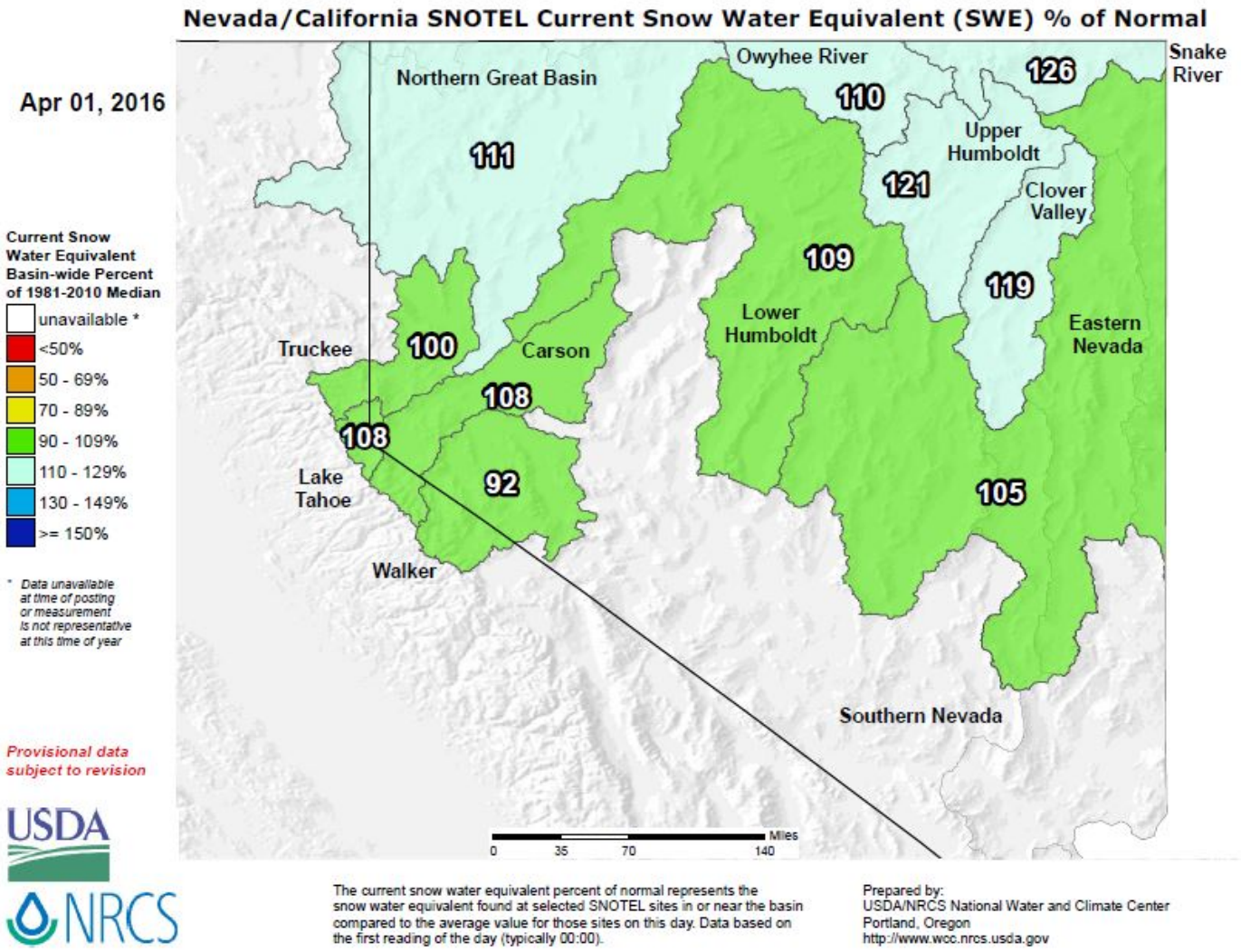

Figure 2. Percent of normal snow water equivalent (SWE) for the state of Nevada and portions of California. Data was generated on 1 April 2016 from the USDA website: http://www.wcc.nrcs.usda.gov.

BIG GAME HERD STATUS REPORTS

MULE DEER

Units 011 – 015: Northern Washoe and Western Humboldt Counties

Report by: Chris Hampson

Hunt Results

The 2015 mule deer hunting season was once again difficult for many hunters as success rates were generally below long-term averages. Early season hunts were the most difficult and success rates dropped for most resident rifle hunts. The 4-point or better hunt was also generally lower than long-term averages, but improved to some degree during the late seasons as hunting conditions improved.

Units 011-013 had the lowest early season rifle success rate at just 24%. This rate is well below the long-term average and is the lowest in recent memory. The rifle success rate from this past year was also 10% below the short-term average of 34% between 2012 and 2015. Hunters also struggled in Unit 014 as success rates dropped below long-term averages. The hunting season in Unit 015 is in December and hunters reported seeing more deer due to the above average snowfall this winter forcing the mule deer onto winter ranges in Nevada. The success rate for this late season hunt was 32%, near the long-term average.

Due to lower hunter success rates during the 2015 hunting season, the mule deer objectives for most hunt units in northwestern Nevada were not met.

Survey Data

Post-season surveys in November 2015 classified a total of 527 mule deer with a ratio of 32 bucks:100 does:56 fawns. Unit 015 in Nevada is not surveyed in the fall because the interstate mule deer herd remains on the California side until sufficient snowfall in late November or December pushes the deer into Nevada.

Spring flights conducted in March 2016 resulted in the classification of 967 mule deer. Due to the heavier winter, good numbers of migrating mule deer were located on Nevada's winter ranges in Unit 015. Surveys in other portions of northwestern Nevada were not as successful in locating mule deer on winter ranges. A good green-up and lack of snow helped to scatter mule deer.

The composition ratio from the 2016 spring surveys averaged 38 fawns:100 adults and was similar to the ratio from the spring surveys in 2015.

Habitat

Winter 2015-16 started out with a bang as storm front after storm front dropped significant amounts of snow throughout the mountain ranges of northwestern Nevada. As much as 3 to 5 feet of snow covered the mid-to-higher elevations by the end of January 2016. Unfortunately, a very mild and warm February 2016 caused much of the snowpack to melt.

On a positive note, the early snowmelt filled many of the important upper elevation lakebeds and pit tanks throughout the region. The impressive amount of moisture from the snowmelt helped reverse some of the negative impacts from the long-term drought. The much needed moisture will help increase the amount of water available to all wildlife this coming summer.

No large wildfires were reported during summer 2015 and significant moisture was received periodically throughout the summer helping diminish the threat of wildfires. Stream flows and runoff totals are forecast to be closer to normal in 2016 due to the improved moisture receipts. Despite the improved moisture received this winter, some springs and seeps in northwestern Nevada were near or completely dry as of March 2016.

Population Status and Trend

Mule deer populations in northwestern Nevada have been on a declining trend over the past several years due to the severe drought conditions. The increased moisture received this past winter will help reverse this trend and improve overall habitat conditions this spring and summer. Water availability and forage quality on crucial summer ranges should improve dramatically when compared with the past several years. Upper elevation lakebeds should provide mule deer with sufficient water through the late summer.

The 2016 mule deer quota recommendations for hunt units within Management Area 1 are expected to mimic the recent downward trend in deer populations.

Units 021, 022: Southern Washoe County

Report by: Chris Hampson

Hunt Results

Hunter success rates for resident rifle hunters within Management Area 2 were once again very strong. Rifle hunters who hunted within Unit 021 had a success rate of 68% and had a 4-point or better in the hunt of 62%. Unit 022 resident rifle hunters had a success rate of 54% and a 4-point or better in the hunt of 44%.

The youth tag holders also enjoyed a successful season hunting Management Area 2 as success rates for the two hunt units were 67% and 64%. The mule deer hunted by youth hunters were 90% bucks in Unit 021 and 100% bucks in Unit 022.

Season dates for mule deer hunts within Management Area 2 were similar to the previous year and are will be the same in the upcoming 2016 hunting season.

Survey Data

Post season surveys are not conducted within Management Area 2. Spring surveys are conducted on winter ranges and are highly dependent on snowfall and conditions at the time of the surveys.

The improved snow totals along the Nevada-California border helped push the migrating interstate deer from California onto Nevada winter ranges in Unit 021. A decent sample of 321 mule deer was classified during the March 2016 surveys. The resulting composition ratio for the sample was 39 fawns:100 adults.

In Unit 022, spring surveys were flown on the north end of the Virginia Mountains. The lower elevation winter range was surveyed and a total of 101 mule deer were classified with a ratio of 38 fawns:100 adults. Deer were scattered over wide areas due to the warm temperatures, extensive green-up and general lack of snow.

Habitat

The significant moisture and snowfall during winter 2015-16 has been a welcomed sight and will help offset some impacts of the many years of drought. Water availability will be much improved in summer 2016. Soil moisture is excellent due to the wet snow and warming temperatures experienced in February 2016. Another significant storm front brought more snow to the mountain ranges within Management Area 2 during late March 2016. The late season snowfall helped increase the overall snowpack and will help increase streamflow and runoff totals as temperatures steadily increase this coming spring.

The increased moisture received from summer thundershowers in 2015 reduced wildfire threats in the region. No major wildfires were reported during the summer of 2015; however the Management Area 2 deer herd suffered a tremendous loss of important deer habitat over the past several decades due to previous summer wildfires. The fire cycle within many of these burned areas has been shortened dramatically due to conversion of shrub steppe habitats to non-native grasses such as cheatgrass.

Habitat restoration following these wildfires has had limited success and been hampered by the lack of moisture and competition from annual grasses.

The protection and maintenance of the remaining stands of sagebrush and bitterbrush continues to be critical to the future of the Management Area 2 deer herds. In summer 2015, 2 large spring riparian fencing projects were initiated in an effort to protect and improve critical upper elevation spring complexes. The spring sites provide critical summer and fall water to all wildlife living in the Virginia Mountains of Unit 022. The habitat restoration work will continue in summer 2016 and will result in 3 major spring complexes having been protected from excessive use by both horses and cattle.

The Nevada Department of Wildlife, working with partners such as Washoe County, Carson City District of the Bureau of Land Management, Natural Resources Conservation Service, Nevada Bighorns Unlimited, The Coalition for Nevada's Wildlife, the owners and caretakers of the Winnemucca Ranch and the Cold Spring Homeowners Association, has been involved in providing much needed labor and funding to help improve wildlife habitat within the region.

Population Status and Trend

Mule deer that migrate during the winter into Unit 021 spend the summer and fall in California Units X6B and X7A. A small resident herd also exists within Unit 021 augmenting the overall population of deer. The migratory population of deer has done well over the past several years and quotas have increased steadily as the population continues on an upward trend. Hunter success rates and the 4-point or better in the hunt continue to be strong during this December hunt.

The low density resident herd in Unit 022 also continues to do fairly well and hunters report observing good numbers of bucks in some areas. Mule deer are usually distributed at the upper elevations within the major mountain ranges during light to normal winters but access to these upper elevation areas can be an issue due to the Pyramid Lake Indian Reservation and the large amount of private land ownership. Hunter success rates and the 4-point or better in the hunt continue to be near long-term averages.

Unfortunately, because these deer herds live in close proximity to the Reno and Sparks area, new housing developments and other forms of human encroachment will continue to negatively impact mule deer herds living within Management Area 2 into the future.

Quota recommendations for the Management Area 2 deer herds for the 2016 hunting seasons are expected to be similar to the previous year's quotas.

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

Reported by: Ed Partee

Survey Data

In Management Area 3, two different helicopter surveys were conducted for deer. The post-season survey was conducted in mid-November 2015 and took place over the course of 3 days. During these flights a total of 674 deer were surveyed; similar to 2014's observations of 682. The last few years' survey periods during this time has been challenging and a slight drop in the numbers surveyed over the last few years has been observed. Overall, ratios obtained from these surveys were 28 bucks:100 does:50 fawns. The past 5-year average for these units was 34 bucks:100 does:40 fawns. The 2015 ratios are fairly consistent when compared to the 5-year average.

Spring deer surveys this year were conducted during early March 2016 and were conducted over a 2-day period. A total of 1,270 deer was classified, up from the 898 classified during 2014's survey. The 2015 survey yielded a ratio of 42 fawns:100 adults. This ratio is down slightly from 2014's ratio of 56 fawns:100 adults. The ratio from 2015's survey is fairly close to the 5-year average of 44 fawns:100 adults.

Habitat

Management Area 3 has had a major reprieve with the amount of precipitation received in winter 2015-16. The snow pack this last year was a little over 100% in most of Management Area 3. As of March 1, 2016, conditions were still slightly above average for snow pack.

No additional fires have occurred over the last couple of years in Management Area 3. Habitat conditions have improved greatly in many of the areas within this area due to timely rains. The past couple of years had good spring and summer moisture benefitting the fire areas. With the additional funding and efforts of sportsman's organizations, the Bureau of Land Management and the Nevada Department of Wildlife, this area is showing recovery. Naturally, the upper elevations are producing much higher quality vegetation helping to sustain these herds.

Population Status and Trend

Population estimates for Management Area 3 have remained static for the last 2 years. There have been minor fluctuations in the population with slightly improved fawn rates and recruitment. Recovery efforts taken place post-fire have provided initial relief in these areas. These areas will continue to be monitored and may take more than 10 years to return to a pre-fire state. Most of Management Area 3 has seen slight increases in fawn production this last year; however fawn recruitment through the winter has fallen slightly. With the heavy winter experienced in 2015-16, fawn loss was a bit higher than the previous 2 years. Winter range in most of these units remains the limiting factor for these populations. Many of the traditional winter use areas have been converted to annual grasses due to fires.

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

Report by: Chris Hampson

Hunt Results

Hunter success rates on the Sheldon continue to be below long-term averages; however both the early and late season rifle success rates improved in 2015 when compared with the previous year. The early season tag holders had a success rate of 29% while late season hunters had a 64% success rate. The 4-point or better in the hunt was very low compared with long-term averages and was just 10% and 14% during the resident rifle season. Overall, 4-point or better bucks for all hunts was 25% of the total harvest.

Hunting conditions were very poor at the start of the early rifle season as very warm temperatures drove some hunters to head home early. Cooler temperature finally arrived later in the season.

Youth hunters continue to enjoy better success than the regular early season rifle tag holders and with a success rate of 50%; 90% of the deer harvested were bucks. The total bucks harvested on the Sheldon dropped from 54 bucks in 2014 to a total of 36 bucks this past year. Lower tag quotas resulted in fewer bucks being harvested during 2015.

Survey Data

Survey sample sizes continue to be very low on the Sheldon due to the negative effects of the long-term drought. Fall samples are now approximately 1/3 of the samples collected in the mid-2000s. Spring samples are even lower and deer are extremely difficult to locate at this time of year.

Mule deer throughout northwestern Nevada have been more difficult to locate during the spring months because there are no major winter ranges where deer concentrate. Mule deer on the Sheldon disperse in several different directions in the winter months as was observed from telemetry data from the 2007-08 mule deer collaring project. Some deer move south into Unit 012, while others move east towards Virgin Creek and Sagebrush Creek on the eastern portion of the Sheldon. Deer from the Catnip Mountain area on

the Sheldon were known to move straight north into Guano Valley and in a northeast direction as far as the state of Oregon during the winter.

Fall surveys classified a total of 107 mule deer with a composition ratio of 34 bucks:100 does:48 fawns. The average fawn ratio from surrounding hunt units was used for population estimates during the past 2 years because of the lack of sufficient sample sizes.

The Sheldon was managed in this same manner in the 1980s and 1990s. In the future this method of herd management could continue to be necessary until deer densities reach a point where survey numbers in the spring are once again sufficient to provide accurate survival data.

Habitat

The March 1, 2016, Nevada Water Supply Outlook Report shows the Northern Great Basin as having average to slightly above average totals for both precipitation and snowpack. The snowpack total is at 101% of average and the total precipitation for this date was measured at 114% of average. The extremely mild month of February reduced snowpack levels throughout northwestern Nevada.

Despite the improvement in the amount of moisture received last winter, the long-term drought has significantly affected the amount of water available to wildlife living on the Sheldon. Higher elevation summer ranges have been dry for several years and forced mule deer and other wildlife to move to areas with better water and forage. Some of these movements have been long-distance movements into adjoining hunt units in Nevada or across state lines into Oregon.

From a long-term perspective, the loss of important mule deer habitat due to fires will limit the mule deer population from reaching levels once observed during the mid-to-late 1980's. Unfortunately, some fires were prescribed fires that burned out of control and consumed much larger acreage than what was planned.

Population Status and Trend

The increased precipitation and snowfall from the winter of 2015-16 will help to curb some of the effects of the long-term drought; however it will take several more years of above average precipitation and snowpack to fill the now dry reservoirs and important lakebeds on the Sheldon. Water availability will continue to be an issue this coming summer and movement away from typical summer ranges is once again expected.

Due to the long-term effects from the many years of drought, conservative quotas will continue to be recommended. The quotas for mule deer hunts on the Sheldon are expected to remain low when compared with the quotas from just a few years ago.

Units 041, 042: Western Pershing and Southern Humboldt Counties

Report by: Kyle Neill

Survey Data

Formal fall surveys have not been conducted since 2000. Additionally, past spring surveys performed from the ground have not yielded a sufficient sample size for population modeling. As such, formal surveys will no longer be conducted and harvest data will be used to derive quotas for management objectives.

Population Status and Trend

This herd is expected to remain stable with minimal yearly growth or decline due to significant conversion of habitat by wildfires and limited annual moisture levels. Field observations from this past year indicate

sightings of mule deer in the following mountain ranges: Selenite, Sahwave, Lava Beds, Seven Troughs, Trinity, Kamma, Majuba and Eugene as well as the Lovelock Valley.

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

Survey Data

Fall surveys have not been conducted for the last 2 years; however aerial fall surveys will be recommended for 2016 and 2017. Aerial spring surveys occurred in mid-March 2016 with approximately 6 hours of flight time expended. Weather during the survey was considered less than ideal with winds approaching 25 mph. All units within the unit group were surveyed. Biologists classified a total of 332 mule deer with an observed ratio of 37 fawns:100 adults. The spring fawn ratio is near the long-term mean of 38 fawns:100 adults.

Habitat

Periodic summer and fall rains were realized this past year, promoting green-up throughout the unit group and thought to have provided mule deer adequate nutrition entering the winter months. Also, according to the Nevada Water Outlook Report for March 1, 2016, the lower Humboldt River Basin's snow pack was 113% of average compared to 34% last year. Increased moisture levels should allow forage in upper elevations to flourish into the summer months.

Population Status and Trend

Eastern Pershing County's mule deer population trend is currently considered stable after declining in 2013 and 2014. Indicators of stability can be correlated to the 2016 spring fawn ratio that is near its long-term mean recruitment rate and the 33% of 4-point or better bucks hunted in all hunts in 2015, also near its 5-year average of 34%. Additionally, buck harvest for all hunts last year was 189 and is approximately 4% below the long-term buck harvest total of 198. This herd remains at an estimated 2,700 mule deer. Management objectives include continuing to maintain a post-season buck ratio of 30 bucks:100 does.

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

Survey Data

Post-season helicopter flights were conducted in mid-November 2015. A total of 221 deer were classified this year, slightly down from the 325 observed last year. With the number of animals classified this year, the ratio is 34 bucks:100 does:58 fawns. The buck and fawn ratios are both up slightly from the 5-year average.

Spring survey flights were conducted in early March 2016 with fairly good conditions during these flights. A total of 762 deer were surveyed, a little higher than the 650 deer surveyed the previous year. During the last 3 years there has been an increase in the number of deer surveyed on this flight. The spring fawn ratio for this survey was 42 fawns:100 adults. This recruitment rate is right in line with the 5-year average for this unit.

Habitat

No additional loss of habitat occurred in this unit last year. This last winter has proven to be much different than what was experienced the last several years. Snow conditions have improved tremendously in the unit with above-average snowfall this year. Summer range in this unit has been good over the course of the year due to the timely rains throughout the summer months. The upper elevations prior to this winter showed remarkable improvement in the quality going into the winter. Past burned areas are

showing signs of recovery due to the rehabilitation efforts. In the lower elevations additional rehabilitation efforts continue to take place through cooperative efforts between the Bureau of Land Management, the US Forest Service, the Nevada Department of Wildlife and Friends of Nevada Wilderness. Several bitterbrush and sagebrush plantings have taken place to help in the recovery of this area. The success of the rehabilitation work up to this point will depend on the amount of precipitation received. These areas may need several years in order to recover to pre-fire conditions.

Population Status and Trend

The population of mule deer in Unit 051 is estimated to be about 2,500. Fawn production was fairly high going into the winter with slight fawn loss this spring. With fawn recruitments nearly stable, no major increases are expected at this time. Much of the summer range is in fairly good condition with a few minor exceptions. The winter ranges over the last few years have suffered in this unit despite rehabilitation efforts. Winter 2015-16 and spring moisture should continue to rehabilitate the area and show signs of recovery. The population is expected to remain stable over the next few years unless major habitat changes occur.

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

Report by: Matthew Jeffress

Hunt Results

The percentage of bucks with 4-points or better was 39%, mirroring 2015 hunt results.

Survey Data

A helicopter survey was conducted in December 2015 with a total of 5,133 deer classified as 37 bucks:100 does:66 fawns. This is the largest sample obtained since 1998. The target buck ratio is a result of slightly underestimating the Management Area 6 mule deer herd as well as underestimating winter survival rates during the drought years of 2011-2015.

A spring helicopter survey was conducted in March 2015, with a total of 4,465 deer classified yielding a ratio of 32 fawns:100 adults. The fawn ratio is 10 points below the previous 2 years; however the ratio was significantly influenced by poor recruitment observed on Marsh Creek Bench at 13 fawns:100 adults.

Habitat

Above average snowpack this winter was a nice change over the past 4 years. Deep soil moisture received fall and winter 2015-16 should help sustain mature sagebrush plants that survived the widespread sagebrush die-offs realized over the past 4 years, as well a greatly improve the condition of rehabilitated lands ravaged by fires. The great improvement in snowpack should also greatly help aspen stands that were stressed late last summer.

Even with gold prices dropping to $1,000 per ounce over the last year, mining activity continues to increase throughout Management Area 6. Direct and indirect impacts to mule deer migration corridors remain the highest concern with increased mining and exploration.

Population Status and Trend

The population estimate for the Management Area 6 deer herd mirrors 2015's estimate. Given limited available winter habitat coupled with prolonged periods of snow and below-zero temperatures, management objectives will continue to maintain an overall population near 10,000 deer. The segment of deer wintering on the west face of the Independence Mountains was most impacted by deep and prolonged snow cover last winter. Fawn losses were expected in this area, but high rates of adult mortality were not

observed. The Marsh Creek winter range represents the largest non-migratory segment of the Management Area 6 deer herd and happens to be the highest elevation winter range in Management Area 6.

This herd is capable of increasing rapidly due to the excellent summer habitat and high fawn producing capabilities associated with Management Area 6. The recruitment rate of 31 fawns:100 adults observed in the Sheep Creek Range and Izzenhood Range is a testament to successful range restoration efforts implemented by the Bureau of Land Management (Elko), the Nevada Department of Wildlife and private landowners. A balance of sustainable grazing practices and restoration efforts will help ensure a positive benefit for wildlife on these important winter ranges.

Recommended quotas for 2016 will be similar to 2015 quotas. As was the case last year, female harvest is necessary to maintain the deer population within the confines of the carrying capacity of winter range. Population management through the implementation of doe hunting will alleviate competition among deer for limited resources during moderate to severe winters, as was demonstrated this winter. Without implementing doe hunting over the past 4 years as a means to curb 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: Scott Roberts

Hunt Results

There were 108 tags issued in 2015 across all weapon classes for both residents and nonresidents, with 63% of all tag holders successful in hunting deer. Of the bucks harvested, 54% were 4-points or better; below the previous 10-year average of 62%. For more specific hunt results please refer to Hunt Tables in the Appendix Section.

Survey Data

An aerial deer survey was conducted in November 2015. A total of 578 deer was classified; yielding ratios of 39 bucks:100 does:52 fawns. The survey was conducted very near the peak of the rut and resulted in a near record sample size.

Habitat

As of March 1, 2016, snowpack figures recorded at Snotel sites in the water basins located within and adjacent to this unit group ranged from 110%-113% of long-term mean (www.nrcs.usda.gov). As of March 24, 2016, the US Drought Monitor Index has this entire area identified as abnormally dry, a welcome upgrade from 2014's severe drought classification. Last year's drought conditions were tempered by the above-average late spring-summer rains. The well-timed rains led to improved vegetative production throughout the unit and enabled the population to enter winter in excellent shape.

In August 2015, the Dixie Fire burnt approximately 350 acres of mixed-mountain shrub habitat in the center of Unit 065. The burned area was comprised of a mixture of both public and private land. A coordinated effort was made to secure landowners permission to use the Bureau of Land Management and the Nevada Department of Wildlife resources to reseed the area this past winter. There may be a limited short-term loss of ecological function of these acres, but the sagebrush, bitterbrush and forb seed mix applied should ensure a return to functionality.

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 exploration drilling represent some of the most productive summer range in Unit 065.

Population Status and Trend

This deer herd exhibited a slight contraction from 2014's estimate, a direct result of the difficult conditions experienced this past winter.

Units 071 – 079, 091: Northeastern Elko County

Report by: Kari Huebner

Hunt Results

The 2015 hunter success for both the early and late season Any Legal Weapon hunts increased from 2014. Hunter success for the early hunt was up from 51% to 55%; the late hunt increased from 62% to 70% success. In 2014, the hunt of 4-point or better bucks was 23% early and 53% late. This year, the hunt of 4-point or better bucks was higher in the early season with 33% and slightly lower in the late season with 52%.

The 2015 archery success was 23% for the early season, up from 13% last year. Late season success also increased from 26% in 2014 to 42% in 2015.

Survey Data

Post-season helicopter surveys were scheduled but not flown due to inclement weather conditions. Spring surveys were conducted in April 2016. A total of 2,478 mule deer was classified; yielding a ratio of 22 fawns:100 does.

Habitat

Deer habitat in this unit group has been reduced following large wildfires occurring in the area since 1999. Invasive weeds such as cheatgrass, mustard and halogeton have invaded deer habitat and now dominate many of the lower elevations. Even in areas where perennial grasses and forbs are found, it has taken years for shrubs such as sagebrush and bitterbrush, which provide much needed nutrition in these summer and transitional ranges, to return to the burned areas.

The majority of the Management Area 7 deer herd winters south of Interstate 80 in the Pequop and Toano Mountains. As these deer attempt to make their way to winter range from Jarbidge and other summer ranges, they are often struck by vehicles either on US Route 93 or Interstate 80. There are 5 functional wildlife safety crossings on US Route 93 designed to facilitate movement across these obstacles. Another under-crossing structure will be added to the southern end of the HD crossing in 2016. Four additional crossings will be constructed on Pequop Summit in 2016 as well. Deer-vehicle collisions have decreased each year the crossings have been in place, making the road safer for motorists, as well as deer. These migration routes for deer are crucial for habitat connectivity.

Since 2008, 99 deer have been radio collared in a collaborative effort between Nevada Department of Wildlife, Newmont Mining Corp. and University of Nevada, Reno, in the Pequop winter range. As of the spring of 2016, there were 24 collars still active. The collar data has been, and will continue to be, used to assess impacts from mineral exploration and potential mine development in Long Canyon on wintering and migrating deer and to better define migration corridors and winter use areas.

Population Status and Trend

Data indicate the Management Area 7 deer herd experienced a significant set-back during the winter of 2001-02. Since the set-back, this deer herd has been stable. Due to a combination of fires, drought conditions and possible plant senescence, it is highly unlikely deer habitat in Management Area 7 can support the high numbers of deer documented in past decades. The low observed fawn ratio in 2015 was an indicator of the herd being at or near carrying capacity. The low observed fawn ratio this year may be

due to a combination of density dependent factors as well as tough winter conditions. An antlerless hunt was added in 2015 to help address population size relative to current habitat limitations.

Recent deer collaring has been instrumental in better understanding 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 in Unit 081 this year.

Habitat

Unit 081 deer herd's winter range and a portion of its summer range were significantly impacted by the West Fork Fire in 2007. The fire burned 154,943 acres of prime winter habitat. The fire burned very hot and left few islands of habitat. Although the area was intensely seeded the first winter following the fire, it will take many years for the brush community to fully recover in this area.

Population Status and Trend

Overall, 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 hunt more of the migratory herd and reduce hunting on the small resident deer populations in the area. Hunter success increased again this past year during the Any Legal Weapon season. This herd has been managed as a trophy area in the past and with current challenges such as the reduction of winter range, the recommended tag quota will remain conservative.

Units 101 - 109: Southern Elko and Northwestern White Pine Counties
Report by: Caleb McAdoo

Hunt Results

The long-term hunt success rate for the early rifle season remains near 25%. For 2015, the early season success rate was 28% and the mid-season success rate was 33%. The 2015 late-season hunter success was 61%, up significantly from 47% in 2014. Despite the high success in this late season, a relatively small percentage of bucks harvested were 4-points or better when compared to other units in northeastern Nevada. This is one of many indicators of a disproportionate age-class distribution of bucks in Management Area 10. The early rifle season also showed a dismal 4-point or better percentage from reported hunt, a mere 13%.

As a whole, the percent of 4-points or better harvested across all weapon classes in Management Area 10 in the 2015 season was only 29%, below the 10-year average of 33%. Comparatively, the statewide average of 4-points or better in the hunt was 38% for 2015. In the last 5 years, the percent 4-points or better has dropped precipitously and is likely due, in part, to poor recruitment and increased hunting pressure from 2011 and 2012.

Survey Data

A spring helicopter survey was conducted in early April 2016. During this survey, 7,990 deer were

classified, yielding a ratio of 20 fawns:100 adults. This is the third lowest observed fawn ratio recorded since aerial helicopter surveys were initiated in 1976. In addition to the low observed fawn ratio, many fawn and adult deer carcasses were observed from the air during the survey, yet another indicator of the substantial loss incurred during the 2015-16 winter.

Habitat

In contrast to 2014, 2015 was an extremely wet year with both great summer precipitation, as well as heavy snow fall. Snow levels remained significant on all seasonal ranges from late November through early March and appear to have been detrimental to fawn recruitment and to a certain degree, adult survival. Depending on the month and the location, Snotel sites were reporting snow pack values 150%-280% of normal. Valleys also held significant snow levels and the first south facing slopes on winter range did not begin to melt off until late February 2016, creating extremely tough conditions for deer survival. Summer range conditions should be phenomenal as a result of these moisture receipts.

The Nevada Department of Wildlife continues to work on habitat projects initiated to improve mule deer winter and transitional range by setting back the successional stage of the area to a more browse dominated state. These efforts should increase wildlife diversity and reduce the potential of catastrophic wildfires by reducing the fuel load. These areas are, and have been, extremely important winter and transitional ranges for thousands of mule deer residing in Management Area 10. Ongoing efforts in the Spruce Mountain area occurred during the fall-winter of 2015-16 with an additional 1,500 acres treated.

The Murray Mountain Fire in Unit 104 occurred during summer 2015, burning primarily Phase II and Phase III pinyon and juniper. Short-term losses to mule deer are insignificant; however there are potential benefits in the long-term to the Management Area 10 mule deer herd.

Population Status and Trend

Significant adjustments were made to the Management Area 10 deer population model this year to better reflect recent observations in recruitment rate, harvest data, survey results and to account for the severe winter conditions occurring during the 2015-16 winter. The population estimate dropped from 18,000 last year to 15,000 this year, with the drop attributed to winter conditions resulting in both extremely low fawn recruitment, as well as some adult mortality.

Historically, a post-hunt buck ratio objective of 30 bucks:100 does has been used for quota determination in Management Area 10. While survey data indicates this management objective has been met, other qualitative data such as hunter success rates and lack of mature bucks in the harvest indicate a more conservative management strategy may be warranted. Both hunting and survey data suggest the male age structure is more heavily represented by younger aged bucks. Management recommendations will be aimed at promoting a greater proportion of mature bucks in the population.

Units 111 – 113: Eastern White Pine County

Report by: Kody Menghini

Hunt Results

For specific hunt results, please refer to the Hunt Tables in the Appendix Section.

Survey Data

The last post-season survey in this unit group was conducted in fall 2013. For the seventh consecutive year, spring mule deer surveys were conducted in conjunction with post-season elk surveys in late February and early March 2016. A composition count of 3,979 mule deer yielded a ratio of 30 fawns:100 adults. The previous 5-year average (2011-15) fawn recruitment is 28 fawns:100 adults for this herd. The 2016 sample is the largest observed in this unit group since spring 1991. Winter 2015-16 was above average

for snow pack and deer were more concentrated on winter range than in years past, resulting in the high sample size.

Habitat

Winter 2014-15 was warm and dry in the Ely area. Timely spring rains between April and June 2015 improved the condition of forage and habitat available to deer and likely contributed to improved body condition of deer. The Ely Airport received 106% of average (1981-2010) precipitation in October 2015 resulting in good fall green-up. This provided for comparatively high quality forage prior to the rut and onset of winter. The Ely Airport received 101% of precipitation compared to the long-term (1981-2010) average in 2015. The winter of 2015-16 was snowy and cold in the Ely area, with the Ely Airport receiving 190% of precipitation compared to the long-term (1981-2010) average for December 2015 to February 2016. The Berry Creek Snotel site received 124% of the long-term average (1981-2010) snowpack during the winter of 2015-16. The above average winter, coupled with continued spring precipitation, should improve habitat available for deer this year.

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. Over the past several years, habitat enhancement projects have included 2 new water developments and several thousand acres of chainings and other pinyon and juniper removal projects in Unit 112. A 5,700 acre shrub enhancement project was completed on the east side of Unit 111 as well. Numerous other projects with potential benefits to mule deer are still in the planning stages.

In June 2012, the Range and North Schell fires burned approximately 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 impact mule deer in the short-term, a net positive benefit for mule deer is expected in the long-term.

Population Status and Trend

This population remains stable. Winter deer mortality appears to have been comparatively low due to a break in winter conditions in mid-February 2016. Had severe winter conditions continued through February, winter mortality likely would have been much higher. The winter and spring precipitation should improve habitat conditions for deer overall.

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

Report by: Kody Menghini

Hunt Results

For specific hunt results, please refer to the Hunt Tables in the Appendix Section.

Survey Data

The last post-season survey in this unit group was conducted in fall 2013. For the seventh consecutive year, spring mule deer surveys were conducted in conjunction with post-season elk and bighorn surveys in late February and early March 2016. A composition count of 677 mule deer yielded a ratio of 33 fawns:100 adults. The previous 5-year (2011-2015) average sample size is 420 total deer with an average fawn recruitment rate of 25 fawns:100 adults for this herd.

Habitat

Similar to hunt units 111-113, above average precipitation was observed in the Snake Range units. Timely spring rains between April and June 2015 improved the condition of forage and habitat available to deer.

This likely contributed to improved body condition in deer. Winter 2015-16 had below average temperatures and above average snow levels. As of March 1, 2016, the Silver Creek and Wheeler Peak Snotel sites had received 7.8" and 15.7"of precipitation, respectively, since October 1, 2015, compared to 3.1" and 7.9", respectively, in 2015 during the same time period.

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. 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 now crowded upon by conifers such as white fir. These actions could benefit mule deer far into the future.

Population Status and Trend

Since winter 1992-93, this population has only experienced 4 years of positive population growth. The Snake Range continues to be plagued by cycles of drought having negative impacts on the high quality vegetation mule deer need for survival and fawn recruitment. Since 2009, approximately 61 mountain lions have been removed by Wildlife Services and through sport hunt. Unfortunately, these predator removal efforts do not appear to have produced any measurable benefits to the deer population. Even with the declining population, a conservative hunting strategy has maintained a robust male age structure and the herd remains strong. This area continues to produce quality mature bucks, with a higher than average 4-point or better buck harvest (about 44%) compared to the statewide average (38%) indicating quality hunting opportunity remains strong. For 2016, the mule deer population is showing a slight decrease.

Unit 121: North Egan, Cherry Creek Ranges; White Pine and Elko Counties

Report by: Scott Roberts

Hunt Results

The 2015 combined hunt of 229 deer (221 bucks, 8 does) was 21% higher than the previous 10-year average. The hunt of 4-point or better bucks was 31%; slightly higher than the previous 10-year average of 30%. For specific 2014 hunting season results, please refer to Hunt Tables in the Appendix Section.

Survey Data

An aerial deer survey was conducted in Unit 121 in December 2015. A total of 2,591 deer was classified; yielding ratios of 26 bucks:100 does:44 fawns. This survey was the first post-season survey flown in this unit since 2011; for this reason it was the Eastern Region's highest priority in 2016. The high priority ranking meant the survey was flown as soon as the area's elk hunt was over. The survey obtained an all-time high count for this unit, surpassing last spring's previous record survey sample by 428 animals. The previous high fall survey was in 1989 when a total of 1,923 deer was classified. The transition winter range in Smith Valley continued to hold a majority of the deer with 1,656 classified individuals (64%). The Smith Valley sample continues to have a significantly lower buck ratio (20 bucks:100 does) than the rest of the unit (40 bucks:100 does). The difference in buck ratios is a function of the openness of Smith Valley, its higher road density and its proximity to the town of Ely. The fawn ratio in Smith Valley came in at 46 fawns:100 does and was relatively close to the rest of the unit that came in at 41 fawns:100 does.

An aerial spring mule deer survey was conducted during March 2016. A sample of 1,913 deer was classified in Unit 121; yielding a ratio of 28 fawns:100 adults. The resulting observed ratio represents 24% over winter fawn mortality.

Habitat

Exceptional precipitation received in late summer and early fall over the past 4 years has produced spring-like range conditions with significant forage production later in the year. The Unit 121 deer herd has benefitted from the improved conditions and entered the past 4 winters in excellent shape.

Pinyon and juniper encroachment continues to plague a significant portion of this unit. Several large scale habitat enhancement projects are proposed in the near future. The Combs Creek project was approved to reduce or remove pinyon and juniper on 7,000 acres of high quality habitat on Bureau of Land Management managed lands in the southern portion of Unit 121. The initial project acreage has been treated, with an additional 353 acres to be completed later in 2016. This project will protect and enhance some of the most productive summer and winter range Management Area 12 has to offer. This year's survey demonstrates the importance of this area, as a significant portion of the unit's deer herd spent most of the fall in or around this project area before the heavy snow loads pushed them to lower elevations.

Population Status and Trend

The spring fawn ratio was significantly lower than the previous 10-year average of 38 and was directly correlated to the difficult conditions experienced during the winter of 2015-16. The drop in the observed fawn ratio will result in a slight contraction of the unit's population estimate. The planned enhancement of thousands of 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: Mike Podborny

Survey Data

There was no post-season herd composition survey conducted during this reporting period. The last post-season survey was conducted in December 2014 with 908 deer classified; yielding ratios of 32 bucks:100 does:70 fawns. In March 2016, an aerial spring deer survey was conducted with 1,932 deer classified; yielding a ratio of 32 fawns:100 adults. There was heavy snow in the mountains with green-up starting in the valleys during the early March survey and all deer were along the migration trail at lower elevations. The Golden Gate range, Unit 133, is only used by deer during severe winters and there were 400 deer observed remaining on this winter range even with many deer moving north during the survey.

The more than 1,900 deer classified was the highest spring sample since 1984. The spring fawn recruitment was average even with the severe winter conditions. The 2015 spring survey was conducted during a period of warm temperatures with no snow and resulted in 873 deer classified with a ratio of 41 fawns:100 adults. The 10-year average spring fawn to adult ratio is 33.

Habitat

Monsoon rains from August thru October have been substantial from 2012 through 2015 and habitat conditions for deer have improved before winter throughout this unit group. The winter of 2015-16 had above-average snow fall from mid-December thru mid-February with deep snow in the mountains and snow remaining in the valleys through this time period. Water availability on summer ranges will improve as the heavy snow should replenish seeps and springs important to deer. The long-term quality and quantity of summer ranges are slowly being reduced by conifer encroachment, thereby lowering the carrying capacity for mule deer. Since the summer of 2010, the US Forest Service has hired crews with chainsaws to cut small pinyon and juniper trees encroaching into open grass and brush zones of the White Pine, Grant and Quinn Canyon Ranges. The US Forest Service plans another large project in the southern portion of the White Pine Range of Unit 131. All these projects will prevent tree domination of some brush communities, maintaining value for deer and other wildlife. The Nevada Department of Wildlife Southern

Region Guzzler crew rebuilt 2 water developments in the Grant Range increasing water available to deer, elk and pronghorn antelope in the area.

Population Status and Trend

The reported harvest of 389 bucks was the highest recorded in this unit group since 1988 when 355 bucks were harvested. The change in management philosophy to maintaining higher buck ratios can be demonstrated through the point class of hunt changes over the years. In 1988, 24% of bucks hunted were 4-points or better, while nearly the same hunt in 2015 shows 44% of bucks hunted were 4-points or better. The population has been increasing steadily since 2008. The modeled population estimates for 2016 shows a slight decrease to 4,000 deer due to average fawn recruitment and some winter mortality.

Units 141 - 145: Eureka and Eastern White Pine Counties

Report by: Mike Podborny

Survey Data

There was no post-season herd composition survey conducted this year. The latest post-season aerial survey was completed in November 2013 with 1,342 deer classified; yielding ratios of 28 bucks:100 does:49 fawns. In March 2016, an aerial spring deer survey was conducted with 1,922 deer classified; yielding a ratio of 37 fawns:100 adults. The deep snow in the mountains forced deer to low elevations and easily accessible for survey in 2016. This is the highest spring sample since 1995 when 2,113 deer were classified. The previous spring survey, in 2015, resulted in 1,381 deer classified, yielding a ratio of 41 fawns:100 adults. In 2008 and 2009, the spring surveys resulted in near record low fawn to adult ratios of only 19:100 and 21:100 respectfully. The 10-year average spring fawn recruitment is 32 fawns:100 adults.

Habitat

A round-up of private horses in the Cortez Range and Crescent Valley of Unit 141 was conducted in February 2015 with over 1,800 horses gathered and removed. The Bureau of Land Management conducted a horse round-up in the Diamond Mountain area in January 2013; removing 792 horses. Since then horse numbers have increased in the Diamonds and are high in the Roberts Mountain and Fish Creek Ranges as well. Eureka County and the Eureka County Advisory Board to Manage Wildlife have hired crews with chain saws to cut pinyon and juniper trees on private range lands in the Diamond and Roberts Mountains. The funding came from Eureka County, The Wildlife Heritage account and the Nevada Department of Wildlife Private Lands Program. The removal of horses should provide for a short-term or immediate improvement of range conditions while the reduction of trees will benefit deer and other wildlife in the future. Planning to conduct tree removal on Bureau of Land Management lands is ongoing as well.

The Diamond Fire on the east of the Diamond Mountains burned 7,000 acres of important mule deer habitat in August 2015. A large rehabilitative effort by the Bureau of Land Management and Nevada Department of Wildlife was undertaken with the Nevada Department of Wildlife paying for the aerial seeding. The Bureau of Land Management paid for seed, drill seeding, removal of old fences and the purchase and installation of a new pipe rail fence around important springs and aspen stands. In the short-term, deer may utilize some of the forbs from the seeding effort and natural sprouting, but loss of the important brush component will take many years to recover.

The Silver State Sportsman from Eureka and Nevada Houndsmen Association joined with the Nevada Department of Wildlife guzzler crew for a 1-day work project to increase the storage capacity of 4 water developments in the Fish Creek Range. As a result, more water will be available for mule deer and other wildlife in the area. Above-average snow received from December thru March will improve water availability and feed for deer in 2016.

Population Status and Trend

Wildlife Services was funded through the Nevada Department of Wildlife Predator Management Program in early 2016 to conduct coyote removal work in the Diamonds. Heavy, deep snow provided optimal hunting conditions and 380 coyotes were removed via helicopter and fixed wing. The coyote removal may have contributed to a higher fawn survival during the harsh winter. The percent of 4-points and greater in the hunt decreased in 2015 to 23% from 28% in 2014 and is below the statewide average of 38%. This population has been rebounding with improved fawn recruitment for several years and the high number of deer found during the 2016 spring survey was encouraging. Despite this encouragement, the continued low number of bigger bucks in the hunt, and some winter mortality, indicate the Management Area 14 deer population remained static in 2016.

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

Report by: Jeremy Lutz

Survey Data

No post season mule deer surveys were performed in Management Area 15 in 2015.

A spring aerial composition survey conducted in mid-March 2016 resulted in the classification of 815 deer as 668 adults and 147 fawns, yielding a ratio of 22 fawns:100 adults. No spring surveys were conducted in 2015 for comparison; however, the average fawn ratio over the last 4 years is 21 fawns:100 adults.

Habitat

Drought plagued Management Area 15 for the fifth consecutive year resulting in limited production of essential mule deer forage. Forb production and leader growth on crucial browse species has been very poor and almost non-existent over the last 5 years. Deer have been utilizing riparian habitats by early summer as these areas have offered the only highly nutritious and palatable vegetation on the landscape. In 2015, many springs and perennial streams were found to be dry by August once again.

From November 2015 to late January 2016, most of Nevada was blessed with precipitation in the form of snow and rain. Several feet of snow accumulated in upper elevations in Lander and Eureka counties, with a 3-month period of 100% snow coverage in most mountains and valleys. This amount of moisture in the upper elevations should help desirable, deep rooted plants begin to recover from the impacts of drought experienced over the last 4 years.

The Bureau of Land Management has done an outstanding job of trying to alleviate livestock issues associated with drought since 2012. Most livestock permittees within the district have taken voluntary non-use, shifted their seasons of use or shortened their period of use while permitted on public lands. Permittees should be commended for their efforts during these stressful times. Most alarming is the density and rapid increase of feral horses present throughout Management Area 15. Several Herd Management Areas are currently well over established Appropriate Management Levels, and unfortunately impacts to mule deer habitat have been documented.

Several thousand acres of pinion and juniper were removed from the north Toiyabe Range during 2015 by the Bootstraps hand-thinning crew. This work was done primarily on the west side of Mount Callaghan, in Iowa, Boone, and Bernd Canyons. This project is expected to benefit the habitats of a variety of species, and mule deer and sage-grouse in particular, as upper elevation mountain brush zones were targeted for pinyon and juniper removal.

Population Status and Trend

Deer entered the winter of 2015-16 with less than adequate fat reserves due to prolonged drought conditions. Persistent snow cover from November through February on lower elevations and known winter

ranges likely led to the low observed fawn ratio in Management Area 15 this spring. It is believed additional adult winter mortality likely occurred this winter, but to what extent is unknown at this time.

This population has been, and will likely continue to be, regulated by the amount and timing of precipitation received in Management Area 15. During extended periods of drought and above average snow depths on winter range this population is regularly impacted by low fawn recruitment. Management Area 15 has typically followed a "boom and bust" population cycle. This cycle can be moderated by keeping the population at levels below carrying capacity through the use of female harvest.

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

Report by: Joe Bennett

Hunt Results

The year 2015 was the ninth consecutive year of the Any Legal Weapon, Early/Late split season structure, mule deer hunt in both Management Area 16 and 17. 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 larger crowds and comparatively more difficult hunting conditions a greater chance of obtaining a deer tag on a regular basis, while at the same time offering a hunt later in the fall with significantly smaller crowds, and cooler temperatures, for those sportsmen 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 42%, while the Late Resident Any Legal Weapon season success has averaged 59%. During the same 9-year period, the average harvest percentage of 4-points or better during the early and late seasons has been 32% and 55%, respectively.

Survey Data

No formal post-season aerial mule deer composition surveys for units 161-164 were conducted in 2015, due to vacancy of the Tonopah Field biologist position. In 2014 Management Area 16 aerial post-season composition surveys yielded a total of 1,292 mule deer classified as 191 bucks, 734 does and 367 fawns. The sample obtained during the 2014 fall survey was the highest seen since 1990 when a total of 1,322 deer was classified. The buck ratio of the 2014 survey could be biased low because the timing of survey was conducted slightly after the peak of the rut

Spring aerial composition surveys for 2016 yielded a sample size of 817 deer which were classified as 622 adults and 195 fawns. 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 static for most of the past decade. Regularly occurring periods of drought, excessive feral animal numbers, aging of browse species and increasing pinyon and juniper densities have collectively managed to keep mule deer populations in central Nevada from experiencing any significant growth.

In recent years, drought conditions during the winter and spring periods in central Nevada have acted to maintain the static trend. However the above average precipitation in 2105 (146% of 30-year average) should allow rangeland conditions to improve and allow much needed reprieve from recent drought periods. During recent years, good amounts of monsoonal moisture received during the summer and early fall has provided some much needed relief.

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

Hunt Results

The year 2015 was the ninth 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 larger crowds and comparatively more difficult hunting conditions a greater chance of obtaining a deer tag on a regular basis, while at the same time offering a hunt later in the fall with significantly smaller crowds, and cooler temperatures for those sportsmen willing to wait longer between deer tags.

Since the inception 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 8-year period, the average harvest percentage of 4-points or better during the early and late seasons has been 27% and 44%, respectively.

Survey Data

No formal post-season mule deer composition surveys in Management Area 17 were conducted in 2015, due to vacancy of the Tonopah Field biologist position. The 2014 Management Area 17 post-season aerial mule deer composition survey provided a sample size of 1,338 deer which were classified as 266 bucks, 724 does, and 348 fawns. While production and recruitment remains somewhat depressed in Management Area 17, the observed buck ratio remains strong.

Spring aerial composition surveys for 2016 yielded a sample size of 1089 deer, which were classified as 856 adults and 233 fawns. Majority of the sample came from 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, along with various other factors, has resulted in very little overall growth of mule deer populations and a relatively static trend.

Before 2015, drought conditions experienced over the past 3 winter and spring periods in central Nevada have resulted in 3 consecutive years of depressed production and recruitment of fawns in Management Area 17. However the above-average precipitation in 2015 should have caused some much needed reprieve and allowed rangeland conditions to improve to some extent. Summer monsoonal and fall precipitation over the last 3 years has provided some much needed relief in the presence of drought.

Due to reduced fawn recruitment, the Management Area 17 mule deer population is currently experiencing a static to slightly decreasing trend.

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

Survey Data

There was no post-season deer survey conducted in 2015. A small ground survey in March 2016 resulted in the classification of 116 mule deer; yielding a ratio of 40 fawns:100 adults.

Habitat

In the summer of 2014, fire consumed a higher elevational pinyon and mahogany stand on the west face of the Desatoya Mountains, burning approximately 333 acres. The Nevada Department of Wildlife reseeded

approximately 170 acres of this burned area with a native forb and grass mix. The fire burned extremely hot in the treed areas and the seeding was necessary to provide soil stabilization and seed stock to allow for full recovery. Fires like this are important in creating new brush and grassland openings in the dense conifer stands.

In 2015, the Cold Springs Fire ignited at the top of Caroll Summit consuming over 5,000 acres of mainly pinyon and juniper woodland. The Nevada Department of Wildlife seeded the project in January 2016 to allow for the reestablishment of grasses as well as browse species. Moisture received in 2016 thus far seems adequate to allow for possible establishment of new seedlings into this newly created fire scar.

Springs and riparian areas have also been identified in the Clan Alpines and the Desatoya Mountains for protective fencing projects. Fencing key riparian areas with pipe rail fence will allow for increased flow of water while providing increased access to high quality grasses and forbs.

Population Status and Trend

The Management Area 18 mule deer herd seems relatively stable. This year's fawn ratio will afford the population the ability for some small growth in the coming year. Winter 2015 was mild with very few days experiencing sub-zero temperatures, allowing the deer herd to have considerable time foraging in the higher elevations. Another factor important to mule deer was the increased availability of basal green-up located on many varying aspects. The 2015 hunter data indicates 40% of hunted bucks were 4-point or better, with the 10-year average at 38% 4-points or better. The 4-point or better data is up and is well within the 10-year average of 38%.

Unit 192: Carson River; Douglas County

Report by: Carl Lackey

Survey Data

Post-season survey flights were conducted in February 2016. Survey conditions were ideal, with several inches of fresh snow falling the day before, and calm, sunny conditions during the survey, resulting in the classification of over 600 deer with a ratio of 13 bucks:45 fawns:100 does. An abbreviated spring flight was conducted in mid-March 2016 in the Jacks Valley Wildlife Management Area only. It resulted in a classification of 52 deer with a ratio of 53 fawns:100 adults.

Habitat

There were no significant changes to the habitat in 2015 occupied by this deer herd. 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 range. More favorable winter conditions prevailed from December 2015 to March 2016 with above average precipitation levels as of March.

Population Status and Trend

The modeled pre-hunt population estimate is between 900-1,100 animals and it has been at this approximate level for the last several years. Survey and hunt data indicate this deer herd has probably maintained itself over the last few years, with adequate fawn recruitment rates and generally good age distribution. The Nevada Department of Wildlife and the University of Nevada, Reno, continue to study this deer herd, providing survival rates, mortality data and migration information from over 100 collared deer.

Unit 194, 196: Carson Range and Peavine Mountain; Washoe and Carson City Counties
Report by: Carl Lackey

Survey Data

Post-season survey flights were conducted in February 2016. Survey conditions were ideal, with several inches of fresh snow falling the day before and calm, sunny conditions during the survey, resulting in the classification of over 800 deer with a ratio of 25 bucks and 45 fawns:100 does. The spring flight was flown in mid-March and resulted in the classification of over 700 deer with a ratio of 28 fawns:100 adults.

Habitat

Drought conditions persisting for the last 4 years likely affected this herd's ability to withstand the heavy snow levels received this winter, as seen in the spring survey flight results and additional anecdotal reports of deer carcasses in the northern part of this unit. Nonetheless, most of the unit appears to be in good shape and there was plenty of green-up observed during the spring flight. The majority of this herd uses the eastern slopes of the Carson Range as critical winter range, migrating from their Tahoe basin summer range.

Population Status and Trend

The 2016 modeled pre-hunt population estimate is around 1,700 and it has been at this level for the last few years. Over the last few years this deer herd has appeared healthy with adequate fawn recruitment rates and generally good age distribution. Despite this, 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 for locals and non-residents, with high success rates and good point-class distribution.

Unit 195: Virginia Range; Storey, Washoe and Lyon Counties
Report by: Carl Lackey

Survey Data

No formal surveys have been conducted since 2002.

Habitat

The majority of land in this unit is privately owned and a significant portion is being 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 bucks harvested. Deer are fairly common along the Truckee River corridor on mostly private lands. Significant portions of the unit contain monocultures of pinion and juniper and the deer in this unit spend a considerable amount of time in these pinion and juniper forests, making them hard to detect. Deer also seem to be 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 Lake; Douglas, Lyon and Mineral Counties
Report by: Jason Salisbury

Survey Data

There was no post-season deer survey conducted in 2015. The last post-season aerial surveys were completed by the Nevada Department of Wildlife in early January 2015 and resulted in the classification of 391 mule deer. This sample consisted of 62 bucks, 232 does and 97 fawns for a ratio of 27 bucks:100 does:42 fawns.

A spring ground survey was conducted by the California Department of Fish and Wildlife in late March 2016 and resulted in the classification of 466 deer. This sample consisted of 400 adults and 66 fawns, yielding a ratio of 17 fawns:100 adults.

Habitat

The Spring Peak Fire consumed over 14,000 acres in Nevada and California in 2013. A field trip in the fall of 2015 revealed an abundance of grasses and small browse species re-sprouting on site. The damaged area is recovering quite nicely and subsequent follow up field trips post-fire will determine what type of browse community recovers that will benefit deer.

Water is very limited in certain parts of these unit groups. Future water developments will aid in the establishment a of 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, in turn benefiting the mule deer herd.

Population Status and Trend

Currently, the Walker River mule deer herds are experiencing a declining population trend. This suggests this herd could be exhibiting a density-dependent response due to limited resources. Mule deer are thought to be in poor body condition. This assumption is based on continued low fawn ratios. Biologists also believe that a degraded summer range in California leaves mule deer in poor condition when entering 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 will allow biologists to access body condition as well. Body condition scoring information could then be utilized to evaluate carrying capacity of this interstate herd. Based on current fawn to adult ratios this population is declining.

Unit 203: Mason and Smith Valley; Lyon County
Report by: Jason Salisbury

Survey Data

No formal surveys were conducted in this unit group. Hunt information is used to derive the management of buck hunt.

Habitat

The Mason and Smith Valley mule deer herds are believed to be stable at this time. The 1331 Any Legal Weapon hunt can be an indicator of stability. Overall, 2015 deer hunt success rate was 38% with 43% of the bucks reported having 4-points or better.

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 surrounding it in the valley. The highest concentrations of deer exist in and around the Walker River corridor which provides thick stands of willows creating shelter and escape cover. Future plans on the Mason Valley Wildlife area include revegetating some tracts of non-irrigated land. Seed mixes will be developed that may be suited for the area and offers the greatest chances for success. These newly created areas may allow for some limited expansion for the mule deer herd. Habitat fragmentation continues to limit this population to expand.

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 more ideal habitat conditions.

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 population modeling.

Population Status and Trend

Based upon annual harvest data and informal surveys, the Management Area 21 deer population appears to have remained static over the last decade. Recent drought periods over the past decade or more have depressed mule deer populations in Esmeralda County. Above average precipitation during 2015-16 (146% of the 30-year average for central Nevada) should have alleviated some of the detrimental rangeland effects caused by recent droughts. Along with precipitation related impacts, increasing densities of pinyon and juniper, and succession of shrubs have collectively impacted the quantity and quality of available habitat in Management Area 21.

Aerial survey data which was gathered in adjacent hunt units indicate that fawn production and recruitment rates in this region of Nevada remain somewhat depressed or static. In the absence of any evidence to the contrary, it is likely the same situation exists in Management Area 21.

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

Report by: Cooper Munson

Survey Data

Post-season aerial surveys were conducted in December 2015. Deer were encountered in each unit and mountain range and large groups of migratory deer were classified. A total of 1,789 deer were classified composed of 395 bucks, 880 does and 514 fawns. This provides for a survey ratio of 45 bucks :100 does : 58 fawns.

Spring deer surveys were conducted in March 2016 in Units 221, 222 and 223. Aerial surveys resulted in the classification of 1,803 deer composed of 1,331 adults and 472 fawns providing for a ratio of 36 fawns:100 does. Deer were observed making the transition from crucial winter grounds to the higher elevation summer habitat.

Habitat

Habitat conditions are improving throughout much of Management Area 22 as a result of above average

precipitation in 2015. According to the Community Environmental Monitoring Program precipitation data, Lincoln and White Pine Counties received 110% of the previous 10-year average of precipitation. Early spring precipitation should allow for ample forage throughout much of the summer range in Management Area 22.

Multiple threats exist for mule deer throughout Management Area 22. Pinyon and juniper forests continue to expand in both elevation and density into all seasonal ranges for mule deer. Although pinyon and juniper provide thermal cover for mule deer, they reduce the understory and limit forage availability for deer. Fire suppression continues to allow dense pinyon and juniper stands to remain undisturbed throughout large expanses in Management Area 22.

Multiple off-road vehicle issues can increase stress for mule deer in Management Area 22. The Silver State Trail system, various motor vehicle races and shed antler hunters use areas occupied by mule deer during winter and spring, increasing stress on animals at a difficult time of year. Wilderness areas may limit the use of habitat improvement projects that may benefit mule deer; however these wilderness areas also provide protection from future development and stress from off-road vehicles.

A solar energy zone is proposed in Dry Lake Valley, adjacent to several crucial mule deer wintering areas. Feral horse numbers are excessive in some parts of the area, leading to decreased use of those areas by mule deer. Lastly, there remains a proposal to pipe water from places in Management Area 22 to southern Nevada.

Population Status and Trend

The Management Area 22 deer herd appears to be stable with a static population estimate on a 5-year average. The population is estimated at about 4,200 adult animals.

Unit 231: Wilson Creek Range; Northeastern Lincoln County

Report by: Cooper Munson

Survey Data

Post-season aerial surveys conducted in December 2015 resulted in the classification of 1,198 deer. Composition of surveys resulted in a post hunt ratio of 24 bucks :100 does :40 fawns. Many deer were encountered in the Wilson Mountain and Fortification Mountain areas and at agricultural areas that provide for winter forage.

Spring deer surveys were conducted during March 2016, with 1,399 deer classified during aerial surveys in Unit 231. Spring ratios provided a result of 39 fawns:100 adults. Many of the observed deer were in transition from winter range to summer habitat.

Habitat

Habitat conditions are moderate for most of Management Area 23 due to above average precipitation during 2015. Heavy precipitation fell during the winter of 2015. Although much of the snowpack quickly melted, high elevations are providing for some ephemeral water flow enhancing some riparian areas affected by drought in the recent past. Deer likely went into winter in good condition due to the timing of late summer and fall precipitation in 2015. According to the Community Environmental Monitoring Program, this portion of Lincoln County received 114% of the 10-year average annual precipitation during 2015. Landowners in Management Area 23 encourage mule deer to use alfalfa and other agricultural lands in late fall and early winter and thus receive landowner compensation tags. The availability of plentiful forage on private property likely helps deer in Management Area 23 to persist through the winter in better condition.

Mule deer habitat in Management Area 23 is threatened by 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 and juniper forests resulted in continued stagnation of large expanses of degraded habitat.

Excessive numbers of feral horses continue to degrade habitat and water sources, with no outlook for any relief. Large numbers of shed antler hunters continue to place added stress on mule deer and other wildlife in late winter and early spring. Although the added stress may not directly have adverse impacts on deer numbers, there may be other indirect effects from increased stress during the late winter.

Wilderness areas created in Management Area 23 limits the use of large-scale habitat improvement projects that may be beneficial for mule deer; however their creation protect vast landscapes from future development projects and provide refuge from vehicle traffic. Various other threats to mule deer habitat exist throughout Management Area 23, but are lesser threats than continued pinyon and juniper invasion.

Population Estimates and Trend

The Management Area 23 deer herd population has been on the rise over the last 10 years and appears to be stable and healthy. The population estimate for 2016 is about 3,300 adult mule deer.

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

Report by: Cooper Munson

Survey Data

Post-season aerial surveys were conducted in December 2015 in Units 241 and 242. The majority of the survey was conducted in the Clover and Delamar Mountains on transitional habitat and winter ranges. A total of 577 deer were classified composed of 288 does, 137 bucks and 152 fawns. This provides a survey ratio of 53 fawns:100 does:48 bucks.

Spring deer surveys were conducted in March of 2016. Surveys were abbreviated due to weather and available aircraft use. During this survey a small sample size of 121 deer were classified with a resulting ratio of 61 fawns:100 adult mule deer. This ratio is assumed to be skewed due to the high fawn ratio and low sample size.

Habitat

Habitat conditions are fair throughout most of Management Area 24 due to above average precipitation during 2015. According to the Community Environmental Monitoring Program, a total of 115% of the previous 10-year average precipitation was received during 2015. Thus far, in 2016 only about 83% of average precipitation has been received.

Although mule deer exist in all units of Management Area 24, the bulk of mule deer habitat is found in Units 241 and 242. In the Clover Mountains of 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 that have either been burned or been manipulated by habitat improvement projects. Many deer are also found near private agricultural land as well. The Delamar Mountains of Unit 241 also contain mule deer in somewhat lower densities. Many of these deer are also found associated with areas 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 and juniper exist in both areas. Feral horses exist in both Units 241 and 242 in very high densities. These are both areas that have been declared horse-free by Bureau of Land Management and had the Appropriate Management Level 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 the area.

Population Estimates and Trend

The 2015 population estimate is approximately 900 adult animals. This population has shown slight variability in estimated population but is relatively stable.

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 largest amount of good mule deer habitat occurs in Hunt Unit 251. Due to recent drought periods, impacts from excessive numbers of feral animals, pinyon and juniper expansion, and aging of browse species, the deer population in Unit 251 has remained static and at low density for many years. Above average precipitation during 2015 (146% of the 30-year average for central Nevada) should have alleviated some of the detrimental effects on rangelands that were caused by recent droughts.

The past three years prior to 2015 have been plagued by drought, and wildlife habitats and the species that depend on them have suffered. 2015/2016 aerial survey data gathered in adjacent units indicate that fawn production and recruitment rates in much of central Nevada has remained static or slightly depressed.

Due to continuing impacts to habitat, static fawn production and recruitment, and drought conditions, the Management Area 25 mule deer population is thought to be stable to slightly declining.

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 in Unit 262. Mule deer occur in low densities in the Newberry Mountains, Crescent Peak and 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

On July 1, 2013, the Carpenter 1 Fire consumed vegetation across 27,869 acres. The 43.5 square-mile fire consumed plants 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.

Management Area 26 is in close proximity to Las Vegas and other growing cities. Recreational pursuits that include off highway vehicle 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 impacted by feral horses and burros.

In June 2004, the Humboldt-Toiyabe National Forest issued a Decision Notice and Finding of No Significant Impact for Spring Mountains National Recreation Area Motorized Trails Designation Project. The decision to

implement alternative 5 (with modifications) as summarized in the respective Environmental Assessment involves minimal closure of newly established roads. Thus, the recently authorized management prescription for motorized trails ensures the status quo for the foreseeable future.

Population Status and Trend

As of April 2016, environmental conditions range from fair to good due to moisture producing storms in late 2015 and early 2016. Based on favorable mule deer harvest data in 2015 hunt seasons and satisfactory environmental conditions, it is reasoned the mule deer population in Management Area 26 is stable. The National Weather Service Climate Prediction Center forecasts overall drought conditions to persist through June 2016.

Units 271, 272: Southern Lincoln and Northeastern Clark Counties

Report by: Cooper Munson

Survey Data

No mule deer surveys were conducted in Management Area 27 during the reporting period. Mule deer densities are low enough that standard surveys do not result in enough data for analysis. The hunt quotas are based on hunter demand and success in prior years.

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 and 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 observed 18% below-average precipitation during 2015 and early 2016 which will likely result in poor to fair habitat conditions in Management Area 27.

Unit 291: Pine Nut Mountains; Douglas County

Report by: Carl Lackey

Survey Data

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

Habitat

Loss of brush communities over the long-term in this unit continues to keep the deer population at low levels. Expansion of the pinion forest over the past few decades, increased human recreational activity and increased urbanization on the perimeter with corresponding traffic have all contributed to loss of habitat and the decline of mule deer in Unit 291. Significant portions of the unit contain vast expanses of pinion and juniper forest.

Habitat improvement projects are ongoing to reduce the pinion and juniper encroachment that is thought to limit this deer herd. The Nevada Department of Wildlife and the Bureau of Land Management are conducting habitat treatment on several riparian areas under the Pine Nut Health Project funded in part by Habitat and Upland Game Stamp funds and the Nevada Wildlife Heritage Project.

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 more ideal habitat conditions. Many of the deer, particularly in the

northern part of the management area, are resident deer. The 2016 population for Management Area 29 is estimated at 500-700 adult animals. Based on harvest information this herd is well below the historic levels recorded for the Pine Nut Mountains.

PRONGHORN ANTELOPE

Units 011 - 015, 021, 022: Washoe and Western Humboldt Counties

Report by: Chris Hampson

Hunt Results

Tag quotas for Management Area 1 resident rifle hunting seasons were 13% lower in 2015 when compared with the previous year. The reduced tag quotas were influenced by the long-term drought conditions across the region during the past several years. Rifle quotas for Management Area 2 have been fairly stable to slightly increasing in recent years as the herd slowly expands its range and pronghorn abundance increases.

Hunter success rates in Management Area 1 hunt units in 2015 were similar to the 2014 hunting season, but have been trending downward in recent years due to the long-term drought. Changes in pronghorn distribution due to both large scale wildfires (Units 011, 012, 013, and 015) and drought conditions have affected hunter success rates within Management Area 1. Unit 011 was the exception in 2015, with the hunter success rate increasing by 12% to 73%.

Pronghorn rifle hunters within Management Area 2 enjoyed a very successful hunting season with a success rate of 91%. The statewide average hunter success rate for rifle pronghorn hunters was 72% in 2015.

Survey Data

Helicopter composition surveys were conducted throughout Management Areas 1 and 2 during September 2015. Biologists classified 1,296 pronghorn during the aerial surveys. The mean composition ratio from the sample was 36 bucks:100 does:46 fawns.

Buck ratios for the various hunt units ranged between 32 and 35 bucks:100 does. The exception was Unit 015 with a ratio of 42 bucks:100 does. The unit had high proportion (65%) of yearling bucks in the buck sample.

Fawn ratios ranged between 33 and 50 fawns:100 does. Fawn ratios seem higher in areas that received the most summer precipitation. Many of these same areas were the driest areas during the severe drought that persisted over the past several years.

Table 1: 2015 post-season pronghorn composition

Unit/Unit Group	Bucks	Does	Fawns	Total	Bucks:100 Does:Fawns
011	82	258	117	457	32:100:45
012-014	112	297	148	555	38:100:50
015	43	102	43	188	42:100:42
021-022	20	57	19	96	35:100:33
2015 Totals	**257**	**714**	**327**	**1296**	**36:100:46**
2014 Totals	**185**	**659**	**242**	**1086**	**28:100:37**

Habitat

Habitat conditions improved due to the increased moisture received in 2015-16, although an extremely warm and dry February reduced the snowpack throughout much of Washoe and western Humboldt Counties. In some northern locations, up to 5 feet of snow melted during the mild weather in February. The snowmelt filled many of the upper elevation lakebeds important to pronghorn and other wildlife. In

recent years, the lack of water forced pronghorn and other wildlife to move off of these critical summer ranges to locate more reliable water and better forage.

No major wildfires occurred within Management Areas 1 and 2 during summer 2015. Precipitation helped reduce wildfire risk.

Population Status and Trend

Pronghorn populations within Washoe and western Humboldt Counties will benefit from the improved habitat conditions. Recruitment values observed this year will allow most pronghorn populations to experience a stable to increasing trend. The long-term drought conditions over the past several years resulted in a downward trend for most of the pronghorn populations living in the northwest portion of Nevada.

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

Report by: Ed Partee

Survey Data

Post-season aerial composition surveys were conducted mid-September 2015 in Management Areas 3 and 5. The survey showed a slight decrease in the number of animals. Unit 031 saw a slight increase of animals observed despite unfavorable survey conditions. The area is starting to show signs of recovery after the 2012 Holloway Fire.

Units 032-035 showed another drop in animals observed. Group size for the wildlife observed was much smaller as well. Many of the water sources were dry during the survey period despite a fair amount of spring and summer moisture.

Unit 051 surveys detected 100 fewer animals observed in 2015 than in 2014. There were more pronghorn observed in the Fairbanks range. Throughout Humboldt County, the number of animals observed was lower than in 2014, with buck and fawn ratios remaining relatively constant (Table1).

Table 1: 2015 Post-season pronghorn composition for Humboldt County

Unit	Total	Bucks:100 Does: Fawns
031	107	27:100:43
032-035	141	16:100:34
051	173	29:100:40
2015 Totals	**421**	**24:100:39**
2014 Totals	641	24:100:43

Habitat

Snow pack has been over 100% of average in many units, a substantial increase over recent years. Spring conditions have been moderate with good moisture helping spring vegetation. Winter conditions in 2015-2016 were better with temperatures mild throughout the winter with precipitation. With the amount of precipitation received thus far, range conditions are showing improvement over the last few years of drought. No large fires took place in either area in 2015.

Population Status and Trend

These populations have shown slight increases due to appropriate timing of precipitation. Warm season precipitation should benefit these herds throughout the remainder of 2016. The Horns Shorter Than Ears hunts seem to be keeping these populations within the habitat capabilities.

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

Hunt Results

The long-term drought has changed distribution of pronghorn in Unit 033. The number of returned pronghorn rifle tags received prior to the start of the hunting season has increased. The Sheldon pronghorn Early Season Rifle Hunt had the highest rate of tag return in the entire state with 23% tags returned. In addition, success rates for pronghorn hunters on the Sheldon have been lower in recent years. In 2015, the early season success rate was 59%, while the late season success was 71%. Buck quality remains high as 48% of the bucks harvested on the Sheldon had horns 15 inches or greater. The statewide average for hunt units with horns 15 inches or greater was 30%.

Survey Data

Aerial composition surveys conducted in September 2015 classified 689 pronghorn with ratio of 26 bucks:100 does:44 fawns.

Observed fawn ratios increased to 44 fawns:100 does in 2015, representing the highest observed fawn ratio since 2006. Fawn ratios on the Sheldon averaged just 28 fawns:100 does between 2007 and 2014.

Habitat

Habitat conditions on the Sheldon have generally improved due to the increase in precipitation received in 2015-2016; however many spring sources and reservoirs remain dry or are have low flows, indicating that the effects from drought can still be detected.

The northern Great Basin region had 102% of average snowpack as of March 1, 2016. As of March 1, 2016, the Great Basin is at 114% of average total precipitation received during the 2015-2016 water year.

About 18 horses and a few burros remain on the Sheldon following years of removal efforts. The goal of the Sheldon National Wildlife Refuge to remove all horses and burros from the refuge. Disruptions to hunters and hunting seasons should be minimal during these removal efforts.

Population Status and Trend

Habitat conditions on the Sheldon have improved with the increase in moisture received in the fall and winter of 2015-2016. More precipitation will be needed during spring 2016 improve water availability this summer.

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

Survey Data

Ground composition surveys occurred over a 4-day period in late September 2015. All major mountain ranges and valleys were surveyed within the unit group (Table 1). Both fawn and buck ratios were near 5-year averages.

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

Year	Bucks	Does	Fawns	Total	Bucks:100 Does: Fawns
2015	**84**	**265**	**107**	**456**	**32:100:40**
2014	67	186	79	332	36:100:43
5-year average	100	299	125	524	33:100:42

Habitat

For the second straight summer, periodic rains maintained key grass and forb species. Although springs and seeps dried up during summer 2015, pronghorn still had adequate water. Overall, pronghorn habitat throughout the unit group remains productive and continues to allow for herd growth.

In January 2016, the Nevada Department of Wildlife's water development crew retro-fitted the big game guzzler on Eagle Pitcher Mine in the Trinity Range. A new drinker was installed along with a pipe rail fence.

Population Status and Trend

Western Pershing County's pronghorn population trend is stable. The measured recruitment rate in 2015 was 40 fawns:100 does and mirrors the long-term average. Horns Shorter than Ears hunts for this unit group have been designed to provide hunting opportunities and limit high growth rates. Horns Shorter than Ears hunts occurring since 2013 have limited the annual population growth. This population may have habitat capacity for limited growth.

Since 2007, Units 041 and 042 have averaged 39% of the bucks harvested with horn lengths of 15 inches or longer. Hunt results from 2015 show of the 99 bucks measured 39% had horn lengths of 15 inches or longer; the 2015 statewide average was 30%. The unit group had been below its long term average in 2013 and 2014.

Units 043 - 046: Eastern Pershing and Southern Humboldt Counties

Report by: Kyle Neill

Survey Data

Post-season composition surveys occurred in early February 2016. Pronghorn usually winter in large groups and are generally located on the valleys of each unit. All units were surveyed except large portions of Unit 046 due to inaccessibility from winter storms. One hundred eighty two animals were classified with ratios of 42 bucks:100 does:49 fawns. The 2016 fawn ratio is well above the 5-year and long term mean values.

Habitat

Pronghorn habitat remains conducive for herd growth. Primary habitat areas in Unit 043 include the Relief Canyon Mine area and Limerick Canyon, north to Creek Hill. Pronghorn are regularly observed around the Prince Royal Canyon area. In Unit 044, pronghorn use areas include Den Glen Flat, Dun Glen Canyon, the east side of Rose Creek Mountain south to Spaulding Canyon, Willow Creek Road/Canyon, Table Mountain, Reed and Inskip Canyons, agricultural fields along Unionville Highway, and agricultural fields off Grass Valley Road south of Spaulding Canyon.

Areas of use in Unit 045 include the base of Miller Basin, north to Pollard Canyon on the west side of the Tobin Range, and the base of Morning View Canyon to the base of Flag Canyon. Pronghorn were observed in the various canyons of the Tobin Range at high elevations. Pronghorn observations in Unit 046 occur around Button Point, Pole Creek-Kramer Hill, Edna Mountains, Pumpernickel Valley, and the west side of the Sonoma Range at varying elevations from Washoke Canyon north to Button Point.

Population Status and Trend

Eastern Pershing County's pronghorn herd continues to expand into new areas. Field observations from 2015 and aerial observations made during spring mule deer surveys in March 2016 again indicate an increased number of sightings in all units. This herd continues to increase following 2 good years of improved recruitment rates. These factors have bolstered this unit group's population estimates to 600 pronghorn.

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 Unit Group in September 2015. Eight hundred seventeen pronghorn were observed yielding ratios of 41 bucks:100 does:33 fawns. The fawn ratio was well below that measured in 2014 and below the 10-year average. The buck ratio has increased over the past 3 years and is at the targeted post hunt objective.

Habitat

Above average snowpack this winter was greater than that deserved during the last 4 years. Deep soil moisture received in fall and winter 2015-16 should help sustain mature vegetation; particularly the sagebrush communities along the Mountain City Highway corridor. Young sagebrush plants that capitalized on shallow moisture received over the previous 3 summers should also benefit greatly from the above average snowpack. Sagebrush islands along the Interstate 80 corridor, coupled with forage kochia seedings, support the majority of this herd during the winter months. The seedings and sagebrush islands continue to support more than 1,000 pronghorn during the winter months.

Population Status and Trend

About 1,700 pronghorn were observed on winter ranges adjacent to the city of Elko, including a group of 1,036 pronghorn observed in January 2016, northwest of Osino. Pronghorn occupy all available summer habitats from Interstate 80 north to Idaho.

The number of pronghorn using Bureau of Land Management and US Forest Service lands on the northern portions of Unit 061 and 071 has increased. Since the 2007 Murphy Fire, this portion of the pronghorn population has continued to grow and offer great opportunities for hunters. Concentrations of pronghorn were observed on the southern Owyhee Desert and the west side of the north Tuscarora Range during winter elk surveys. Many of the pronghorn observed during winter surveys on the north end of Unit 067 probably spend summers along the west side of the Independence Range.

Units 065, 142, and a portion of 144: Southern Elko County, Northern Eureka County
Report by: Scott Roberts

Hunt Results

The 2015 season marked an all-time high harvest in this unit group for does and the second highest buck harvest on record. Unit 065 accounted for the majority of the take with 92% of all harvested pronghorn coming from the unit.

Survey Data

A ground survey was conducted in December 2015 resulting in 351 pronghorn classified with age and sex ratios of 44 bucks:100 does:45 fawns. Survey conditions were cool temperatures with moderate to heavy snow depths. The snow conditions limited the survey to smaller portions of these 3 units.

Habitat

As of March 1, 2016, snowpack figures recorded at Snotel sites in the water basins located within and adjacent to this unit group ranged from 110%-113% of the long-term mean (www.nrcs.usda.gov). As of March 24, 2016, the US Drought Monitor Index identifies this area as abnormally dry, a departure from the severe drought classification of 2015. Last year's drought conditions were tempered by the above average

late spring and summer rains, leading to improved grass and forb production throughout the unit group and enabling the pronghorn population to enter winter in excellent shape.

The 2015 Dixie Fire burned about 350 acres of mixed-mountain shrub habitat in the center of Unit 065. The burn area comprised a mixture of both public and private land. A coordinated effort was made to secure landowner permission to reseed the area this past winter using funds from the Bureau of Land Management and Nevada Department of Wildlife. There may be a limited temporal loss of ecological function of these acres, but the sagebrush, bitterbrush and forb seed mix applied should ensure a return to functionality.

Population Status and Trend

The population estimate in this unit group is almost identical to the estimate from 2015. 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 pronghorn hunt.

Unit 066: Owyhee Desert; Northwestern Elko County

Report by: Matthew Jeffress

Survey Data

No formal survey was conducted in 2015.

Habitat

No large landscape changes occurred in 2015. Since 1995, 7 big game water developments were constructed on the Unit 066 portion of the Owyhee Desert. The addition of perennial water sources had little effect on increasing the Owyhee Desert portion of the population. Several guzzlers are slated for upgrades or complete rebuilds this summer.

Vast expanses of winter range are available on the eastern portion of the unit; however degraded winter range along the southern and western portions of the Snowstorms has limited the winter carrying capacity of this herd. Increases in mining exploration across the Snowstorm Mountains and wintering grounds south of Chimney Reservoir in Humboldt County have been observed in recent years.

More than 500 horses occupy the area between the Dry Hills and Snowstorms. Many of these horses are outside identified Herd Management Areas. To date, no plans to remove these horses have been identified.

Population Status and Trend

The population estimate for pronghorn within Unit 066 is similar to 2105. A large proportion of the pronghorn within this unit group reside in the Snowstorm Mountains with lower densities found on the Owyhee Desert. An unknown number of pronghorn occupy the Petan Ranch and Duck Valley Indian Reservation during the summer and fall months. Large concentrations of pronghorn were observed on the Owyhee and YP Deserts during aerial winter elk surveys. The locations where these pronghorn spend the summer is unknown.

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

Report by: Matthew Jeffress

Survey Data

A ground survey was conducted in this unit group in January 2016. One thousand, one hundred fifty-nine

pronghorn were observed; yielding ratios of 35 bucks:100 does:25 fawns. This is the largest sample ever obtained for this unit group. Pronghorn were concentrated on forge kochia seedings on the west side of the Sheep Creek Range and sagebrush islands on the southwest side of the Dunphy Hills.

Habitat

Similar to the Area 6 deer herd, pronghorn have been greatly affected by wildfires and the loss of vital sagebrush communities. In 2011, 212,000 acres of rangeland burned in 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 sportsman's 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.

Limiting forage use is important to maintain the viability and production of seedings on transitional and winter ranges. If seedings are overused prior to the onset of winter (particularly forage kochia seedings), the benefits to herds of pronghorn that depend on this for winter forage could be severely limited. Poor range conditions have existed throughout much of the 25 Allotment over the past 5 years. Requests by the Nevada Department of Wildlife to the Bureau of Land Management to alleviate livestock grazing pressure along the west face of the Sheep Creek Range were answered this winter. Kochia seedings on the west side of the Sheep Creek Range were not grazed substantially by livestock this past fall and early winter 2016. In response, 719 pronghorn were observed using this improved range on the west side of the Sheep Creek Range with very few pronghorn observed on private alfalfa fields. The Bureau of Land Management will be encouraged to maintain the improved management of this range.

In early 2015, a large cheatgrass die-off along the face of the Sheep Creek Range between Battle Creek and Rock Creek was seeded with Wyoming sagebrush, Immigrant forage kochia, Sandberg bluegrass, and western yarrow. One thousand three hundred forty acres were seeded using an every other swath pattern for an overall affected area of 2,680 acres. The project was funded by sportsmen in cooperation with private landowners and the Bureau of Land Management (Tuscarora). As of late 2015, much of the seed has failed to take due to prolonged drought conditions. The cheatgrass die-off area is now primarily dominated by mustard and halogeton.

Population Status and Trend

The population estimates for Units 067-068 are slightly higher than 2015. Hunt levels in 2015 maintained the population within the carrying capacity of the winter range, Yearling bucks being harvested 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.

Units 072, 074, 075: Northeastern Elko County

Report by: Kari Huebner

Survey Data

Ground surveys conducted in mid-August 2015 classified 473 pronghorn. The observed sex and age ratios were 38 bucks:100 does:34 fawns. The observed buck ratio was lower than the 2014 ratio of 44 bucks:100 does. The fawn ratio was also lower than the 2014 observed ratio of 44 fawns:100 does. The survey in this unit group is typically conducted between the archery and rifle seasons due to the migration of pronghorn out of the northern end of Unit 072 and into Idaho during and after the rifle season.

Habitat

This unit group was affected by wildfire in 2007 and 2008, 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, brush species pronghorn depend on for winter survival have been negatively affected. Sagebrush is beginning to recover and provide forage and cover during the critical winter months.

Population Status and Trend

A Horns Shorter Than Ears hunt was initiated in this unit group for the first time in 2015 and hunter success was similar to the statewide average at 78%. Pronghorn are taking advantage of the increase in perennial grasses and forbs resulting from the maturation of the burns. Although the previous 3 winters have been comparatively mild, this winter left heavy and drifting snow, possibly decreasing overwinter survival. Natural recovery, in addition to extensive seeding efforts in both Nevada and Idaho, has increased the carrying capacity of the habitat within the burned areas.

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

Report by: Kari Huebner

Survey Data

Ground surveys conducted in September 2015 classified 271 pronghorn. The observed sex and age ratios were 47 bucks:100 does:35 fawns. The buck ratio was lower than the 2014 ratio of 57 bucks:100 does and the fawn ratio was similar to the 2014 ratio.

Habitat

Major fires affected this habitat in 2007 with about 244,000 acres burned. The long-term effects of these fires are beneficial to pronghorn as perennial grasses and forbs dominate the recovering burned areas. Sagebrush is beginning to recover and will be available as forage and cover during the critical winter months.

Population Status and Trend

This pronghorn herd appears to be stable to slightly increasing. Production continues to be lower than in surrounding units. This is likely a result of much of the unit group (such as Pilot Valley) experiencing comparatively low precipitation and lower forage quality. This herd has begun using the northern portions of Unit 076 and 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 pronghorn herd in coming years.

Units 078, 105 – 107, 121: Southeastern Elko and Central White Pine Counties

Report by: Scott Roberts

Hunt Results

The 2015 hunting season marked a record harvest for both bucks and does in this unit group. This was the first season Units 078 and 105-107 were added to the Horns Shorter Than Ears hunt that traditionally only included Unit 121. The hunt quota was increased by over 400% to take advantage of a large adult doe population and to stimulate this unit group's historically low observed fawn ratios.

Survey Data

A ground survey was conducted in January 2016 that classified 416 pronghorn; yielding sex and age ratios of 47 bucks:100 does:41 fawns. The survey was difficult due to heavy snow accumulations in the valleys that led to the closure of portions of the unit group to vehicle traffic. This year's entire survey sample came from the Steptoe Valley portion of Unit 121.

Habitat

The substantial monsoonal moisture received during the last 4 summers enabled pronghorn to capitalize on considerable fall green-up and to go into winter in relatively good condition. As of March 1, 2016, snowpack figures recorded at Snotel sites in the eastern Nevada Water Basin are at 110% of the long-term mean, with water year-to-date precipitation totals at 142% of average (www.nrcs.usda.gov). As of March 24, 2016, the US Drought Monitor Index identifies the area as abnormally dry, a departure from the 2015 moderate drought classification.

Population Status and Trend

The 2016 population estimate is slightly lower than 2015 estimates, which is a result of the hunt strategy employed in 2015. Comparatively liberal quotas were initiated in response to the relatively stagnant nature of this population over the past decade. This population has shown little ability to increase during 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.

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

Report by: Caleb McAdoo

Survey Data

This unit group was surveyed from the ground in mid-October 2015. Seven hundred ninety-six animals were classified yielding sex and age ratios of 52 bucks:100 does:33 fawns. The observed buck ratio was up substantially from 2015 observations and is one of the highest observed in the past 30 years of surveys in this unit. The observed fawn ratio was above average; however significant winter mortality (post-survey) likely occurred due to heavy snowfall persisting on the valley floors for several months during the 2015-2016 winter. Subsequently, any population growth from the above average fawn ratio are probably negligible.

Habitat

From May to September 2015, substantial rain occurred in this unit group creating improved range conditions for newly born fawn pronghorn. These moisture events created ponding and puddling in some of the more arid portions of the unit group and animals were able to disperse and use habitats otherwise limited by available water sources. Precipitation declined in October 2015, but November was the beginning of a long and harsh winter with snow accumulations occurring well into February 2016. Winter conditions proved difficult for pronghorn during this period, with few snow free areas for several months. The increased snowfall likely caused immediate direct loss to this pronghorn population; however better range conditions as a result of the increased snow-pack should provide long-term benefits to this herd.

Management efforts to improve sage-grouse habitat include projects that benefit pronghorn. In general, habitat conditions are good for pronghorn in this unit group despite the presence of wild horses. Forage overuse by wild horses continues to be a chronic problem for this unit group, especially in Units 104 and 108. Yearlong grazing by horses has contributed to the decrease in carrying capacity of the range.

Population Status and Trend

The current population estimate for the unit group is about 900 adult animals; similar to the 2014 estimate of 950. Despite this minor change, this population has likely been underestimated in recent years. While the population is larger than previously estimated, many animals are not available for hunting due to private lands and hunting restrictions at the Ruby Lake National Wildlife refuge. The 5-year trend for this population is stable despite drought conditions in previous years and recent severe winter weather.

Doe hunts will continue to be a part of the hunt strategy in this unit group to meet management objectives and reduce conflicts with other land-uses.

Units 111 – 114: Eastern White Pine County
Report by: Kody Menghini

Survey Data

The 2015 post-season ground survey was conducted in November and December 2015. Ten days were spent conducting this survey, down from 13 days in 2014. Due to fall green-up, pronghorn group size was modest and groups were scattered. One thousand two hundred fifty-nine pronghorn were classified. Observed sex and age ratios were 41 bucks:100 does:30 fawns. In comparison, ratios of 41 bucks:100 does:40 fawns were obtained in 2014. The observed fawn ratio of 30 is near the 10-year (2005-2015) mean of 29 fawns:100 does.

Habitat

Timely spring rains between mid-April and mid-June 2015 improved quality and quantity of habitat available for pronghorn. October 2015 was warm and wet, resulting in fall green-up that benefited pronghorn with high quality, nutritious forage prior to winter. The National Weather Service precipitation total for the 2015 calendar-year measured at the Ely Airport was 101% of normal. The winter of 2015-2016 was snowy and cold. The National Weather Service reported the 2015-2016 winter was the second greatest snow on record for Ely and total winter precipitation was 190% of normal. There was a major break in winter conditions in mid-February 2016 providing a break in the stressful winter conditions pronghorn may have been experiencing. The precipitation received this past winter should improve habitat conditions in 2016.

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 pronghorn habitat. The above-average precipitation the area received should promote positive vegetation responses. Pronghorn are taking advantage of these habitat improvements and landscape changes.

Feral horses used the Cherry-Steptoe Guzzler in the north end of Steptoe Valley in summer 2015, drinking the guzzler dry and reducing pronghorn use of the guzzler. The Nevada Department of Wildlife's guzzler crew rebuilt the guzzler and constructed a new fence around the drinker in February 2016. This will benefit pronghorn by providing a reliable water source in the area and reducing competition with feral horses. Planning is currently underway to rebuild several other guzzlers and possibly construct new guzzlers in the near future in Antelope and Snake Valleys.

Population Status and Trend

This pronghorn herd remains stable. The population estimate for 2016 remains unchanged at 1,500 adult pronghorn.

Units 115, 231, 242: Eastern Lincoln and Southern White Pine Counties
Report by: Cooper Munson

Survey Data

Ground surveys were conducted for pronghorn in this unit during October 2015. Survey conditions were difficult due heavy precipitation making roads inaccessible. Two hundred and seventy six pronghorn were classified as 51 bucks, 155 does, and 70 fawns. This survey provided a ratio of 28 bucks:100 does:46 fawns. Pronghorn were classified in Lake, South Spring, Hamlin and Snake Valleys.

Habitat

Habitat conditions during the survey were good due to favorable precipitation in August and September 2015. Overall, Lincoln County experienced about 105% of mean precipitation during 2015 according to data from the Community Environmental Monitoring Program. Pronghorn were observed using many recent habitat enhancements and water developments. Feral horse numbers are well above Appropriate Management Levels, resulting in degraded habitat conditions for pronghorn and other wildlife. Pinyon and juniper tree expansion into lower elevations continues to slowly reduce available habitat for pronghorn. Sagebrush enhancements and pinyon and juniper removal projects in the initial planning stages for the benefit of sage-grouse may eventually result in improved habitat for pronghorn.

Population Status, and Trend

This pronghorn population experienced a few years of low recruitment and reduced numbers, but appears to be in reasonably good shape. Ongoing drought conditions may have limited the population growth to some extent, but habitat improvements and new water developments should allow for increased population size. The population estimate for 2016 is similar to the estimate from 2015.

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

Report by: Mike Podborny

Survey Data

Post-season herd composition ground surveys were conducted for 4 days in October 2015. Five hundred sixty five pronghorn were classified yielding sex and age ratios of 45 bucks:100 does:26 fawns. The survey was conducted in Antelope, Jakes, Little Smoky and Railroad Valleys and was the third highest sample collected for this unit group to date. In 2014, seven hundred forty three pronghorn were surveyed yielding age and sex ratios of 34 bucks:100 does:28 fawns. The 10-year-average (2005-2014) fawn ratio of 30 and has ranged from 18 to 40 during that time period.

Habitat

Range conditions throughout occupied pronghorn habitat ranged from poor to good. Spring 2015 was dry and was followed by a wet May and dry summer. October 2015 rains resulted in abundant grass and forbs in the fall. This is the fourth year of heavy rains in the fall, which improved range conditions prior to winter. Winter 2015-2016 has been wet with moderate to deep snow in all valleys. No recent, major wildfires or other land actions have degraded pronghorn habitat in the unit, although horse numbers are high in much of the area.

Population Status and Trend

This population is at an all-time high and the 2016 population is estimated at about 920 adult pronghorn.

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

Report by: Mike Podborny

Survey Data

Post-season pronghorn ground surveys were conducted from September through December 2015, with a few additional pronghorn classified during aerial bighorn sheep composition surveys in Unit 132. Two hundred twenty four pronghorn were classified yielding sex and age ratios of 46 bucks:100 does:21 fawns. In 2014, 378 pronghorn were classified yielding ratios of 33 bucks:100 does:31 fawns. The majority of the sample was again highly skewed to the northern half of the unit group in White River and Railroad Valleys of Unit 132. The 5-year average (2010-2014) fawn ratio of 28 has ranged from a low of 14 to a high of 45.

Habitat

Sagebrush valleys in the northern portion of this area transition into very dry Mohave Desert habitats typified by desert shrub and cactus in the south. These range types are less productive than typical pronghorn habitats in northern Nevada. In 2015, a dry winter was followed by a wet May, resulting in fair to good range conditions. The summer had occasional rain before heavy October rains improved range conditions.

The winter of 2015-2016 has been wet with snow accumulations in all valleys. Two big game water developments were reconstructed by the Nevada Department of Wildlife's Southern Region guzzler crew in Garden Valley, increasing water availability for wildlife. The 700,000-acre Basin and Range National Monument was designated in 2015 and encompasses most of Unit 132. For the short-term, this designation is not anticipated to have any noticeable effects on this pronhorn herd or their habitat.

Population Status and Trend

The modeled population estimate indicates a slightly upward trend in 2016, with an estimate of 590 adult animals.

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

Report by: Jeremy Lutz

Survey Data

Post-season pronghorn composition ground surveys were conducted beginning in October 2015 and finishing in February 2016. Areas surveyed included Crescent, Grass, Antelope and Reese River Valleys, as well as the Simpson Park Mountains. One thousand seven hundred seventy one animals were classified during 7 days of surveys yielding sex and age ratios of 43 bucks:100 does:42 fawns.

Habitat

Since 1999, over 450,000 acres have burned in Management Areas 14 and 15. Upper elevation burns have responded well with a mixture of brush, native grasses, and forbs; recovery of the lower elevation burns has been less successful with exotic annuals like cheatgrass and mustard dominating the landscape. Areas identified as crucial wintering areas for wildlife have been reseeded, resulting in the successful establishment of forage kochia and crested wheatgrass. With successful rehabilitation of fires since 1999 and maturation of the established plant community, pronghorn numbers have responded positively to these large scale disturbances. Long-term habitat conditions for pronghorn continue to remain stable or improve across much of Lander and Eureka counties.

In 2015, an estimated 2,000 horses were removed from the Cortez Mountains and Dry Hills. Years of overuse, especially on crucial winter range and springs, caused severe degradation across the landscape. Yearlong habitat for pronghorn is expected to improve if reduced horse numbers are maintained in the Cortez Range and Dry Hills.

During spring 2015, a series of short-lived rain events occurred across northern and central Nevada. Annual and perennial grasses responded and a flush of grass occurred across the landscape. From November 2015 until early February 2016, Nevada received above average amounts of snow across much of Lander and Eureka Counties. Cold temperatures during this period helped snow accumulations persist for well over 3 months. Due to snow accumulation in upper elevations, pronghorn were forced onto valley bottoms and winter ranges that held 6-12 inches of snow. Pronghorn were often observed utilizing sagebrush and forage kochia as their primary winter diet during this time period.

Population Status and Trend

To help alleviate specific issues with agriculture in Units 151, 153 and 156, these units were split from a larger, previously combined unit group for Horns Shorter Than Ears Hunt. Initial reports were well received by landowners and sportsmen. Continuation of this hunt should allow for a more focused strategy within these units with the goal of ultimately decreasing agriculture issues to a manageable level.

In January 2016, the Nevada Department of Wildlife conducted a pronghorn capture project on the north end of the Simpson Park Mountains. Fifty-two pronghorn were captured by the contract capture crew and released on Confederate Tribal lands in Washington state.

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

Report by: Joe Bennett

Survey Data

No formal post-season pronghorn composition surveys in Units 161 or 162 were conducted in 2015. In 2014, post-season ground composition surveys for Units 161 and 162 classified 228 pronghorn as 56 bucks, 140 does, and 32 fawns. Although the majority of animals observed during these surveys reside primarily in Units 161 and 162, movement of pronghorn between these and adjacent units is known to occur. The ingress and egress of pronghorn among units is reflected in population modeling during the quota setting processes.

Habitat

In 2015, according to the Community Environmental Monitoring Program precipitation data, central Nevada received 146% of the 30-year average. Spring precipitation resulted in 31% of the year's precipitation accumulation. Increased spring precipitation should help to alleviate drought effects of recent years. Quantity and quality of forage growth is critical during the fawning period. Summer monsoonal precipitation should sustain higher quality nutritional forage throughout the summer months.

In 2015, above average fall precipitation (54% of the year's precipitation) caused later green-up of forage species. Increased plant vigor should have allowed animals to enter the winter months in better condition. Higher than average winter precipitation should increase ground soil moisture conditions, resulting in higher quality and quantity of forage in spring 2016.

The recent completion of 3 water developments in the southern portion of Unit 162 should benefit pronghorn. An increase in pronghorn near agricultural areas has occurred over the past several years, and drought conditions can influence this trend.

Population Status and Trend

While the pronghorn population in Units 161-162 experienced a slight increase in production and recruitment rates during 2014 when compared to 2012 and 2013, observed fawn:100 doe ratios remain below average. Pronghorn abundance in areas near agriculture continues to increase. The overall herd is showing a decreasing trend in response to below optimal fawn ratios and drought conditions experienced in recent years.

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

Survey Data

No formal surveys were completed during 2015 due to the vacancy of the Tonopah Field Biologist position. In 2014, post-season ground composition surveys for Management Area 17 comprised 144 animals classified as 35 bucks, 75 does and 34 fawns.

Habitat

In 2015, the Community Environmental Monitoring Program shows central Nevada received 146% of the 30-year average. Spring precipitation resulted in 31% of the year's precipitation accumulation. Spring precipitation produces nutritious forage, allowing does to improve body condition prior to parturition. In recent years, droughts have degraded forage conditions.

Over the past few drought years, an increase in summer monsoonal moisture has reduced the detrimental effects on forage. This has allowed for a green-up during late summer and fall and pronghorn have been able to enter the winter period in good overall body condition. In 2015, above-average rainfall and fall/winter precipitation should allow range conditions to improve.

Population Status and Trend

During 2012 and 2013, the Management Area 17 pronghorn population experienced reduced reproduction and recruitment due to drought, although reproduction unexpectedly rebounded during 2014. This increase in production has slowed the decreasing trend of the Management Area 17 pronghorn population. Weather conditions need to improve for the herd to realize growth. The above average precipitation received in 2015 should result in rangeland improvements in Management Area 17. This could have a positive response at the population level.

Similar to what is occurring in many other central Nevada pronghorn management units, an increase in pronghorn using areas in and around agricultural areas has been observed in Management Area 17. While this may be partially due to increases in overall pronghorn numbers, recent drought conditions make these areas more attractive to pronghorn.

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

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

Survey Data

Ground surveys were conducted for pronghorn in Management Area 18 during fall 2015. There were four hundred fifty pronghorn were classified as 65 bucks, 265 does, and 120 fawns yielding sex and age ratios of 25 bucks:100 does:45 fawns.

Habitat

A pipe rail fence was constructed around Corral Springs located in Smith Creek Valley. Previously, a hog wire fence excluded pronghorn from using this water source. Within a few weeks of completing the project, pronghorn started accessing the water by going under or through the rail fence.

During the summer 2014, new water developments were built in the Sand Springs Range. These 10,000 gallon units will benefit pronghorn once the animals begin to use the area.

Range within this unit group remains in excellent condition. Forage leader growth as well as bunch grasses is lush and plentiful because of precipitation received in 2015.

Population Status and Trend

This is the second consecutive year of higher fawn ratios. This will allow the population the opportunity for growth.

Hunter success for the general rifle hunt was 89%, with 21% of hunted bucks measuring over 15 inches. This represents a slight decrease in the size of hunted bucks when compared with 22% of hunted bucks measuring over 15 inches in 2014.

Units 202, 204: Lyon and Mineral Counties

Report by: Jason Salisbury

Survey Data

Ground surveys were conducted in Units 204 and 202 in February 2016 and classified 79 pronghorn. The resulting sex and age ratios for the sample were 43 bucks:100 does:26 fawns.

Habitat

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 for pronghorn. Previous barbwire fence designs have excluded pronghorn from using these water sources.

The habitat located within these unit groups is in excellent condition because of the moisture received in fall 2015. Usually this area is in the rain shadow of the Sierra Nevada's, resulting in very little precipitation. Precipitation in 2015 left the grasses and browse community in a productive state.

In 2013, the Spring Peak Fire consumed over 14,000 acres in Nevada and California. The Nevada Department of Wildlife seeded about 1,552 acres within the Spring Peak Fire area. Follow up since indicates an abundance of native grasses and forbs as well as crown-sprouted bitterbrush. This area seems to be recovering quite nicely and should provide suitable conditions for pronghorn.

Population Status and Trend

This year's fawn ratio should result in a stable population trend. At one time this herd numbered close to 200 animals. Consecutive years of low fawn recruitment have reduced the population to 100 animals. Future projects removing pinyon and juniper will allow for some limited expansion. Also creating corridors between California and Nevada will enable the herd to migrate easier from summer range to winter range. The population estimate for Bodie interstate herd is 110 animals.

Units 203, 291: Lyon and Douglas Counties

Report by: Jason Salisbury

Survey Data

A ground survey was conducted in February 2015 for Units 203 and 291. Thirty four pronghorn were classified providing a composition ratio of 53 bucks:100 does:26 fawns.

Habitat

Numerous acres of pinyon and juniper within the Pine Nut Mountains have been removed or masticated to enhance and protect important sage-grouse habitat. In the process, travel corridors have opened up and grazing opportunities for the pronghorn population have expanded. Future projects targeting the removal of trees will only enhance the landscape for this pronghorn herd.

Past fires in the Pine Nut Mountains have opened up the pinyon and juniper canopies. The 2013 Bison Fire burned over 24,000 acres of pinyon and juniper woodlands enabling the pronghorn herd to extend their range into the upper elevations of Unit 291.

Future water development projects would probably benefit the Singatse, Buckskin, and Pine Nut Mountain ranges and would enable pronghorn to occupy more habitat.

Population Status and Trend

This population has been stable with low fawn ratios over the years. This year's fawn ratio is unlikely to increase population size. Predation management may benefit fawn survival.

Units 205 - 208: Eastern Mineral County

Report by: Jason Salisbury

Survey Data

Post-season herd composition surveys were conducted from the ground in fall 2015. Ninety two pronghorn were observed yielding a ratio of 42 bucks:100 does:32 fawns.

Habitat

Between 2013 and 2015, 7 new water developments were built in the Candalaria Hills, Miller Mountain, Garfield Hills, and Eastside Mine area.

Population Status and Trend

The Mineral County population of pronghorn is stable despite the area having limited pronghorn habitat. Small groups of pronghorn use different water sources throughout a large geographic area in the summer months. Feral horses reduce water and forage availability for pronghorn.

Units 211 - 213: Esmeralda County

Report by: Joe Bennett

Survey Data

No formal surveys were completed during 2015 due to the vacancy of the Tonopah Field Biologist position. In 2014, ground post-season composition surveys yielded 58 pronghorn classified as 8 bucks, 34 does, and 16 fawns in Units 211-213. Observed fawn ratios indicate the herd experienced exceptional production in 2014, although the small sample size increases the likelihood of bias in observed ratios.

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 pronghorn habitat throughout the area varies widely. During periods of favorable climatic conditions, pronghorn tend to expand the areas they inhabit in Management Area 21, while during dry periods these areas contract. Recent drought years, coupled with competition from feral

horses in many areas, continue to affect habitat conditions throughout Management Area 21. The above average precipitation received in 2015 should result in improvements to habitat in Management Area 21.

Population Status and Trend

As pronghorn populations in surrounding areas increased in number and expanded in distribution over the past 15 years, pronghorn moved into the Great Basin-Mohave transition zone in Esmeralda County in greater numbers. While many animals continue to drift in and out of the area based upon season and prevailing climatic conditions, more and more animals have become permanent residents of the county.

The majority of the Esmeralda County pronghorn population is made up of 2 core herds. One herd currently resides in and around the Monte Cristo Range in northern Esmeralda County, while the other typically inhabits the region near and between the towns of Goldfield and Silver Peak in east central Esmeralda County. Pronghorn also occur, albeit in smaller numbers, throughout many other areas of the county.
Currently, due to favorable production rates observed in 2014, the Management Area 21 pronghorn 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 pronghorn during October 2015. Four hundred fifteen pronghorn were classified as 77 bucks, 235 does, and 103 fawns yielding a ratio of 32 bucks:100 does:43 fawns. Pronghorn were classified in Delamar, Dry Lake, Cave, Lake, South Spring, and Steptoe Valleys. About 120 pronghorn were classified near the vicinity of the boundary of Management Unit 22 and 11.

Habitat

Habitat conditions appeared favorable during the survey due to consistent precipitation throughout summer and fall 2015. Pronghorn seem to like the recently completed habitat enhancement projects in Cave Valley that had been initiated for the benefit of sage-grouse. New water developments in Delamar Valley should allow expanded use of habitat in that area. Feral horse numbers continue to be well above Appropriate Management Levels in some parts of this hunt unit. A solar energy zone is planned in Dry Lake Valley that will be a major threat to pronghorn habitat. Pinyon and juniper expansion into the lower elevations continues to reduce habitat quality and quantity for pronghorn.

Population Status and Trend

Although this population has seen low fawn recruitment over the past few years, it seems stable despite recent drought conditions. Habitat improvements and water developments are contributing to allow pronghorn to use increased areas. The population estimate for 2016 is similar to the 2015 estimate and consistent with a 5-year mean.

Unit 251: Central Nye County
Report by: Joe Bennett

Survey Data

No formal surveys were conducted during 2015 due to the vacancy of the Tonopah Field Biologist position. In 2014, the ground composition survey yielded 107 pronghorn classified as 27 bucks, 52 does, and 28 fawns. A large portion of the 2014 survey sample was obtained on alfalfa pivots in Stone Cabin Valley, partially explaining the high observed fawn ratios. For the past 4 years, periods of above-average moisture occurring during late summer have resulted in extensive green-up throughout central Nevada. This green-

up has resulted in a somewhat lower than average number of animals located on alfalfa fields adjacent to the Nevada Test and Training Range during the survey period.

Habitat

Pronghorn habitats in Unit 251 have been affected by competition with feral horses and periods of drought. Many natural water sources have been severely degraded in this unit by unregulated use.

While the drought conditions of the previous years have plagued central Nevada, higher than normal summer monsoonal moisture mitigated drought effects. In 2015, central Nevada experienced above-average precipitation (146% of 30-year average), increasing forage vigor and allowing pronghorn to go into the fawning and winter seasons in better condition.

Population Status and Trend

The Unit 251 pronghorn population is currently showing a relatively stable or slightly increasing trend, with the drought conditions of recent years influencing population concentrations adjacent to agricultural lands. Drought conditions limit green-up and water availability in natural habitats, in turn making agricultural lands more appealing to pronghorn. The appeal of agricultural lands is drawing more and more animals to the area from within the Nevada Test and Training Range.

ROCKY MOUNTAIN ELK

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

Survey Data

Post-season helicopter surveys for elk were conducted over 2 days in early February 2016. Sixty elk were classified as 35 bulls, 19 cows, and 6 calves yielding a ratio of 184 bulls:100 cows:32 calves. A large number of young bulls have pioneered into the area. Calf ratios are about average when compared to other areas within the state. The amount of potential elk habitat in the area is substantive. The Osgood Mountains, Hot Springs Range and the Santa Rosa Range were surveyed.

Habitat

Habitat conditions were favorable going into the winter months. Prior to snowfall in 2015, substantial rainfall had occurred. Spring and summer rains have improved forage conditions. The upper elevations of the Santa Rosa Range have quality forage available to elk. This past winter had mild temperatures with slightly warmer conditions between storms. As of March 1, 2016, precipitation amounts have improved with snow accumulations at 113% of average. With the benefit of the snowpack and any added spring moisture, these herds should thrive throughout the year. With the current green-up, forage conditions should be ideal for calf recruitment.

Population Status and Trend

The population estimate for elk in Unit 051 is 90 animals, a slight increase over the 2015 estimate. This is a fairly new herd that pioneered into this area and may rapidly increase over the next few years. Additionally, larger elk herds in adjacent areas to the north and east of Unit 051 may add elk numbers to this herd.

The Humboldt County Elk Management Sub-plan is nearing completion, and the guiding principles within it will be used to develop future hunt recommendations.

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

Hunt Results

For the second year in a row, the early rifle cow hunt in September 2015 maintained above-average hunter success, and the success rate of spike hunts increased substantially this year. Combination antlered mule deer and cow elk management hunt success decreased, although probably because the quota of the elk management hunts tied to antlered mule deer tags increased substantially.

Survey Data

Three thousand four hundred and eighty-six elk were classified during an aerial survey in January 2016. The sex and age ratios of the sample were 35 bulls:100 cows:53 calves. The observed calf ratio for 2016 was 8 points above the 10-year mean.

Habitat

Precipitation increased this year when compared with recent years, particularly in the Diamond A Desert in Idaho. The portion of the Diamond A Desert between the Jarbidge and Bruneau rivers looked better with regard to bunchgrasses, yet the area around Arch Table still seems to be affected by a cheatgrass die-off. Little standing bunchgrass was observed between Sheep Creek and Bruneau Canyon; abundant water was

present and green-up was occurring. Perennial grass communities are still robust throughout the Bruneau River Drainage in Nevada. The Nevada Department of Wildlife's Habitat Division is currently working on a vegetation monitoring plan for the Bruneau Watershed.

Population Status and Trend

Elk west of the Bruneau appear to be increasing at a higher rate than those between the Bruneau and Jarbidge rivers. The area where Duck Valley, Idaho, and Nevada meets provides several hundred thousand acres of prime summer, fall, and winter habitat that allows elk to avoid hunters in Nevada during the hunting season. Survey Data as well as recent radiocollar data indicate elk are using portions of Duck Valley and Idaho throughout the calendar year. Movement data from radiocollared cow elk indicate portions of this elk herd are using Idaho for about 94% of the year and Nevada for 6% of the year.

Hunt management strategies for this elk herd in Idaho remain focused on conservative bull hunting, with increased cow hunting adjacent to Idaho Game Management Unit 061 in 2015 and minimal cow hunting adjacent to Idaho Game Management Unit 071. The Nevada Department of Wildlife biologists continue to work with Idaho Fish and Game biologists to advance an understanding of elk distribution along the Nevada-Idaho border to improve elk herd management in both states. In early 2016, the Nevada Department of Wildlife radiocollared an additional 13 elk from various groups within this population.

Voluntary tooth data collected from bulls harvested in this unit group indicate the Bruneau has the lowest average harvested age of bull elk in Nevada. Success of the new season structures implemented 2 years ago will need to be assessed over several years to determine if future changes are required.

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, the early rifle cow hunt in September 2015 maintained above average hunter success, while the success rate of spike hunts increased substantially. Combination antlered mule deer and cow elk management hunt success decreased, although probably because the quota of the elk management hunts tied to antlered mule deer tags increased substantially.

Survey Data

Aerial surveys in January 2016 resulted in the classification of 810 elk. The sex and age ratios of the sample was 67 bulls:100 cows:45 calves. The calf ratio was similar to the 10-year average.

Habitat

Elk are using the increased perennial grasses following fires burned within this unit group over the past 15 years. Elk have benefited from the flush of perennial grasses seeded for watershed stabilization and those naturally responding to the fires. The northern shift of elk is more apparent in 2016 than in years past. Only 1 group of elk was observed in the south Tuscarora Range. Although range conditions along the Interstate 80 corridor have improved over the past 2 years, the south end of the Owyhee Desert is in far better condition than the south Tuscarora Range and the Sheep Creek Range.

Population Status and Trend

After adjustments to inputs for the population model to better fit measured harvest rates, the population is estimated at 1,000 adult elk for 2016. Based on telemetry data from a representative sample of radiocollared elk, about 175 elk have been spending a substantial part of the year beyond the unit group, including some that summer in Idaho. The 2016 resident adult elk population estimate is 825.

To limit elk herd growth and reduce the population, longer antlerless seasons and an earlier season for the any-legal-weapon hunt were developed. For the second year, antlerless elk management tags were associated with mule deer buck tags. These hunts have facilitated increased antlerless harvests. Spike hunts were initiated for this herd, allowing for additional bull hunts without added pressure on the mature bull segment.

An objective of 500 adult elk was set in the current Western Elko County Elk Management Plan. The objective of 500 adult elk translates to 100 adult elk per mountain range: Independence, Bull Run, north Tuscarora, south Tuscarora, and Snowstorm mountain ranges. Hunt objectives will be aimed at a continued stepwise reduction of the herd over the next few years. Increased hunting pressure on large tracts of private land has resulted in better distribution of elk on public land and the Nevada Department of Wildlife is continuing to work with landowners to reduce conflicts with elk on private land. There were no conflicts reported in 2015. Currently, no landowners have participated in the antlerless private land elk hunt, yet the Nevada Department of Wildlife will continue to pursue agreements with willing landowners to greatly reduce or eliminate elk use adjacent to agricultural lands.

In January 2016, an additional 10 elk were radiocollared from various subherds within this population. Telemetry data from radiocollars on elk help staff biologists better understand population demographics and delineate herd movements.

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

Report by: Scott Roberts

Hunt Results

The 2015 hunting season marked the third year of elk hunting in Unit 065. There were 2 tags available for the September bull season; 1 hunter did not use the tag and the other hunter was unsuccessful after 8 days of hunting. The antlerless hunters fared much better with a 50% success rate.

Survey Data

An incidental survey was conducted in late November 2015 in conjunction with the Unit 065 fall deer survey. Forty-three elk were classified yielding sex and age ratios of 19 bulls:100 cows:41 calves.

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. The mixture of recent burns and the pinyon and juniper forests provide adequate resources for the resident elk. To the west of the core population center there is an abundance of suitable habitat in the Piñon Range that will allow for future expansion of the herd.

The 2015 Dixie Fire burned about 350 acres of mixed-mountain shrub habitat in the center of Unit 065. The burned area comprised a mixture of both public and private land. A coordinated effort was made to secure landowner permission for the Bureau of Land Management and the Nevada Department of Wildlife to fund reseeding the area this past winter. The resulting burn scar should provide high quality elk habitat in the coming years.

Population Status and Trend

In January 2016, 3 cow elk were radiocollared near Red Spring in Unit 065 to learn more about this relatively new and growing herd. Over the last 2 years, much of this herd has been using an alfalfa field near Huntington Creek during the fall. This use precipitated the need to fence the property using money from the Elk Damage Mitigation Fund, with construction completed in October 2015. This new fence will disrupt the seasonal patterns of about half of the elk population and the recently initiated radiocollaring

project will enable the Nevada Department of Wildlife to document new use patterns. This population objective for this unit was established through the Western Elko County Elk Management Sub-plan at 200 elk; the Nevada Department of Wildlife has been aggressive with hunt strategies over the last 3 years. There have not been any major movements out of the core use area documented, but herd expansion is probable. The radiocollaring project will aid in tracking new pioneering movements.

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

Report by: Kari Huebner

Hunt Results

The 072-074 unit group has a split early and late any-legal-weapon bull hunt structure. Hunter success dropped in the early season in 2015 with a reported 51% success compared to 57% in 2014. The late season rose slightly to 40% success in 2015 compared to 39% success in 2014. There were 4 antlerless elk rifle seasons aimed at reducing the population. Tag numbers were again increased and hunter success varied among seasons. New in 2015-2016 was an antlerless any-legal-weapon season aimed specifically at the wilderness area within Unit 072. Hunter success was higher than expected at 29%, which was as high as or higher than the seasons for the areas outside the wilderness. An additional 27 antlerless elk were harvested in Units 072, 073, and 074 during the antlerless elk management seasons (all weapon classes) associated with the antlered deer hunts.

Survey Data

Post-season surveys conducted in January 2016 resulted in the classification of 1,109 elk, with observed sex and age ratios of 98 bulls:100 cows:55 calves. The observed calf ratio was higher than the 52 calves:100 cows observed in 2015. The observed bull ratio was also considerably higher than the 49 bulls:100 cows observed in 2015. Increases in both of these ratios can be attributed to aggressive antlerless hunt.

Habitat

This herd benefited from the large area burned in 2006, 2007, and 2008. The recovery of perennial grasses and forbs has been remarkable in most of the burned areas. The resulting habitat created by these burns has been excellent for elk and has facilitated good calf production despite drought conditions in 2015. A 6,700-acre fire burned in Stud Creek in August 2012. This burn is recovering and providing a benefit to elk.

Vegetation monitoring that occurred on US Forest Service managed lands in 2010 and 2012 has been analyzed and documented. Although elk use was found in nearly all aspen stands sampled, the level of use was minimal and not sufficient enough to lead to the overall decline of aspen stands. The same held true for the mountain mahogany stands. Recovering aspen and mahogany following the East Slide Rock Ridge Fire should be closely monitored to determine if recovery is limited by elk, domestic livestock, or a combination of use.

Population Status and Trend

An objective in the Jarbidge Mountains Elk Herd Management Plan is to maintain the elk herd at 1,000 adult animals (±10%) on the US Forest Service portion of Unit 072. There were also 220 elk allotted for the Bureau of Land Management's portions of Unit 072 and Unit 074 and the east side of Unit 073 in the Wells Resource Area Elk Plan. The Western Elko County Elk Plan added another 200 elk for the west side of Unit 073. The 3 plans combine set a population objective for this elk herd of 1,420 adult elk.

In response to the low success of antlerless elk hunters in this area, antlerless tag quota recommendations will remain aggressive to keep up with population growth and meet management objectives. The wilderness-area-only hunt for the Jarbidge Wilderness is considered a success and will be recommended for further use.

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

Survey Data

Post-season surveys conducted in January 2016 resulted in the classification of 177 elk yielding age and sex ratios of 56 bulls:100 cows:60 calves. The observed bull ratio was higher than the 28 bulls:100 cows observed in 2015 and the observed calf ratio was also higher than the 57 calves:100 cows classified in 2014. Elk primarily wintered in the Snake Mountains this year.

Habitat

In 2006, a 16,720-acre wildfire burned in the Deer Creek portion of this unit. Although initial effects on wildlife were not favorable, the elk herd is now using this area due to the growth of perennial grasses, forbs, and aspen as the burned area recovers. Elk are taking advantage of the recovering 2007 Hepworth Fire on the southern end of the unit as well.

Population Status and Trend

The quota recommendations for both antlerless and antlered elk hunts will continue to target reducing herd size toward population objectives. In 2015, an additional 19 antlerless elk were harvested by deer hunters who held elk management tags.

Due to the large amount of private land in this unit (about 50% of unit), this herd continues to be a challenge to manage. Most landowners will permit access to hunters, however the elk frequently move onto private lands that do not permit access. The Nevada Department of Wildlife will continue to work with these landowners to increase access and antlerless elk harvests.

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

Hunt Results

The success rates for the 2015 early and late any-legal-weapon bull hunts were unchanged from 2014 at 70% and 71% respectively. In 2012, 5 antlerless depredation hunts were implemented for the northeast portion of Unit 081. In the last 4 years, 459 elk have been harvested in Unit 081. To increase antlerless elk harvests and spread hunting pressure throughout the rest of the unit group, a late season antlerless hunt was offered in 2015. Success was 60%. An additional 36 antlerless elk were harvested during the antlerless elk management seasons (all weapon classes) associated with the Management Area 7 antlered mule deer hunts.

Survey Data

Post-season surveys in January 2016 resulted in the classification of 746 elk yielding age and sex ratios of 36 bulls:100 cows:50 calves. The observed bull ratio was lower than the 2015 ratio of 48 bulls:100 cows while the observed calf ratio was the same as that measured in 2015.

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 on this habitat is favorable for elk.

Most planned water developments have been built and are currently in use by elk. Increased water availability has distributed 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. There are currently 22 landowners participating in the Elk Incentive Tag Program in this unit group. Nineteen landowners qualified for 39 elk incentive tags for elk use on private rangeland in 2015. This is down from the 42 incentive tags allotted in 2014.

The depredation hunts in Unit 081 were developed in response to low hunting pressure and increasing elk numbers. The goal is to reduce elk numbers in this area and alleviate pressure on private land. The depredation hunts have proven successful and will be recommended in 2016.

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

Report by: Caleb McAdoo

Hunt Results

In 2015, the any-legal-weapon bull hunt was split into an early and late season structure to provide hunters with reduced hunter densities. Twenty-two any-legal-weapon bull tags, including resident and non-resident, were available and split evenly between the early and late seasons. Of these 22 bull tags, 16 tag holders were successful. Across all weapon classes, 79% of the bulls harvested had 6 or more points indicating the presence of a strong mature bull segment and conservative hunt structure. Fifty antlerless any-legal-weapon tags were issued for the 2015 season and tag holders reported a success rate of 59%. Thirty-eight cow elk were harvested during the archery, muzzleloader, and any legal weapon seasons combined.

Survey Data

An aerial elk survey was completed in the unit group in February 2016, although it was not a comprehensive survey. Two hundred thirteen elk were observed yielding sex and age ratios of 65 bulls:100 cows:55 calves. These ratios rank among the highest observed values since this population was introduced in 1997.

Habitat

This unit group consists of a relatively arid environment and forage production and quality in this area are dependent on spring and summer precipitation. Wild horse populations above Appropriate Management Levels continue to reduce rangeland health and wildlife diversity and abundance. Yearlong overuse of the grass and forb components by unmanaged wild horses may affect the native perennial understory vegetation. Perennial springs and riparian vegetation in the area have been substantially influenced by wild horse use. While wild horse use remains the single biggest threat to habitat features in the unit group, some positive changes seem to be developing. The Spruce Mountain Restoration Project was recently approved and up to 10,000 acres of habitat restoration will be occurring in the vicinity of Spruce Mountain within the next 10 years. Restoration activities commenced in late 2013 and since then almost 2,500 acres have been treated, benefitting deer and other wildlife species.

Population Status and Trend

In winter 1997, 146 elk were released in Unit 105 on Spruce Mountain and since then, elk have established themselves throughout the unit group. Although the long-term mean calf ratio remains relatively low, the long-term trend is stable. Increased antlerless harvests contribute to the stable population growth. A large proportion of mature bulls continue to be harvested, and antlerless elk hunters have also been successful.

Elk are now well established in Unit 078 and Unit 107. More frequent observations of elk in Unit 106 continue, and some hunters have begun to target these areas. Movement between adjacent units such as Unit 077 and especially Unit 121 also occurs. Past radiocollar of elk to investigate immigration-emigration and seasonal movements have provided useful information. Until 2011, hunt management was designed to allow herd growth toward the population objective of 340 elk. Beginning in 2011, hunt management strategies have been adjusted to include increased antlerless harvests. The 2016 modeled estimate of 370 adult elk in indicative of the efficacy of the increased antlerless harvests.

Unit 091: Pilot Range; Eastern Elko County

Report by: Kari Huebner

Hunt Results

Nine bulls were harvested in Unit 091 during the 2015 hunting season, 5 by Utah hunters and 4 by Nevada hunters. An additional 18 cows were harvested in a depredation hunt on the TLBar Ranch in Utah.

Hunters who draw this tag are able to hunt Pilot Mountain (both in Utah and Nevada). Silver State, Dream, and PIW specialty hunt tag holders are precluded from hunting elk in Unit 091 due to low tag numbers and the cooperative agreement with Utah that dictates both states will evenly share the elk resource.

Survey Data

No formal composition survey was conducted in 2015. A Utah Division of Wildlife Resources biologist did observe 64 elk using the TLBar fields. The observed age and sex ratios were 76 bulls:100 cows:45 calves. A comprehensive survey of elk is planned during summer 2016.

Habitat

The Rhyolite Fire burned about 4,500 acres on the northeast portion of Pilot Mountain in 2013. This fire is recovering and providing a benefit to elk.

A water development south of Miners Canyon was recently upgraded. An old, saucer style unit was replaced with a new metal apron collection with a 4 storage tank capacity. The unit should benefit both elk and bighorn sheep.

Population Status and Trend

The long-term trend for this elk herd is stable to slightly increasing. Calf ratios in this unit are usually lower than in surrounding units, but the herds associated with the private meadows have experienced considerably higher production and recruitment rates.

A population objective of 250 elk was established in the Wells Resource Area Elk Plan. The objective was based on the original Unit 079 boundary that has now been divided into current Units 079 and 091. The habitat assessed in the plan included only the Nevada portion of Pilot Mountain and the elk herd currently spends the majority of its time on the Utah side of Pilot Mountain. This herd remains below the objective level.

Units 101 – 103: East Humboldt and Ruby Mountains; Elko County

Report by: Caleb McAdoo

Hunt Results

Since 1999, 469 elk have been harvested from the Ruby Mountain elk restricted zones. The Nevada Department of Wildlife has remained committed to managing this population to restrict a sustainable elk population. In 2014, the Nevada Department of Wildlife implemented its most aggressive hunt strategy

since the inception of the first depredation elk season in Ruby Mountains in 1999. The latest hunt strategy included antlerless elk management hunts coinciding with existing mule deer hunts and resulted in further increases in antlerless harvests.

For 2015, bull quotas remained at 100 tags. Until 2014, antlerless quotas had fluctuated from a maximum of 176 tags to a low of 21 tags and seasons had varied from 4 separate seasons to a single 6-month season. Through the evolution of these quotas and season structures, success rates varied, but typically ranged from 10–20%with about 6-15 cows harvested annually.

In 2015, 735 antlerless tags were issued, resulting in the harvest of 26 cows (13 in 101, 7 in 102, and 6 in 103). Although the overall success rate decreased, a net increase in cow harvest was realized when compared to harvest levels reported prior to 2014.

For 2015, cow elk hunt success rates varied from 0–12% with the most cows harvested during the 6-month antlerless elk season and the early antlerless elk management season. For the bulls, 50 tags were issued for the early depredation bull hunt with 39% hunter success reported. The same number of tags issued for the late season had a success rate of 21%. The distribution of harvest for the combined 27 bulls killed included 7 in Unit 101, 8 in Unit 102, and 12 in Unit 103.

Since 1999, the long-term hunter success rate for bulls and cows is 37% and 15%, respectively.

Survey Data

Elk specific surveys were not conducted for this unit group and incidental observations obtained during other surveys in the area remain limited. Landowner complaints regarding elk damage in this unit group have been extremely minimal in the last 10 years, with none reported since 2010. For these reasons, the hunt management practices implemented to date are considered a success in achieving management goals.

Population Status and Trend

The objective of the current hunt strategy is to keep elk numbers low and modify elk behavior prevent or reduce depredation on agriculture and an elk herd does not become established. This hunt strategy has been effective to date, although it does seem that elk numbers are gradually increasing in some areas. Observations of small groups of elk within the unit have increased, probably a result of elk crossing the unit boundaries. The aggressive hunt strategies have been successful in reducing elk in these areas as well.

Units 111 - 115, 221 - 223: Schell, Egan and Snake Ranges; Eastern White Pine and Northern Lincoln Counties

Report by: Kody Menghini

Hunt Results

Bull quotas were split for the fourth consecutive year for unit groups 111-115 and 221-223. Unit 223 was added to the 221-222 Unit Group in 2014. Bull quality remains high in both unit groups. In Unit Group 111-115, 80% of the bulls harvested were 6-points or greater and 48% of the bulls harvested had a 50 inch or longer main beam length. In Unit Group 221-223, 76% of the bulls harvested were 6-points or greater and 43% of the bulls harvested had a 50 inch or longer main beam length.

Survey Data

For the seventh consecutive year, the post-season elk composition survey was combined with spring deer surveys. Two thousand six hundred twelve elk were classified yielding sex and age ratios of 30 bulls:100 cows:45 calves. Sex and age ratios have averaged 29 bulls:100 cows:34 calves over the previous 5 years (2011-2015). The 2016 survey observed calf ratio was higher than the 5-year average.

Habitat

The winter of 2014-2015 was warm and dry in the Ely area. Timely spring rains between April and June 2015 improved forage conditions and overall elk habitat. The Ely Airport received 106% of average (1981-2010) precipitation in October 2015, resulting in good fall green-up. This allowed elk to forage on higher quality vegetation post-rut and prior to the onset of winter. In 2015, the Ely Airport received 101% of precipitation compared to the long-term (1981-2010) average. The winter of 2015-2016 was snowy and cold in the Ely area, with the Ely Airport receiving 190% of average precipitation compared to the long-term (1981-2010). The Berry Creek Snotel site and the Ward Mountain Snotel site received 124% and 90%, respectively, of the long-term average (1981-2010) snowpack during the winter of 2015-2016. The above average winter coupled with continued spring precipitation should improve habitat conditions for elk this year.

Habitat conditions are negatively affected by feral horses in some areas of these unit groups. The subdivision and sale of private parcels in quality habitat continues as well. The encroachment of pinyon and juniper trees continues to reduce habitat quality over the longer-term. Nevertheless, elk are benefiting from many thousands of acres of pinyon and juniper tree chainings, thinnings, and other tree removal projects completed over the past few years by the Bureau of Land Management (Ely) and the US Forest Service Ranger District. Additional project areas in various stages of planning include the north Schell Creek Range, Ward Mountain, South Steptoe and Cave Valleys, and Duck Creek Basin.
Between 2012 and 2014 over 50,000 acres have burned in 7 different wildfire events throughout the area. Much of the damaged acreage was formerly dominated by pinyon and juniper trees and elk are beginning to be seen in these burns as the process of vegetative recovery begins. These areas will be beneficial to elk in the future.

Population Status and Trend

Due to favorable climatic conditions including timely spring and fall rains in 2015, this population is increasing. Antlerless harvests have been relatively high in recent years, but will need to remain high to keep this population at or trending towards objectives.

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

Report by: Scott Roberts

Hunt Results

There were 68 bull tags issued across all weapon classes in 2015, with a 69% success rate. Of the 47 bulls harvested in this unit group, 60% were 6 points or greater.

Sixty-three antlerless tags were issued across all weapon classes with a 48% success rate. Three antlerless depredation hunts were initiated to limit elk use on private lands in Steptoe Valley, Unit 121. There were 115 combined tags issued for the depredation hunts from August 1, 2015-January 3, 2016, with a reported 23% success rate.

Survey Data

Aerial post-season elk surveys were conducted in January 2016. The survey classified 466 elk yielding ratios of 16 bulls:100 cows:37 calves. Survey conditions were good, with cold temperatures and 100% snow coverage. Due to the abundance of trees within this unit group, the bull segment continues to be difficult to survey. Of the bulls surveyed, 37% were spikes.

Habitat

In summer 2013, the Snow Creek Fire burned about 1,100 acres of mountain brush and mixed conifer on the south face of the Snow Creek drainage in Unit 121. As with past high elevation fires in this area, the resulting burned area has begun to provide excellent elk habitat. Pinyon and juniper encroachment occurs across a substantial portion of this unit group. Several large scale habitat enhancement projects are proposed for Unit 121. The approved Combs Creeks project was designed to reduce pinyon and juniper encroachment on 7,000 acres in the southern portion of Unit 121. The initial targeted acreage has been treated and an additional 353 acres are to be treated in summer 2016. Precipitation received during the last 4 summers has led to excellent fall and early winter forage conditions.

Population Status and Trend

In early 2016, 5 cow elk were radiocollared in the central portion of Unit 121. These radiocollars will track the seasonal movements of a portion of this unit's elk herd. Another major benefit of this project is it focuses on elk that spend the summer near Telegraph Peak where elk use has been a point of contention with a local landowner in recent years. This radiocollaring project should help the Nevada Department of Wildlife document elk use days on private parcels in the area and aid in incentive tag quota calculations in coming years.

A secondary, but potentially important, benefit of this project will be to document elk use before and after the Egan and Johnson Basins Habitat Enhancement Project. This project will treat about 11,000 acres in the area directly associated with this radiocollaring effort. This baseline information will be compared to post-treatment use and will guide future vegetation treatments.
The combination of the Unit 121 depredation hunts and the general antlerless season hunt in this unit group have led to a relatively static herd during the past 4 years. The Nevada Department of Wildlife is 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 3 seasons with most of the problem elk removed. Future depredation tag quota recommendations will be designed to reduce elk presence on private lands in the valley.

Units 131, 132: White Pine, Grant and Quinn Canyon Ranges; Southern White Pine and Eastern Nye Counties

Report by: Mike Podborny

Survey Data

An aerial, post-season herd composition survey was conducted in February 2016 on the day following a winter storm that deposited a foot of fresh snow in the valleys. The clear sky, light winds, cold temperatures and fresh snow resulted in optimum survey conditions. There were 284 elk classified, all on low elevation winter ranges. The Scoffed Bench in the Grant Range also had deep snow, but no elk or elk tracks were found. This is a winter area for 50 to 60 elk. A portion of these elk were found during the spring mule deer survey conducted in March 2016, with 28 elk classified. The combined surveys classified 312 elk yielding ratios of 50 bulls:100 cows:38 calves. The survey in 2015 yielded ratios of 68 bulls:100 cows:31 calves from a sample of 149 elk. The 10-year-average calf ratio (2004 to 2015) is 36 calves:100 cows.

Habitat

Drought conditions prevailed until the arrival of heavy rains in October 2015, which improved range conditions prior to winter. The winter of 2015-2016 had several large storms with above average snow fall from mid-December through mid-February 2016. A long-term project by the US Forest Service had crews cutting small pinion and juniper trees that were encroaching into the open grass and brush zones in both Units 131 and 132. The US Forest Service is planning another pinyon and juniper project in the southern part of Unit 131. Although not specifically designed for elk, these projects benefit elk as well as other

wildlife. The recovery of the 2015 Bear Trap Fire in the Grant Range may increase forage for elk in the future in the form of increased grass production, which usually occurs after wildfires. The Nevada Department of Wildlife Southern Region guzzler crew recently completed the rebuild of 2 water developments in the Grant Range providing water for elk, pronghorn antelope, and other wildlife.

Population Status and Trend

The population objective identified in the White Pine County Elk Management Plan is 300 adult elk (±20%) for this elk herd. The 2016 model resulted in a population estimate of 380 adult elk. It was estimated the population was above objective in 2013 and 2014; however, quotas were increased and over 200 elk were harvested in those 2 years combined. Quota recommendations will again be designed to move the elk herd toward objective levels.

Units 144 - 145: Diamonds, Fish Creek and Mountain Boy Ranges; Southern Eureka County

Report by: Mike Podborny

Hunt Results

Depredation bull and cow hunts were initiated in 2012 to reduce the elk population in accordance with the Central Nevada Elk Plan. In 2015 there were 3 separate bull seasons and 4 separate antlerless elk seasons beginning on August 1, 2015 and ending January 15, 2016. The 35 bull tags and 50 cow tags issued resulted in the harvest of 9 bulls and 7 cows. Six bulls and 5 cows were harvested during 2014.

Survey Data

There was no formal elk composition survey conducted in this unit group. During the spring mule deer survey in March 2016, 3 elk were classified in Unit 145 as 2 cows and 1 calf. Elk were classified during the spring 2015 mule deer helicopter survey, including 4 bulls, 13 cows, and 7 calves.

Population Status and Trend

Currently, there is no modeled elk population estimate generated for this herd due to small sample and population sizes. There are probably 40 elk in Unit 144 and Unit 145 combined. The goal of the current hunt structure is to reduce this elk population to meet objectives stated in the Central Nevada Elk Plan. The thick tree cover and low number of elk result in very difficult hunting condition.

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

Report by: Joe Bennett

Survey Data

A post-season aerial elk composition survey was conducted in Management Area 16 during January 2016. Aerial survey classified 545 elk as 83 bulls, 310 cows, and 152 calves. The sample was collected in February 2016, about 1 month later than typical survey timing. Above-average snow cover in Management Area 16 allowed for good survey and tracking conditions. Elk were primarily observed in Unit 162 and Unit 163 because the bulk of the population for Management Area 16 resides in these units. In comparison, the January 2015 survey classified 442 elk as 79 bulls, 271 cows, and 92 calves.

Habitat

According to the Community Environmental Monitoring Program, 2015 precipitation data indicated that central Nevada received 146% of the 30-year average. Spring precipitation resulted in 31% of that received in 2015. Increased spring precipitation should help reduce drought effects of recent years. Increased browse vigor and grass species growth has plausibly occurred. Above-average fall precipitation (54% of 2015 precipitation) should have increased forage vigor as well.

Drought has affected wildlife populations and habitats in central Nevada. A lack of winter and spring moisture during the previous 4 years has affected overall range conditions throughout the area. Fortunately, an increase in summer monsoonal moisture during these years has occurred. This has allowed animals to enter the winter period in good condition.

Population Status and Trend

In January 2004, the newly revised Central Nevada Elk Plan was approved by the Board of Wildlife Commissioners. 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 slightly exceeded the population objective of 850 adult elk in Units 161-164. An increase in the Management Area 16 elk tag quota in 2014 and 2015, particularly for the antlerless hunts, was intended to limit herd growth and begin a slight reduction in elk numbers. The same increase in tag numbers was allocated for the 2015-2016 hunt season.

To increase antlerless elk harvest, new hunt strategies have been instituted in many areas in Nevada. These strategies include wilderness-only hunts, spike hunts, and antlerless elk management hunts that allow deer hunters to obtain an elk tag during a season that runs concurrently with their deer season. While not all of these strategies were employed in Management Area 16, the wilderness-only hunt was used to increase antlerless harvests. A record harvest of 185 elk was reported in Management Area 16 for the 2015-2016 season. The 2014-2015 season harvest was 168 elk. To manage the Management Area 16 elk herd population at the appropriate level, a hunt management strategy similar to 2014-2015 and 2015-2016 will be recommended for 2016-2017.

Units 171 - 173: Northwestern Nye and Southern Lander Counties

Report by: Joe Bennett

Survey Data

An aerial elk composition survey was conducted in Management Area 17 in February 2016. The Management Area 17 survey includes portions of Unit 184 along the east side of the Desatoya Range where the core Management Area 17 elk herd typically winters. Due to survey timing and the small size of this core heard, the 2016 survey was unsuccessful in attaining a reasonable sample. This survey can be challenging under the best of conditions and typically only results in a sample size of 40-50 animals. In 2016, 5 bull elk were observed on the survey. During the previous survey effort in 2015 no elk were classified.

Habitat

According to Community Environmental Monitoring Program precipitation data for 2105, central Nevada received 146% of the 30-year average. Spring precipitation resulted in 31% of that received in 2015. Increased spring precipitation should reduce drought effects of recent years. Increased browse vigor and grass species growth has plausibly resulted from above-average spring precipitation.

Drought conditions influenced central Nevada wildlife populations and habitats during the past few years. Summer monsoonal moisture patterns provided some precipitation during the past few years, but effects from the lack of winter and spring precipitation have mounted as well. The lack of winter and spring moisture reduced quality and quantity of forage species.

Population Status and Trend

For many years, small numbers of elk were sporadically reported in Units 171-173. Presumably, these elk were moving between Unit 173 and adjacent Units 161 and 162. By the early 2000s, sightings became more frequent and the Nevada Department of Wildlife determined a small resident herd had become established in the southern portions of Management Area 17.

In 2007, several cow elk were fitted with radiocollars in Units 172 and 173 to aid in delineating seasonal use patterns. The core elk population inhabits the southern portions of the Toiyabe and Shoshone ranges during the summer and fall and transitioning to Units 171 and 184 in Lone and Smith Creek Valleys during winter and spring periods. These movements have remained consistent to the present time.

Currently, the Management Area 17 elk herd is considered stable at low levels. Surveyed numbers 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. This low level of elk has occurred despite documented production; there is no legal hunt of antlerless elk taking place in Management Area 17 and bull hunting remains minimal.

Unit 231: Wilson Creek Range; Lincoln County

Report by: Cooper Munson

Survey Data

Aerial surveys were conducted in February 2016 and classified 215 elk as 54 bulls, 106 cows, and 55 calves, yielding a ratio of 51 bulls:100 cows:52 calves. Of the 54 bulls observed, 50% were classified as spikes to 4-points. The large groups of elk typically observed were difficult to locate due to above average snowfall melting rapidly during the survey period. Most of the elk surveyed were in the Wilson, Fortification, and White Rock mountain ranges.

Habitat

According to precipitation data acquired from Community Environmental Monitoring Program, Lincoln County received about 114% of the 10-year average annual precipitation during 2015. According to the US Drought Monitor, the US Seasonal Drought Outlook is predicting the drought conditions in this area may decrease for the coming year. Feral horse numbers are at high levels with Bureau of Land Management indicating 83 horses were gathered in an emergency gather due to public safety risks along roadways, and 553 were observed during elk surveys. Pinyon and juniper invasion continues to reduce both quality and quantity of elk habitat. Wildfires that would result in transition of dense pinyon and juniper stands to grasses and shrubs have been suppressed over the last few decades. Habitat enhancement projects could improve elk habitat, but are expensive in regards to environmental planning for the use of mechanized equipment. Many decades-old burned areas provide the bulk of the habitat for elk in Management Area 23. Recent installation of water developments by both the Nevada Department of Wildlife and local sportsmen are allowing elk to use habitat in distal areas to reduce conflicts with both livestock operators and private landowners.

Population Status and Trend

Two hundred sixty-seven elk were harvested from Management Area 23 during the 2015 season. The harvest includes 176 cows and 91 bulls. Hunters enjoyed a 40% increase in success from the 2013 season when 191 elk were harvested and an 8% increase in success from the 2014 hunting season when 248 elk were harvested. Elk in Management Area 23 remain abundant despite relatively high harvests. The Nevada Department of Wildlife recommends aggressive harvests to keep the elk population at the numbers identified in the Lincoln County Elk Management Plan. Elk move freely between Management Area 23, Utah, and Management Area 22. Many elk in Management Area 23 forage on private property. They tend to use predominately agriculture fields that the Nevada Department of Wildlife addresses through the Elk Damage or Elk Incentive Tag Programs. According to recent telemetry information, many elk spend time in Utah. The division of Unit 231 from Unit 241 and 241 for the 2015 hunting season provided for a decrease in hunter congestion and increased choices for hunters.

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

Report by: Cooper Munson

Survey Data

Aerial surveys were conducted during February 2016, and 12 elk were observed. The majority of the elk encountered were residing in the Clover Mountains. Survey conditions were moderate with heavy snow quickly melting, making elk difficult to locate. The elk observed were classified as 7 cows and 5 calves. Ground observations and trail cameras provided for the classification of other elk in the area at this time. Combined survey numbers from all methods yielded a ratio of 25 bulls:100 cows:37 calves.

Habitat

Habitat conditions have improved due to above-average precipitation during 2015. Feral horse numbers are high in Units 242 and 241, where the Appropriate Management Levels is 0. The Bureau of Land Management completed some habitat projects that may benefit elk. Several water developments have been installed in the past few years, allowing elk to access habitats not previously available. Fire suppression continues to limit habitat for elk. Recent wildfires burned a portion of Unit 242, damaging 2 water developments repaired in 2015. Habitat in the area appears to be recovering relatively well due to restoration efforts and recent precipitation.

Population Status and Trend

Hunter return card data indicates 2 cows and 4 bulls were harvested from Management Area 24 in 2015. The 2016 survey combined with reports and sightings indicate 100 elk may occupy Management Area 24. The division of Unit 241-242 from Unit 231 should facilitate a decrease in hunter congestion and added choices for hunters.

DESERT BIGHORN SHEEP

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

Survey Data

A 3-hour aerial survey was conducted in the Stillwater and East Ranges during August 2015 and resulted in the classification of 107 desert bighorn sheep resulting in a ratio of 42 rams:100 ewes:60 lambs.

Habitat

Continued expansion of pinyon and juniper is limiting desert bighorn sheep habitat within the Stillwater Range. Prescribed fires and natural occurring fires are needed in most of the northern half of the Stillwater Range to allow for pioneering bighorn sheep to establish. Past fires such as the Table Mountain Fire resulted in bighorn sheep occupying the area that was previously dense trees and limited understory.

The northern portions of Stillwater Range have extremely high populations of feral horses. Spring sources are severely degraded. Oftentimes a few hundred horses can be seen at a spring source. Future pipe rail fences need to be erected to protect the water sources.

Population Status and Trend

The Nevada Department of Wildlife strives to maintain separation between desert bighorn sheep and domestic sheep. It has been well documented in the scientific literature that pathogens carried by domestics may be spread to bighorn and cause morbidity and mortality. Within the boundaries of Unit 182 lies Dixie Valley. The northern portion of the valley contains private alfalfa pivots that lie between the Stillwater Range and Mount Cain. For some years domestic sheep have been trucked into the valley to forage these alfalfa fields. The animals are herded from grazed to ungrazed fields usually in early fall for approximately 1 month. Concern exists for potential comingling of bighorn and domestic sheep during this time period. The Nevada Department of Wildlife has been made aware of the potential threats and is seeking potential solutions to reduce the risk of disease transmission and increasing effective separation.

The 2015 population estimate for the Stillwater and East Ranges is 340. The 2015 lamb ratio of 60 lambs:100 ewes will allow for an increasing population trend.

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

Survey Data

A 1-hour aerial survey was conducted in mid-August 2015 in Unit 045 classifying 97 desert bighorn sheep. The resulting ratio was 70 rams:100 ewes:50 lambs. The 2015 lamb ratio in Unit 045 remains strong and will continue to promote an increasing population trend. Similar to previous surveys in Unit 045, desert bighorn sheep were well distributed throughout the southern end of the Tobin Range to the top of Mount Tobin.

Habitat

Overall, bighorn habitat in Unit 045 remains conducive to herd growth. General use areas within the Tobin Range include the top of Wood Canyon along the ridge to Mount Tobin, Cottonwood Canyon south to Miller Basin and extreme south to the Indian Caves. Desert bighorn sheep have been observed as far north as Pollard Canyon this past year. It is believed that the Tobin Range herd will continue to expand north to China Mountain.

Population Estimate and Trend

A small population of around 20 desert bighorn sheep continues to exist in the Mount Moses area of Unit 153 directly east of the Tobin Range. This herd is comprised of desert bighorn sheep that dispersed from Unit 045 from the 2003 and 2008 augmentations. The Unit 153 herd has shown little population growth and resides within the Bureau of Land Management's Buffalo Valley and Cottonwood domestic sheep allotments. A risk assessment is warranted to determine the appropriate management action to greatly improve effective separation between wild and domestic sheep.

The Tobin desert bighorn sheep herd continues to exhibit an increasing population trend. Since the 2008 augmentation, this herd has grown at an average yearly rate of 14%. The 2016 population estimate for Unit 045 is 210 bighorns.

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

Report by: Mike Podborny

Survey Data

A helicopter survey in both units in September 2015 classified only 29 bighorn sheep with no lambs; the lowest sample since 2006. There were only 3 desert bighorn sheep classified in Unit 164 compared 59 in 2013. In January 2016, 37 desert bighorn sheep were classified during a ground survey in Unit 131 including 2 lambs. Heavy snow drove 2 groups to low elevation winter ranges out of the tree cover and easily accessible for ground survey. This ground Survey Data was used in place of the previous aerial survey data for modeling purposes. The total number of unique animals classified during both surveys was 51; yielding sex and age ratios of 28 rams:100 ewes:5 lambs. The lamb ratio averaged 49 lambs:100 ewes from 2004 to 2010 before dropping to an average of 17 lambs:100 ewes from 2011 to 2014. Two ewes were observed in January 2016 with pink ear tags which identifies them as animals translocated from Mount Jefferson in 2007.

Habitat

Winter 2015-16 had above-average snowfall and total precipitation through mid-February 2016 which should improve range conditions and increase water availability throughout all desert bighorn sheep habitats. Bighorn sheep were documented using an old burn high in upper Currant Creek during the fall survey. The reduced tree cover in the burn area and increases in grasses and forbs should benefit bighorn.

Population Status and Trend

There were 3 Rocky Mountain bighorn rams harvested in Unit 131 and 1 ram confirmed to be a Rocky Mountain-desert bighorn hybrid. Rams harvested from these units will only be accepted into official record books as Rocky Mountain bighorn sheep because of the gene introgression between the 2 subspecies.

All 3 sub-populations, Currant Mountain, Duckwater Hills and the Pancakes, have been exposed to the bacterial pathogen *Mycoplasma ovipneumoniae*. Reduced lamb survival for the past 5 years has resulted in a declining population and is likely a result of this bacterial infection. Nevertheless, a viable population of desert bighorn sheep remains, with adult rams available for harvest.

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

Report by: Mike Podborny

Survey Data

An aerial survey of the Grant and Quinn Canyon Ranges was conducted in September 2015. There were 51 bighorn sheep classified, yielding sex and age ratios of 39 rams:100 ewes:43 lambs. There were only 4

desert bighorn sheep classified in the Quinn Canyon The lamb ratio was above the 5-year-average of 31 lambs:100 ewes. The previous survey in the Grant Range from February 2015 classified 26 bighorn.

Habitat

Red Bluff Spring in the Quinn Canyon Range was used by up to 30 desert bighorn sheep during the summers of 2013 and 2014. The spring was a trickle of water flowing into an old rusty trough that was only used by bighorn, pronghorn and rabbits. In fall 2014, a local livestock operator dug out the spring and installed a large storage tank with a trough and float valve system increasing available water for both livestock and wildlife. A trail camera on the spring in summer 2015 detected small herd of antelope, but no bighorn sheep. Livestock had used the spring earlier in the spring and summer. The winter of 2015-16 had above-average snow fall which should improve forage conditions and increase flows at springs and creeks.

Population Status and Trend

The desert bighorn population in the Grant Range temporarily expanded in size and distribution following 2 releases in Troy Canyon in 2005. Since then, the number of animals observed on survey has declined from 77 in 2009 to a low of 20 in 2013. The lamb ratio was 54 lambs:100 ewes in 2009 but was in the low 20s in both 2013 and 2014. All these data indicate a population decline.

The 2015 survey was very encouraging with an increased sample size and an above-average lamb ratio. However, a mule deer hunter in late October 2015 reported a sick desert bighorn lamb in the area. The lamb was found dead a few days later and laboratory results indicated the lamb had died from bacterial pneumonia. The Quinn Canyon population of desert bighorn sheep appears to be separate from the Grant Range population. Biological samples were recently collected for genetic and disease testing. The Quinn Canyon desert bighorn sheep tested negative for *Mycoplasma ovipneumoniae*, whereas the Grant Range bighorn sheep have tested positive several times. Lambing also occurs 2 months earlier in the Quinn Canyon Range compared to the Grant Range. The small sample size obtained from the Quinn Canyon population may simply be a function of missing the desert bighorn sheep during the survey, or it could be that bighorn have left the area. Much uncertainty of the status of both herds exists until more data is collected.

One desert bighorn ram tag was issued for the 2015 hunt, but the tag holder turned his tag in immediately prior to the hunt which did not allow time for the tag to be reissued.

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

Report by: Cooper Munson

Survey Data

There were no surveys conducted in Units 133 and 245 during 2015.

Habitat

Habitat conditions were moderate during spring 2015 due to lower than average precipitation. During the late summer 2015 above average precipitation fell in this area leading to good quality range conditions. According to Community Environmental Monitoring Program precipitation data, the annual precipitation received in Alamo during 2015 was approximately 99% of the previous 10-year average. All of the water developments in the North and East Pahranagats were holding good amounts of water in February 2015 and were utilized by desert bighorn sheep throughout most of the year. The timing of the precipitation should have allowed desert bighorn sheep to go into the winter in good condition.

Population Status, and Trend

This population has shown a static trend for the past few years. Mild winters may be increasing lamb

survival. The population estimate for 2016 is similar to the 2015 estimate. Ten sheep were captured and tested for disease; 4 in the East Pahranagat Range, 4 from the Pahranagat Range and 2 from Mount Irish. Test results showed no active infection of *Mycoplasma ovipneumoniae,* but positive titers to *Mycoplasma ovipneumoniae* in all ranges indicates past exposure to this pathogen.

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

Survey Data

An aerial survey was conducted in Unit 134 during early September 2015. The survey covered Palisade Mesa, Lunar Cuesta, Little Lunar Cuesta, Black Beauty Mesa, Citadel Mountain, Twin Springs, Echo Reservoir and Big Fault Mesa areas. The aerial survey was cut short due to high winds in the area. A total of 116 animals were classified as 36 rams, 60 ewes and 20 lambs. In comparison, the 2014 survey yielded a sample size of 157 sheep. The observed lamb to ewe ratios of 33:100 for 2015, and 22:100 for 2014 are a significant increase over observed lamb ratios obtained from 2011 - 2013.

Habitat

In 2015, according to the Community Environmental Monitoring Program precipitation data, central Nevada received 146% of the 30-year average. Above-average spring and fall precipitation should alleviate some of the detrimental rangeland effects caused by the recent drought. In recent years, favorable moisture during summer and early fall has tempered the impacts of drought. Desert bighorn habitat in Unit 134 has benefitted from these monsoonal moisture patterns and grass and forb species have experienced good production during the summer and fall periods.

Population Status and Trend

The Unit 134 bighorn sheep population is the result of a reintroduction effort that took place in 1984. The herd immediately began a steady increase, which continued through the late 80s and early 90s. The herd did so well during that time period that it was used as transplant stock in 1996, 1998 and 2003. Unfortunately, during 2011 the herd experienced a pneumonia disease event related to the presence of *Mycoplasma ovipneumoniae.* Adult mortality is believed to have been as high as 20%, but lamb mortality reached levels of 90% during the first 3 years of the outbreak. Adult mortality directly related to the pneumonia outbreak was primarily limited to 2011. An increase in lamb survival was documented in 2014 and 2015, but further monitoring of the herd will be necessary to determine if this lamb survival trend will continue and allow for herd recovery. As a result of the disease event, the population is exhibiting a decreasing trend.

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

Survey Data

An aerial survey was conducted in early September 2015 with a record sample of 308 animals classified as 84 rams, 159 ewes and 65 lambs. The previous survey conducted was early September 2012 when a total of 187 were classified as 35 rams, 92 ewes and 60 lambs

Population Status and Trend

The Unit 161 desert bighorn sheep population was re-established through the release of 22 animals in 1982. In 1983 an additional 4 animals were released in the area. Since the initial releases, the herd has thrived so well that a total of 123 bighorn sheep has been captured and translocated to other Nevada mountain ranges from 2002 - 2008.

The core Unit 161 desert bighorn sheep population inhabits the area on and around Mount Jefferson in the Alta Toquima Wilderness during summer and fall. The majority of the animals move to lower elevations during the winter and spring months. A smaller herd has established itself further north in the Northumberland area in recent years.

Recent detection of *Mycoplasma ovipneumoniae* and the presence of pneumonia in several central Nevada bighorn populations raised concerns that the Unit 161 herd is at risk of suffering the same fate. Currently, there have been no reported observations of sick bighorn sheep in the Toquima Range and the herd appears to be doing relatively well. However, in addition to disease concerns, periods of drought along with impacts from high numbers of feral animals continue to plague the herd. The above-average precipitation in 2015 should allow for some reprieve from recent years' droughts.

Currently, the Unit 161 bighorn herd is considered to be stable.

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

Survey Data

An incomplete aerial survey due to high winds was conducted in early September 2015 with only 12 sheep. The survey primarily covered the southern end of Unit 162 from west Stonecabin Valley to the Salsbury area. During the 2014 survey, a record total of 225 animals were classified as 48 rams, 156 ewes and 21 lambs. The specific cause of the depressed recruitment rate of 14 lambs:100 ewes is unknown at this time, but likely factors may include drought, density or possibly disease.

Population Status and Trend

A small number of desert bighorn sheep occurred in the Hot Creek Range prior to the 1990s, but the population remained static at very low levels. Releases of desert bighorn sheep in 1994 and 1995 augmented the existing population and resulted in stimulating herd growth.

Increased recruitment in recent years has allowed the Unit 163 desert bighorn sheep herd to reach its highest level. An increased number of animals continue to utilize the southern extent of the Hot Creek Range in the Warm Springs area. Movement between the Hot Creeks and the Kawich Range to the south during the cool season has increased concurrently. The pioneering bighorn herd in Hunts Canyon was combined with Unit 163 as a unit group in 2005 with the uncertainty of the herd establishing in Hunts Canyon. While the Hunts Canyon herd has remained relatively static, an increase in sheep use has been observed in the southern portion of Unit 162 over the past several years. A small-scale radio collaring project was initiated 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 concern that the pathogen that resulted in an epizootic pneumonia outbreak in adjacent Unit 134 in 2011 could find its way to Unit 163. Based on the very low lamb numbers observed during the 2014 survey, it is possible the pathogen may be present in Unit 163. Further monitoring of the Unit 163 bighorn population is necessary to confirm the presence or absence of the disease.

Recent periods of drought have impacted wildlife populations throughout central Nevada and Unit 163 is no exception. The above-average precipitation in 2015 (146% of the 30-year average) should have alleviated some of the negative effects on rangelands. While this herd has recently increased to record levels, drought and potential disease issues have impacted lamb recruitment and have stalled this trend at least in the short term. Currently, the Unit 163 desert bighorn sheep population is considered to be stable to slightly declining. The Unit 162 herd remains stable to increasing at low levels.

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

Survey Data

An aerial survey in Unit 173 in late August 2015 revealed classified 77 sheep as 20 rams, 43 ewes and 14 lambs. Areas surveyed included Peavine Canyon, Seyler Peak and areas adjacent to Toiyabe Dome and North Twin River. In comparison, the previous September 2012 survey showed a total of 54 desert bighorn sheep classified as 15 rams, 36 ewes and 3 lambs.

Habitat

The largest portion of the Unit 173 desert bighorn sheep population occurs in and around the Peavine Canyon and Seyler Peak area of the Toiyabe Range, although animals can regularly be found along the eastern side of the Toiyabe Mountains and as far north as Ophir Canyon. Due to the regular occurrence of drought periods in this area for over the past 10 years, the desert bighorn sheep inhabiting Peavine Canyon area have become accustomed to using private lands that are more moist and lush than adjacent habitats. The above-average precipitation received in 2015 should relieve this issue to some extent. Bighorn sheep depredation of private lands is likely to continue until an acceptable solution to landowners, the Nevada Department of Wildlife and sportsmen can be devised.

Population Status and Trend

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

Although, the majority of the Unit 173 desert bighorn sheep population inhabits the southern reaches of the Toiyabe Range, a growing number of animals also inhabit the San Antonio Mountains just north of the town of Tonopah. Occasionally, reports of bighorn sheep in the Bunker Hill and Big Creek area just south of Highway 50 are received. The Big Creek area currently contains an active domestic sheep allotment and expansion of this small portion of the desert bighorn sheep herd will not be encouraged until domestic sheep grazing in discontinued in the area.

Recent detection of *Mycoplasma ovipneumoniae* and the presence of pneumonia in several central Nevada desert bighorn sheep populations have raised concerns that the Unit 173 desert bighorn sheep population is at risk. There have been no reported observations of sick desert bighorn sheep in Unit 173, but it is likely the herd will eventually come into contact with the pathogen impacting neighboring herds. Recent droughts have repressed lamb recruitment in Unit 173. Due to this fact, the Unit 173 bighorn population is considered to be experiencing a static to slightly decreasing trend.

Unit 181: Fairview Peak, Slate Mountain and Sand Springs Range; Churchill County
Report by: Jason Salisbury

Survey Data

In August 2015, a 3- hour aerial survey yielded a total of 293 desert bighorn sheep with a ratio of 57 rams:100 ewes:41 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 South Rail spring fence located in the Sand Springs Range was upgraded in spring 2015. An additional 7,250 gallons was added for a total capacity of 15,000 gallons. This water development consists of collecting water off a spring source and storing it in underground tanks. The spring runs dry in early summer; therefore, future recommendations are to include installing a metal apron to serve as a backup system to this vital water source. The old Fairview water development will be upgraded in spring 2016. An additional 10,000 gallons will be added to the current 3,000 gallons system. Slate Mountain water development will be upgraded in spring 2016. New gutters, drinker, and rail fencing will enable the herd to utilize it more effectively. Additionally, a new water development was constructed in March 2016 in the Monte Cristo Mountains. The unit is located just north of the only known spring source and will provide a crucial backup to the spring and the Blush water development.

An extremely wet weather pattern was experienced in spring and summer 2015. Desert bighorn sheep that usually rely heavily on guzzlers in the summer months were chasing green-up and not consistently utilizing water.

Population Status and Trend

During summer 2015, epizootic hemorrhagic disease was noted at the South Rail project in one bighorn ram. Epizootic hemorrhagic disease is the direct result of a midge biting the host and transmitting the virus. This virus will initially cause fever, swollen head, neck and tongue. The animals infected become lame, lose appetite or reduce their activity and can die within 1 to 3 days. The ram was euthanized by the area biologist and was sent to the Nevada state lab for testing. It is believed the moisture received during the summer 2015 allowed for the propagation of midges. It is also thought that because desert bighorn sheep were not heavily utilizing the water at the time, more losses may have been averted.

The Unit 181 desert bighorn sheep herd continues to exhibit strong growth. The current population estimate is 380 animals and is a slight increase from what was reported in 2015.

Unit 183: Clan Alpine Mountains; Churchill County

Report by: Jason Salisbury

Survey Data

During a 3 hour aerial survey in August 2015, a total of 249 desert bighorn sheep were classified as 57 rams,127 ewes and 65 lambs. This was the highest recorded sample ever obtained for this unit group.

Habitat

The Clan Alpine Mountains are in excellent shape with increased forage production from heavy precipitation received in 2015. Monsoonal-like moisture was received in many parts of the mountain range ensuring water developments stayed full throughout the summer and early fall.

Bighorn sheep use increased on the Lauderback water development (3000 gallons) which caused it to go dry in the early fall months. This unit may need to be upgraded in the future to allow for more storage and collection capabilities. Feral horse numbers are again surging in numbers on the east face of the Clan Alpines from War Canyon to just north of Byers Canyon. Horse removal is necessary to keep the population within its appropriate management levels.

Population Status and Trend

The 2015 Clan Alpine Mountains bighorn population estimate is 320, which approximates last year's estimate. This year's 51 lambs:100 ewes will allow for herd growth.

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

Survey Data

In August 2015, a 3-hour survey yielded a sample of 97 bighorn sheep and ratios of 43 rams:100 ewes:37 lambs. Bighorn sheep were encountered throughout the Desatoya Mountains, Eastgate Hills and Greyback.

Habitat

In 2015, the Cold Springs Fire ignited at the top of Carol Summit consuming over 5000 acres of mainly pinyon and juniper woodland. The Nevada Department of Wildlife seeded the project in January 2016 to allow for the reestablishment of grasses as well as browse species. Adequate moisture received in 2016 should allow for establishment of new seedlings in the burn area. This fire is adjacent to the Bald Mountain Fire area and should provide the bighorn sheep with a greater area in which to expand.

In summer 2014 a fire consumed 333 acres of higher elevation pinyon and mahogany on the west face of the Desatoya Mountains. The Nevada Department of Wildlife reseeded approximately 170 acres of this fire with a native forb and grass mix. The fire burned extremely hot in the treed areas. The seeding was needed to provide soil stabilization and seed stock to allow for a full recovery. It would be beneficial if future fires were allowed to expand and consume trees which in turn improves bighorn habitat.

Feral horses are increasing significantly within the Desatoya Mountain Range. Future removals will be necessary as well as protecting crucial spring sources within the higher elevations.

Population Status and Trend

The Unit 184 bighorn population seems to be slightly increasing at this time. The 2015 lamb ratio of 37 should allow for moderate population increases over time.

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

Survey Data

An aerial composition survey was conducted in August 2015 and yielded a sample of 53 desert bighorn sheep with a ratio of 79 rams:100 ewes:42 lambs. Animals were seen on Clark Mountain in the vicinity of both water developments and near the Eagle Picher Mine overlooking the Truckee River. An opportunistic ground survey in February 2015 resulted in 63 unclassified sheep in the vicinity of the EP guzzler.

Habitat

Habitat conditions in this unit are marginal after 4 years of drought and exacerbated by the feral horse population in the Virginia Range, estimated at over 2,000 horses by the Nevada Department of Agriculture which has management responsibilities in this unit. The need for management of these feral horses is evident in the overall poor physical condition of the horses and the deplorable habitat conditions in those areas frequented by groups of horses. The more favorable precipitation levels received during winter 2015-16 should temporarily alleviate some of these concerns.

Volunteers from Nevada Bighorns Unlimited in cooperation with the Nevada Department of Wildlife constructed a 10,000 gallon water development on the east end of the Eagle-Picher property.

Population Status and Trend

The modeled population estimate shows an upward trend despite the drought conditions. Desert bighorn sheep inhabit Clark Mountain, Gooseberry Hills, Derby Dam cliffs and the area around the Eagle Picher Mine. Miscellaneous Survey Data, such as trail camera photos from guzzlers, show increasing numbers of untagged sheep in various age classes, a good indication of recruitment into the population since the initial releases in 2011 and 2012. Although infrequent, there are continued reports of small groups of sheep, including rams, in the Flowery Range.

Unit 202: Wassuk Range; Mineral County

Report by: Jason Salisbury

Survey Data

In August 2015 an aerial survey in the Wassuk Range yielded a sample of 89 desert bighorn sheep. The sample consisted of 28 rams:100 ewes:50 lambs.

Habitat

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

Fires are an important management tool that is needed in phase II and phase III pinion canopies. The higher elevation pinion woodland zones of the Wassuk Mountain 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 the higher elevation habitat for sheep use.

Population Status and Trend

During summer 2015, a small outbreak of epizootic hemorrhagic disease was noted in Cottonwood Canyon as well as the cliff area. Desert bighorn sheep are susceptible to epizootic hemorrhagic disease, which results from a midge biting the host which transmits the virus. This virus will initially cause fever, swollen head, neck and tongue. The infected animals become lame, lose appetite or reduce their activity and can die within 1 to 3 days. A ewe and young ram were euthanized as a result of having symptoms of epizootic hemorrhagic disease. It is believed that the moisture received during the summer 2015 allowed for the propagation of midges. It is also thought that because bighorn were not heavily utilizing water at the time, further losses were prevented.

The population estimate for Unit 202 is 200 animals. This population will continue to experience positive growth from recent high lamb ratios.

Unit 204: East Walker River; Lyon County

Report by: Jason Salisbury

Survey Data

A 1.5-hour aerial survey in Unit 204 in August 2015 classified 15 desert bighorn sheep as 2 rams, 9 ewes, and 4 lambs in the East Walker drainages.

Habitat

Over the last few years the Walker River corridor received marginal precipitation resulting in dry decadent grasses. Summer rains in 2015 created a more favorable environment and resulted in increased forage

production in the area.

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

Population Estimates and Trend

The East Walker River population seems to be doing well enough considering the small geographic area it occupies. The favorable environmental conditions experienced in 2015 should allow for increased survivability in the herd. The 2016 population estimate approximates the 2015 herd level.

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

Report by: Jason Salisbury

Survey Data

In August 2015, a 6.5-hour aerial survey yielded a sample of 301 desert bighorn sheep consisting of 80 rams, 150 ewes and 71 lambs.

Habitat

A new water development was built in the Gabbs Valley Range in 2015 to mitigate the loss of water that may occur on Mount Ferguson if an adjacent gold mine is developed and causes water loss at spring sources.

Most natural waters occurring in Unit 205 are over-utilized by longhorn cattle. Protection of the spring sources, as well as diverting water to troughs, could benefit wildlife as well as livestock.

During spring and summer 2015, torrential downpours occurred in Unit 205 and 207. The resulting flash flood events caused damage to 2 water developments. The Table Mountain guzzler located in Unit 207 had its pipe rail fence washed out. Volunteers filled the washed out area with rock and sand.

Additionally, the Wild Horse water development's drinker and gutter filled in with rock and debris. The Mineral County Sportsman's Club mucked out both the drinker and the gutter so that it would function properly. Future plans may require the placement of retaining walls to deflect any future mudslides from damaging these water developments.

Population Status and Trend

The current modeled population estimate for this herd is 650 animals and is a 7% increase over 2015. The Units 205-207 herd continues to grow at a slow pace. The outlook for this herd is good with ample mature rams available for harvest.

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

Report by: Jason Salisbury

Survey Data

Aerial surveys completed in August 2015 resulted in the observation of 101 desert bighorn sheep classified as 13 rams, 63 ewes and 25 lambs. The observed lamb ratio of 40 lambs:100 ewes enables the herd the opportunity for growth.

Habitat

In the last 5 years, 11 new water developments have been constructed in the Excelsior Mountains, Candalaria Hills, Miller Mountain and the Garfield Hills. These new water developments have a combined total storage capacity of 90,000 gallons of water and provide the necessary resources for a growing and expanding herd.

Population Status and Trend

An augmentation of 33 bighorn sheep was made in the fall 2015 and winter 2016. The first capture occurred in November 2015 in the Gabbs Valley Range. Fifteen sheep were moved from Unit 205 to the Garfield Hills. Of the 15 sheep, 9 were fitted with Vectronic satellite collars. To date these sheep have imprinted in the vicinity of the Middle and South Mable guzzler sites located in the Garfield Hills.

The second release captured sheep out of Lone Mountain in Unit 212 in February 2016. The 18 sheep were released in the Garfield Hills near the Kincaid water development. Fifteen sheep were fitted with Vectronic satellite collars and vaginal implant transmitters. The 15 sheep are part of a University of Nevada, Reno study identifying birthing and lamb rearing sites and lamb survival in a newly released environment. Once birth occurs, the vaginal implant transmitters sense a temperature difference and emit a notification signal. Researchers then try to locate the newly born lamb within 2 days and place a lamb collar on it. Follow up occurs throughout the summer months following the ewe and lamb.

A private farm flock of domestic sheep is located along US Route 95 and at the base of the Black Dyke Mountains. In February 2016, volunteers and the Nevada Department of Wildlife, with the permission of the private landowner, fortified the private fence to prevent domestic sheep from escaping. The Nevada Department of Wildlife wants effective separation between bighorn and domestic sheep to prevent the possible spread of disease. The Nevada Department of Wildlife is also looking at the feasibility of putting a second fence on either the inside or the outside of established fencing to prevent fence line contact between the domestic sheep and the desert bighorns.

The Units 206-208 bighorn population continues to exhibit good recruitment rates and expand into unoccupied habitat. The addition of the new water developments will allow the Excelsior's core population to grow and should help foster growth into the Candelaria Hills as well as Garfield Hills well into the future.

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

Report by: Joe Bennett

Survey Data

An abbreviated aerial survey was conducted in early September 2015 yielding 208 sheep which were classified as 66 rams, 109 females and 33 lambs. The observed lamb to ewe ratio indicates this herd continues to experience comparatively good production and recruitment despite recent disease concerns.

Habitat

In 2015, above-average precipitation (146% of the 30-year average for central Nevada) should have allowed some much needed reprieve of recent drought years. The 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 Unit 211 desert bighorn sheep herd is one of only a handful of remnant herds in central Nevada. Historically, sheep movement occurred regularly between the Silver Peak Range (Unit 211) and the Monte

Cristo Range (Unit 213). The Monte Cristo Range served primarily as winter range for many of the desert bighorn sheep in the Silver Peaks. Over the years, this movement has slowed considerably and while some movement still takes place, each of the 2 ranges now support what are considered 2 distinct populations. Some movement also occurs between the Silver Peak Range and Lone Mountain in Unit 212.

The vast majority of the desert bighorn sheep inhabiting Unit 211 occur 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 of western Esmeralda and eastern Mineral Counties in Unit 208.

Due to the steadily increasing bighorn population inhabiting Unit 211, 25 animals were captured as source stock in 2009 for relocation to Churchill County in Unit 182.

The presence of *Mycoplasma ovipneumoniae*, associated with bacterial pneumonia outbreaks in bighorn sheep, was documented in a ram harvested in Unit 211 during the 2013 desert bighorn sheep hunting season. The presence of the pathogen was not a surprise due to *Mycoplasma ovipneumoniae* being documented in the adjacent Lone Mountain herd shortly before it was discovered in Unit 211.

During October 2014, a disease surveillance and radio marking effort was conducted in Unit 211. GPS collars were placed on 4 rams in Unit 211 during the effort, including 2 in the Silver Peak Range and two in the Volcanic Hills. During the operation, biological samples were obtained from 13 sheep in various portions of Unit 211. Results documented the presence of *Mycoplasma ovipneumoniae* in both the Silver Peaks and Volcanic Hills. In addition, a lamb showing clinical signs of disease was collected in the Silver Peak Range in July 2015 and tests revealed the presence of *Mycoplasma ovipneumoniae*, as well as severe pneumonia, which would have likely resulted in the death of the lamb.

While the observation of moderate lamb numbers during the 2014-15 aerial surveys are encouraging, it is still unclear what impacts the presence of *Mycoplasma ovipneumoniae* will have on the herd. Based on the apparent absence of pneumonia-related adult mortality and fair lamb recruitment, the Unit 211 desert bighorn sheep population is considered to be stable to slightly increasing.

Unit 212: Lone Mountain; Esmeralda County

Report by: Joe Bennett

Survey Data

In 2015 an abbreviated aerial survey precluded by wind was completed to assess lamb production for an upcoming doctorate project on capture and translocation. The sample size was 206 bighorn classified as 66 rams, 106 females and 34 young. In comparison, the 2014 survey yielded a total of 384 sheep.

Population Status and Trend

The Unit 212 bighorn population is one of only a few remnant central Nevada herds that survived extirpation at the turn of the nineteenth and twentieth centuries due to a variety of anthropogenic causes. Once regulations to protect the herd were put in place, the Lone Mountain bighorn herd began increasing steadily. By the late 1980s the estimated population was over 200 animals.

This population served as transplant stock during 2 successive years in the late 1980s. Immediately following these captures, the herd experienced a sharp decline and by 1991 the herd's estimated population was less than 100 animals. The exact cause of this decline is uncertain, but it may have been due to a disease event. Due to excellent recruitment rates for over a decade, the herd has increased at a phenomenal rate. Due to the steadily increasing population and a desire to control densities, the Unit 212 desert bighorn sheep herd was once again used as source stock in 2012. A total of 25 animals was captured and relocated to the Excelsior Mountains. In the past few years, desert bighorn sheep densities on Lone Mountain have become excessive.

During the 2013 aerial survey, a low lamb ratio raised concerns of a possible disease event. In late March 2014, the test results of a 2013 hunter harvested ram was found to be positive for *Mycoplasma ovipneumoniae.* During an April 2014 disease monitoring effort, 2 adult ewes and a young ram were collected for sampling and necropsy. Results confirmed presence of *Mycoplasma ovipneumoniae* in the Unit 212 sheep herd. 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. Additionally, strong observed lamb ratios during the 2014 fall survey indicate the lamb segment of the herd did not experience unusually high mortality.

In 2014, a ewe hunt was established in Unit 212 in effort to help reduce sheep densities on Lone Mountain. The same ewe hunt was present in 2015. If the herd continues to show good lamb recruitment despite the ongoing disease issues, it will be necessary to continue the harvest of ewes to manage animal density.

In January 2016, 34 ewes were captured for a University of Nevada, Reno, doctorate project. Of these 34 sheep, 18 ewes were translocated to the Garfield Hills near Mina, Nevada. The purpose of this project is to assess lambing habitat, birth site location preferences, and cause-specific mortality of lambs.

As a result of the newly instituted ewe hunt and translocation efforts, the Unit 212 desert bighorn sheep population is currently showing a stable to slightly decreasing trend.

Unit 213: Monte Cristo Range; Esmeralda County

Report by: Joe Bennett

Survey Data

A modified aerial survey was conducted in Unit 213 during early September 2015. A total of 265 sheep were classified as 77 rams, 146 ewes and 42 lambs. In comparison, 2014 surveys yielded a record sample size of 422 classified as 130 rams, 226 ewes and 66 lambs.

Population Status and Trend

The Monte Cristo desert bighorn 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 fall 2011, a capture project not only provided valuable transplant stock for the Virginia Range in Unit 195, but also served to reduce animal densities on the southern portion of the Monte Cristo Range. A total of 34 animals were captured. A ewe hunt was established in 2014 to further reduce animal densities.

During winter 2013-14, *Mycoplasma ovipneumoniae*, a pathogen associated with pneumonia in bighorn herds was documented in adjacent Units 211 and 212. As part of a regional disease surveillance effort in fall 2014, 10 sheep were captured from various parts of the Monte Cristo Range. In addition to the disease sampling, 4 rams were 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 herds, as well as sheep movements between populations and could potentially aide in future management of disease risk.

Currently, bighorn densities in Unit 213 are considered to be excessive. If the herd continues to experience current levels of lamb production and recruitment despite disease exposure, it will be necessary to continue ewe hunts as a means of controlling animal densities.

Due to recently reduced recruitment rates, as well as 2 years of ewe hunts, the current population model shows a slightly decreasing trend for this herd.

Unit 221: South Egan Range; Lincoln County
Report by: Cooper Munson

Survey Data

No surveys were completed during the reporting period. The contracted helicopter netgun crew for the Nevada Department of Wildlife spent approximately 1.5 hours of search time in the south Egans in October 2015 as part of a regional disease surveillance effort. No bighorn were found by the crew for sampling.

Population Status, and Trend

Domestic sheep have been reported, observed and removed on several occasions from the south Egans. It appears the population has been essentially lost, despite the presence of a few remaining desert bighorn sheep. No new releases will be done in this area unless the domestic sheep trailing route is eliminated. Existing Survey Data cannot provide enough information to make a reasonable population estimate and this unit will remain closed indefinitely.

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

Survey Data

Aerial surveys conducted in September 2015 classified 149 bighorn including 38 rams, 74 ewes and 37 lambs. The resulting ratios were 51 rams:100 ewes:50 lambs. The 2015 survey was slightly less successful in locating sheep in the Delamar Mountains than in previous years although hunter observations provided larger numbers than observed on aerial surveys.

Habitat

Habitat conditions throughout the area were reported as excellent during September 2015 with ample green grasses and other vegetation appearing healthy throughout a range of elevations. Water development surveys show several of the sheep guzzlers at or near capacity, but a few still well below capacity.

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. Desert bighorn sheep in these areas are faced with a host of varied issues including off highway vehicle races, rock-crawling courses, new power lines, urban 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 an attempt to detect the demographic response to disease exposure.

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. Desert bighorn sheep released in these areas have been observed to commonly move to adjacent ranges. It appears that some of the sheep from the South Pahroc release have possibly even moved some 60 miles northwest to the Grant-Quinn Range, while other sheep have taken up residency within Units 223 and 241. The population estimate for 2016 is similar to the estimate for 2015.

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

Survey Data

Aerial surveys were conducted in September 2015 in the Meadow Valley Mountains. The survey resulted in

the classification of 124 sheep, consisting of 38 rams, 61 ewes and 25 lambs. These numbers provide a ratio of 62 rams:100 ewes:41 lambs. This is a record sample for the Meadow Valleys.

Habitat

According to the Community Environmental Monitoring Program, this area received about 99% of the 10-year average annual precipitation during 2015. Late spring and early summer 2015 precipitation may have resulted in amplified habitat conditions across the landscape. Water developments were observed to be holding fair amounts of water in February 2016 while maintenance and repairs have been finished on most of these developments keeping them functional and reliable water sources for wildlife. Wilderness areas, private land issues and limited roads combine to make access into the Meadow Valley Mountains difficult for sheep hunters.

Population Status and Trend

Previous releases of sheep into the Meadow Valleys and Delamars, where there are 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 2016 is slightly above the 5-year average. Test results showed no active infection of *Mycoplasma ovipneumoniae*, but positive titers to *Mycoplasma ovipneumoniae* in 2 of the 5 Meadow Valley Mountains bighorn sampled indicates past exposure to this pathogen.

Unit 244: Arrow Canyon Range; Northern Clark County

Report by: Pat Cummings

Survey Data

The last aerial survey conducted over the Arrow Canyon Range was September 2014. The 2014 aerial survey classified 128 bighorn sheep. The observed ratios were 51 rams:100 ewes:11 lambs. Bighorn were encountered throughout much the range and nearly all were found within 2 linear miles of available water. The survey sample included 8 rams, 13 ewes and 7 lambs encountered in the adjacent Battleship Hills.

Habitat

Precipitation in late fall 2015 through the first quarter of 2016 were sufficient to foster new vegetative growth and to recharge water developments. In the course of conducting inspections in February 2016, all 6 water developments in the Arrow Canyon Range and Battleship Hills were noted as fully recharged.

It appears desert bighorn sheep avoid the southwest end of the range in proximity to Las Vegas due to excessive recreational shooters and vehicle enthusiasts. Abutting the southeast end of the range, is 3,083 acres designated as a Solar Energy Zone under a Programmatic EIS across southwestern states. The NEPA process is underway as Nevada Energy proposes to construct up to a 150-MW solar power generating facility.

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 2014, lamb representation in the aerial survey sample was low and suggestive of reduced recruitment in 2015. Moreover, recent PCR and ELISA positive lab results indicate *Mycoplasma ovipneumoniae* is present in the desert bighorn herd inhabiting the Arrow

Canyon range. Strain typing of *Mycoplasma ovipneumoniae* has not been completed yet from the recent 2015 sampling.
Due to the high number of ewes encountered during the fall 2014 survey, it is suspected the herd is not infected with the more virulent Mojave strain.

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

Survey Data

The 2015 aerial survey for this unit was conducted in early October 2015. This survey yielded a total of 238 sheep classified as 68 rams, 161 ewes and 9 lambs. Areas surveyed included Stonewall Proper, NE Hills, Pack Rat Canyon, Little Grand Canyon and the hills south of Vitavich. In comparison, the last aerial composition survey in early September 2013, showed 272 desert bighorn sheep were classified as 73 rams, 153 ewes and 46 lambs.

Population Status and Trend

Before disease prevalence in the Stonewall herd was detected in 2014, lamb production and recruitment allowed the Stonewall desert bighorn sheep densities to increase steadily. In an effort to help decrease densities of desert bighorn sheep in the Stonewall Mountain area, a capture project was conducted in fall 2011. A total of 28 animals were successfully captured. The first 20 animals captured were transported to the Excelsior Range I Unit 206 where they were successfully released in order to augment an existing sheep population. The final 8 animals captured were successfully released in Unit 195 in Storey County as part of a desert bighorn sheep reintroduction effort.

Unfortunately, recent evidence indicates the desert bighorn sheep population residing in and around the Nevada Test and Training Range is experiencing disease issues similar to what is occurring in some surrounding central Nevada desert bighorn sheep herds. This is prevalent in the low numbers of lambs observed in recent survey efforts. In addition, aerial surveys conducted by an environmental contract company in surrounding areas within the Nevada Test and Training Range indicate that lamb numbers were alarmingly low in 2014 and 2015. In addition, a recent sample taken from a ram further south in the Nevada Test and Training Range tested positive for *Mycoplasma ovipneumoniae*. *Mycoplasma ovipneumoniae* is a bacterium that has been linked to occurrence of pneumonia in desert bighorn sheep and has been documented in several herds in central Nevada in the past 3 years.

To assess connectivity, movement and disease transmission of desert bighorn sheep populations throughout the Nevada Test and Training Range, a satellite collaring movement project was implemented in fall 2015. A total of 19 sheep were collared to help give insight into movements of desert bighorn sheep populations throughout the Nevada Test and Training Range. Modeling of the Stonewall Mountain population is challenging due to the continual movement of desert bighorn sheep between Stonewall Mountain and areas further within the Nevada Test and Training Range.

The Nevada Department of Wildlife and Nevada Test and Training Range staff are coordinating to conduct further monitoring of the herd.

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

Survey Data

In October 2014, an aerial desert bighorn sheep survey over Bare Mountain yielded a sample of 265 sheep. The sample was the largest recorded and comprised 73 rams, 125 ewes and 67 lambs. The next aerial survey is scheduled for fall 2016.

Habitat

Environmental conditions in early 2016 were somewhat improved. As of mid-February 2016, each of the 3 water developments was fully recharged; however, desert bighorn sheep continue to cope with environmental effects brought about by excess burros. The northern half of Bare Mountain lies within the Bullfrog Herd Management Area. The Bureau of Land Management established the appropriate management level for feral burros in the Herd Management Area at 58-91. In January 2012, the Bureau of Land Management finalized planning efforts to capture and remove excess feral burros. At that time, an aerial burro census resulted in 195 feral burros, of which 42 were encountered outside of the Herd Management Area.

The census over 3 years ago reflected a burro population 236% above the lower end of Appropriate Management Levels. The burro gather that was to begin in March 2012 was postponed indefinitely due to lack of funding and limited space at short-term holding facilities. According to the Bureau of Land Management, the burro population of 195 would continue to increase at an estimated rate of 16% annually. Thus, despite removal of 44 burros from the Beatty area in 2015, the feral equid population is likely in excess (16% annual increase) of 300 animals and well above 400% of the lower end of Appropriate Management Levels.

In April 2013, a fourth 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

The 2016 bighorn population estimate reflects a decrease compared to last year. Evidence suggests the herd was exposed to *Mycoplasma ovipneumoniae* in 2014. In November 2015, in continuance of respiratory disease surveillance, 7 ewes and 5 rams were captured, sampled and released on Bare Mountain. Subsequent lab diagnostic tests revealed active (PCR) *Mycoplasma ovipneumoniae* infection among 5 sheep and definitive prior exposure (ELISA) among 3 individuals. In general, poor body condition (BCS <2.5) was noted in 10 of the 12 sheep captured and sampled. In addition, severe Psoroptic mite infestation was noted in 2 sheep. Thus in early 2016, the population model reflects downward adjustments of lamb survival rates in early 2015 and 2016.

The desert bighorn capture activities in November 2015 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. GPS collars were deployed on 3 rams captured on Bare Mountain. The overall objectives were two-fold: first, to gain information on spatio-temporal dynamics of pneumonia over a large area, and second, to elucidate movement patterns on a landscape scale. Desert bighorn sheep movements will be summarized and reported in spring 2017.

Desert bighorn sheep movements through the Beatty Wash, west Yucca Mountain area, serve to maintain connectivity between desert bighorn sheep on Bare Mountain and desert bighorn sheep 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 area value as a movement corridor should be recognized in land use planning.

In 2009, the Bureau of Land Management made a land use decision that may jeopardize continued desert bighorn sheep use of the Beatty Wash, west Yucca Mountain area. The Bureau of Land Management (Tonopah) issued a Decision Record that approved what has become the annual off-road, TSCO Vegas to Reno Race. The race attracts over 300 entrants competing in several vehicle classes. The event has been advertised as "The longest off-road race in the United States. The Nevada Department of Wildlife is

concerned the Bureau of Land Management's decision process failed to adequately analyze direct, indirect and cumulative effects of the annual race and newly created thoroughfare. One of the anticipated effects of a race course through the Beatty Burn and Beatty Wash area centers on bighorn sheep avoidance as a result of the route becoming a year-round attractant for casual users of recreational off highway vehicles.

Unit 254: Specter Range; Southern Nye County

Report by: Pat Cummings

Survey Data

In early October 2015, an aerial survey conducted over the Specter Range yielded a sample of 69 desert bighorn sheep. The sample was comprised of 25 rams, 34 ewes and 10 lambs. Desert bighorn sheep were encountered primarily in the eastern half of the range.

Habitat

Environmental conditions have improved slightly in the Specter Range. Plant vigor and production is fair to good. As of spring 2016, water developments are full or nearly full and water stores are adequate to support the desert bighorn sheep herd throughout the upcoming summer and early fall months. There are no known springs or seeps in the Specter Range. Increasingly, the 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.

In 2011, the Bureau of Land Management (Tonopah) was notified of burro ingress to the Specter Range. Later in 2011, the Bureau of Land Management issued a draft Bullfrog Herd Management Area Feral Burro Gather Plan and Environmental Assessment. The burro gather was postponed indefinitely due to lack of funding and limited space at short-term holding facilities.

Population Status and Trend

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. In spring 2008, several observations were made of ewes with lambs. Remote cameras installed at water developments in late spring and summer documented lamb survival through summer 2008. Lamb survival was further noted in the subsequent aerial surveys conducted in 2008, 2010 and 2015. Successive years of poor lamb recruitment have resulted in comparatively fewer rams in older age cohorts. The bighorn population estimate is about the same as last year.

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 (PCR) *Mycoplasma ovipneumoniae* infection in one ewe and definitive prior exposure (ELISA) in 2 rams. Three rams were fitted with a GPS collar and released.

Unit 261: Last Chance Range; Southeastern Nye County
Report by: Pat Cummings

Survey Data

No aerial bighorn sheep survey was conducted in Unit 261 in 2015. In mid-October 2014, an aerial survey yielded a sample of 129 bighorn sheep. The sample reflected sex and age ratios of 55 rams:100 ewes:37 lambs.

Habitat

Range conditions in the Last Chance Range may be characterized as fair to good and slightly improved relative to last year. Based on inspections of the 7 water developments in the Last Chance Range in February 2016, 6 units were fully recharged and the remaining unit was within 16% of maximum recharge. 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 2016 bighorn population estimate reflects a moderate contraction related to lower lamb recruitment in August 2016. Bighorn sheep inhabiting the Last Chance Range are likely suffering from respiratory disease. In furtherance of respiratory disease surveillance, 5 desert bighorn sheep were captured in the central portion of the Last Chance Range, sampled, and released in mid-October 2014. Results from ELISA and nasal swab PCR indicated at least one strain of *Mycoplasma ovipneumoniae* was detected. Results of strain typing are forthcoming. It is anticipated that more than a single *Mycoplasma ovipneumoniae* strain will be detected over time in desert bighorn sheep that inhabit the Last Chance Range given the proximity to desert bighorn sheep herds in nearby mountain ranges (California) that may be potential reservoirs of different strains.

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

Survey Data

In 2015 aerial survey efforts involved 14.2 hours of flight time 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 97 bighorn sheep. The sample was comprised of 33 rams, 61 ewes and 3 lambs.

No aerial survey was conducted in Unit 262 in 2014. Extensive aerial surveys were conducted in 2012 and 2013 due to low observed lamb ratios in 2010 and 2012 and reports beginning in spring 2011 of sick animals on the north end of the Red Rock Escarpment.

In 2013, 23.4 hours were spent surveying the same areas covered in 2015. A total of 216 bighorn sheep were classified with ratios of 60 rams:100 ewes:30 lambs. In October 2012, 16.5 hours were used to observe the largest sample recorded in Unit 262 of 235 sheep with ratios of 41 rams:100 ewes:22 lambs.

Habitat

Unit 262 tends to receive more precipitation than most other areas in Clark County. Desert bighorn sheep generally 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.

The 2005 Goodsprings Fire starting near Potosi Peak consumed an extensive area of 33,484 acres across a 3,900 foot elevation gradient including creosote-bursage flats, Mojave Desert scrub and pinyon-juniper woodlands. The fire severely burned areas with little to no remaining vegetation including: northern portion of Goodsprings Valley, Double Up Mine canyon, Cave Spring canyon and Shenandoah Peak.

Population Status and Trend

Desert bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. Based on fall 2015 aerial surveys, 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.

In November 2015, continued disease surveillance measures entailed captures of 3 rams and 9 ewes in proximity to and north and south of State Route 160. All 12 bighorn sheep were fitted with GPS collars.

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

In October 2015, aerial bighorn sheep surveys were conducted over the Highland Range and McCullough Range. In the McCullough Range, the brief 3.1-hour survey was focused on the north end. Many important areas were not flown. Bighorn were encountered throughout much of the area covered over the McCullough Range and in the Highland Range, sheep were encountered on the north end and in proximity to Highland Spring. Inclusive of both survey efforts, 43 rams, 89 ewes and 5 lambs were encountered.

Habitat

On March 21, 2015, a fifth desert 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

Desert bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. The herd has experienced a considerable contraction marked by low lamb survival. A chronology of relevant events that were reported in recent years may be found in the 2014-15 Big Game Status book. Within the last year, the Mojave National Preserve strain of *Mycoplasma ovipneumoniae* was detected in desert bighorn sheep in Unit 263. 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.

Desert bighorn sheep in the northern portion of the McCullough Range face a variety of challenges in the near future. On the west flank of the range, suburban sprawl and flood control measures have already claimed much of the lower elevation habitat. To the north, the movement corridor between the River Mountains and the McCullough Range 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 bighorn sheep survey was conducted over the Newberry Mountains in 2015. The last surveyed conducted was In October 2012 that yielded the highest recorded sample (Table 1). The next aerial survey over the Newberry Mountains is scheduled for fall 2016.

Habitat

In October 2015, a federal District Court judge ruled against development of the Searchlight Wind Energy Project. The court cited analytical gaps and deficiencies on the part of US Fish and Wildlife Service and Bureau of Land Management in the analyses of the full impacts of the project on sensitive wildlife species. The court ruled that the final EIS, biological opinion and record of decision were invalid. Presently, the case sits before the US 9th Circuit Court of Appeals, while federal agencies address the noted gaps in analyses of impacts to desert tortoises and golden eagles.

The 200-megawatt (MW) project entails construction, operation and maintenance of 87 2.3-MW Siemens wind turbines. The project is situated northeast, east and southeast of Searchlight atop ridgelines that link desert bighorn sheep movements between south Eldorado Mountains and Newberry Mountains. Area disturbance will include 27.3 miles of new roads and about 230 acres for construction of facilities. Wind turbine generators will be sited about 750 feet apart and arranged in linear strings. The wind turbine generators would have maximum height of up to 427.5 feet with 3 mounted rotor blades, each 165 feet in length.

The Nevada Department of Wildlife is concerned that desert bighorn sheep may be impacted by turbine structures, new roads, appurtenances and human activity during construction and operational phases. New structures, roads and increased human presence may effectively serve as a barrier that suppresses or eliminates connectivity between populations of bighorn sheep in the Newberry Mountains and Eldorado Mountains.

Table 1. Bighorn sheep herd composition obtained through aerial surveys in the Newberry Mountains.

Year	Rams	Ewes	Lambs	Total	Rams:100 Ewes:Lambs
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

The desert bighorn sheep population estimate was reduced for the herd inhabiting the Newberry Mountains. Although recent aerial Survey Data and health profile information are lacking, it is reasoned that the herd is struggling with bacterial pneumonia. The Newberry herd lies within a region surround by nearby populations of bighorn sheep infected with the Mojave National Preserve strain of *Mycoplasma ovipneumoniae*. The Mojave strain of *Mycoplasma ovipneumoniae* has been associated with desert bighorn die-offs marked by not only negligible lamb survival, but also substantial adult morbidity and mortality.

Unit 265: South Eldorado Mountains; Southeastern Clark County

Report by: Pat Cummings

Hunt Results

Units 264 and 265 have constituted a desert bighorn sheep hunt unit group since 1998.

Survey Data

No aerial survey was conducted in the southern portion of the Eldorado Mountains in 2015. 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 2016.

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.

Habitat

In October 2015, a federal District Court judge ruled against development of the Searchlight Wind Energy Project. The court ruled that the final EIS, biological opinion and record of decision were invalid. Presently, the case sits before the US 9th Circuit Court of Appeals, while federal agencies address the noted gaps in analyses of impacts to desert tortoises and golden eagles.

The 200-megawatt (MW) project entails construction, operation, and maintenance of 87 2.3-MW Siemens wind turbines. The project is situated northeast, east, and southeast of Searchlight atop ridgelines that link bighorn sheep movements between south Eldorado Mountains and Newberry Mountains. Area disturbance will include 27.3 miles of new roads and about 230 acres for construction of facilities. Wind turbine generators will be sited about 750 feet apart and arranged in linear strings. The wind turbine generators would have maximum height of up to 427.5 feet with 3 mounted rotor blades, each 165 feet in length.

The Nevada Department of Wildlife is concerned that desert bighorn sheep may be impacted by turbine structures, new roads, appurtenances and human activity during construction and operational phases. New structures, roads and increased human presence may effectively serve as a barrier that suppresses or eliminates connectivity between populations of bighorn sheep in the Newberry Mountains and Eldorado Mountains.

Population Status and Trend

Desert bighorn sheep population data obtained through aerial surveys and disease surveillance results portray a herd in decline due to bacterial pneumonia. The herd has experienced a considerable contraction marked by high lamb mortality. A chronology of relevant events that were reported in recent years may be found in the 2014-15 Big Game Status book. Within the last year, 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 desert 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 early November 2015, a 4.5-hour aerial survey was conducted over the northern end of the Eldorado Mountains. 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 desert 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 for Interstate 11 and will run 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 desert 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. Groundbreaking for Phase 2 is slated for early April 2015.

In mid-January 2015, 25 desert bighorn sheep were captured in and near the Phase 2 project area. The primary intent of the desert bighorn sheep capture operation was to affix satellite GPS collars on ewes and rams to assess movements and measure bighorn permeability across the highway during construction and following construction.

Population Status and Trend

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

Unit 267: Black Mountains; Eastern Clark County

Report by: Pat Cummings

Survey Data

In early November 2015, an aerial survey conducted over the Black Mountains yielded a sample of 208 desert bighorn sheep. The observed sex and age ratios were 44 rams:100 ewes:13 lambs. The aerial survey was conducted over the hills south of Echo Bay including Bighorn Island south to Manganese Wash, the Echo Hills and along the high main ridge northeast of Boulder Wash. The survey did not extend over Pinto Ridge, Razorback Ridge or areas south of Boulder Wash.

Habitat

Environmental conditions are fair to good due to winter and spring storms in 2015-16. The likelihood for an overall dry year is not high as the National Weather Service seasonal drought outlook valid through June 2016 does not foresee development of drought conditions.

Population Status and Trend

Desert bighorn sheep occupying the Black Mountains and Muddy Mountains comprise a single population given the high degree of movement between ranges; however environmental conditions and local population dynamics have differed markedly. Over the long term, aerial Survey Data portray a decline in the number of desert bighorn sheep inhabiting the Black Mountains and an increase in sheep numbers in the adjacent Muddy Mountains. The desert bighorn sheep population inhabiting the Black Mountains and Muddy Mountains expanded in 2012 and 2014 due to high lamb recruitment. The 2016 population estimate for desert bighorn sheep inhabiting the Black Mountains and Muddy Mountains approximates the estimate reported last year.

Unit 268: Muddy Mountains; Clark County

Report by: Pat Cummings

Hunt Results

The second desert bighorn ewe hunt in Unit 268 was held in October 2015. Forty tags were apportioned to the hunt, 12 of which were not filled. Nine hunters were unsuccessful, while 3 hunters reportedly did not hunt. Hunt durations among successful hunters ranged from 1 to 4 days, and averaged 2 days. Unsuccessful hunters tended to hunt longer and the average hunt duration was fractionally over 4 days.

On October 5, 2014, the inaugural hunt season opened for desert bighorn ewes. Twenty tags were allotted in the 21-day season. Four hunters did not hunt and 2 were unsuccessful after hunting 3 and 5 days. Successful hunters hunted from 1 to 6 days and the average hunt duration was just over 2 days.

Survey Data

In October 2015, 11.1 hours of flight time were expended over the course of 2 days to conduct an aerial bighorn sheep survey over the Muddy Mountains. The survey yielded a sample of 557 bighorn sheep, of which

9 were unclassified. The observed sex and age ratios were 116 rams:100 ewes:42 lambs.

Habitat

Precipitation in late fall 2015 through the first quarter of 2016 were sufficient to foster new vegetative growth and to recharge bighorn water developments. In the course of conducting inspections in January and February 2016, the 2 water developments, Safari and Jerry, on the south end of Muddy Peak were noted as fully recharged. Likewise, on the east side of the unit, Cliff Site and White Basin were fully recharged. Two important interior water developments, Five Ram and Flipper, were not fully recharged. In the absence of additional storm events, heavy desert bighorn sheep use of Five Ram beginning in mid-May may deplete the project prior to onset of monsoon activity. Should this scenario materialize, many additional desert bighorn sheep are likely to become dependent on, and hasten the drawdown of nearby Flipper.

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 October 2015, 9 ewes and 7 rams were captured, sampled (i.e., blood, tonsil and nasal swabs) and released in furtherance of disease surveillance. *Mycoplasma ovipneumoniae* was not detected on either PCR or ELISA tests. At this time, the desert bighorn sheep population inhabiting the Muddy Mountains and Black Mountains is considered healthy.

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 desert bighorn sheep population inhabiting the Black Mountains and Muddy Mountains expanded in 2012 and 2014 due to high lamb recruitment. The 2016 population estimate for the Black and Muddy Mountains is equal to last year.

Unit 271: Mormon Mountains; Lincoln County

Report by: Cooper Munson

Survey Data

A total of 211 sheep were classified during the Mormon Mountain survey, consisting of 78 rams, 102 ewes and 31 lambs. These numbers provide a ratio of 77 rams:100 ewes:30 lambs. This survey produced results consistent with surveys throughout the last 5 years.

Habitat

Habitat conditions in the Mormon Mountains were exceptional in early 2015 and remained so throughout most of 2015 due to consistent precipitation events and the area receiving 82% of 10-year average precipitation. Three of the five water developments appeared to be holding reasonable amounts of water as of February 2016. All 5 water developments are in need of upgrades slated to be accomplished in the coming years, although are still being utilized by wildlife. Desert bighorn sheep seem to prefer some of the areas that have burned within the last decade and are showing signs of vegetation regeneration.

According to the US Drought Monitor, the US Seasonal Drought Outlook is predicting that the drought conditions in this area may persist for the coming year.

Population Status and Trend

The Mormon Mountains desert bighorn population appears to be stable and healthy at this point. Following a run of static population growth, the 2016 population estimate is showing to be stable and trending with the 10 years of steady population levels. On October 22, 2015 during a regional disease surveillance effort, 14 bighorn were captured, sampled and released back on the Mormon Mountains. Test results showed no active infection of *Mycoplasma ovipneumoniae*, but positive titers to *Mycoplasma ovipneumoniae* in two-thirds of the animals sampled indicates they had past exposure to this pathogen.

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

Report by: Pat Cummings

Survey Data

In early November 2015, a 4.3-hour aerial survey was conducted over Lime Ridge, portions of Tramp Ridge, Bitter Ridge and over Virgin #1 and #2 water developments. The survey yielded a sample of 23 rams, 17 ewes and 1 lamb. The next aerial bighorn sheep survey over portions of Unit 272 is expected to occur in fall 2017.

Habitat

Precipitation in late fall 2015 through the first quarter of 2016 was sufficient to spur new vegetative growth in forage species and recharge desert bighorn sheep water developments. In late February 2016, the 2 water developments in the Virgin Mountains were inspected and both 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-over 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. Desert bighorn sheep released in the Virgin Mountains and Gold Buttes since 2005 have inhabited the south Virgin Mountains, Whitney Ridge, Lime

Ridge, Tramp Ridge, Bitter Ridge and the Cockscomb (Arizona). Presently, there is a lack of information on the distribution and abundance of desert bighorn sheep in Iceberg Canyon, Indian Hills and Azure Ridge.

The 2016 population estimate for desert bighorn sheep inhabiting the Virgin Mountains and Gold Buttes reflects a contraction relative to last year. The population decline is largely related to low lamb representation in the fall 2015 survey. The apparent low lamb survival may be associated with bacterial pneumonia. 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 PCR and 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 2015, a 5.7-hour aerial survey yielded a sample of 94 bighorn sheep. The sample comprised 28 rams, 49 ewes and 17 lambs. In many of the recent aerial surveys, lamb representation has been low (Table 3). Desert bighorn sheep were well dispersed and encountered throughout much of the survey area.

Habitat

Precipitation in late fall 2015 through the first quarter of 2016 were sufficient to foster new vegetative growth and to recharge desert bighorn sheep water developments. In the course of conducting inspections and performing minor maintenance in February 2016, all 6 water developments in the Spotted Range were noted as fully recharged. Thus, water stores are ample to support the desert bighorn herd throughout the summer and early fall 2016.

Noted on the recent aerial survey 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.

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

Year	Rams	Ewes	Lambs	Total	Rams: 100 Ewes: Lambs
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

Population Status and Trend

The desert bighorn sheep population in Unit 280 was established through releases in 1993 and 1996 from the River Mountains. In 2016, the population estimate reflects a modest increase over the estimate reported last year.

Unit 281: Pintwater Range; Northwestern Clark County

Report by: Pat Cummings

Survey Data

In early September 2015, a 5.2-hour aerial survey conducted over the Pintwater Range yielded a sample of 84 desert bighorn sheep. The observed sex and age ratios were 91 rams:100 ewes:64 lambs. The survey was generally focused over areas within proximity to water sources. The majority of the animals encountered were within approximately 2 miles of water sources. No bighorn were encountered in the vicinity of Quartz Spring and in Indian Canyon.

Habitat

Precipitation in late fall 2015 through the first quarter of 2016 was sufficient to spur new vegetative growth in forage species and recharge desert bighorn sheep water developments. However in the Pintwater Range, 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.

The trough at De Jesus Spring development, noted dry in 2014, remains dry in 2015 in the course of conducting early September 2015 aerial bighorn surveys. Thus, water was not available to sheep and other species during critical periods in recent successive years. Presently, the reason for the unreliability of the important water source is not fully understood. Although it is recognized the lack of water availability maybe the result of inadequate recharge of the perched water table, other factors (i.e., invasive roots, component failure, design flaw) are also under consideration.

Population Status and Trend

The 2016 population estimate for the Pintwater Range reflects an increase from last year. Population expansion in 2016 is largely related to high lamb representation encountered in the fall 2015 aerial survey.

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

Report by: Pat Cummings

Survey Data

In fall 2015, aerial surveys yielded an overall sample of 70 desert bighorn sheep. On the north half of the range, desert bighorn sheep were not encountered in expected areas, as water was not available at 2 important water sources, Chuckwalla and Tommy. On the north end of the range beyond the northern unit boundary, desert bighorn sheep were encountered at and around the Brent Seep development. On the south end of the range, sheep were noted south of the Black Top water development and north of White Sage Gap.

Habitat

There are no known reliable natural water sources on the Desert Range. As is the case elsewhere on the Desert National Wildlife Refuge, 2 water developments, Chuckwalla and Tommy, are old and require maintenance. None of the 5 water developments were fully recharged as of mid-February 2016. It is anticipated that desert bighorn sheep densities will be relatively high in the southern portion of the range during summer and fall 2016. Bighorn visitation is expected to be high at water developments in White Sage Gap and the Black Top development.

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 2016 population estimate for the Desert Range approximates the estimate reported last year. 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 2015, aerial desert bighorn sheep surveys were conducted over the Black Hills, East Desert Range, Mule Deer Ridge, Enclosure Ridge and northeast, northwest, south, and southwest portions of the Sheep Range. In the course of 16.3 hours of survey, 249 bighorn sheep were encountered, including 7 rams that were not classified. The observed sex and age ratios among classified sheep were 57 rams:100 ewes:38 lambs. The desert bighorn sheep sample was the largest obtained since 1988. Consistent desert bighorn sheep encounters occurred in the northern portion of the Sheep Range beginning around Cabin Spring and extending north beyond the Unit 283 boundary. The highest occurrence of desert bighorn sheep was around the Woody water development, followed by the area around Lamb Spring and the southern portion of the East Desert Range.

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 desert bighorn sheep habitat, fires consumed vegetation at low, mid and high elevations. Much of the fire-caused 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 2015 aerial surveys, the population estimate in 2016 reflects a notable increase. Moreover, empirical Survey Data show the population was underestimated. Much of the increase in the population estimate is due to modeled increase in population size through upward adjustment of survival rates among ewes and rams. An increase in modeled population size was necessary given the large aerial survey sample. A portion of the population increase may be explained by relatively high lamb representation in the 2015 survey sample.

The recent survey results may signal an improvement in population response to suspected bacterial pneumonia. It is unknown whether the apparent modest population expansion will continue or cease. 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 desert bighorn sheep inhabiting the Sheep Range and the greater Desert National Wildlife Range are in a recovery stage that could abruptly end upon introduction of another strain of *Mycoplasma ovipneumoniae*.

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 late September 2015, an aerial bighorn sheep survey was conducted over Gass Peak, Castle Rock, Fossil Ridge, Peek-a-boo Canyon, Quail Spring, area near Frozen Toe water development, Gunsight, Juniper Peak and the area near the Hidden Valley water development. In the course of the survey, 71 desert bighorn sheep were encountered, of which one was not classified. Desert bighorn were widely distributed and fewer sheep than expected were found in the vicinity of the Juniper Peak water development. The sex and age ratios were 60 rams:100 ewes:40 lambs. In September 2014, an aerial survey yielded a sample of 128 bighorn sheep. The survey sample was the largest ever recorded.

Habitat

Environmental conditions have improved slightly in the Las Vegas Range. Plant vigor and production is fair to good. This spring, fully recharged water developments include Juniper Peak and Frozen Toe. Maintenance problems exist with the Hidden Valley water development and Wamp Spring. New water development construction to replace the existing Hidden Valley unit is scheduled for April 2016. It is uncertain whether water availability will be restored at Wamp Spring prior to summer 2016.

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 desert bighorn sheep habitat, fires consumed vegetation at low, mid and high elevations. Much of the fire-caused 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-caused 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 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 off highway vehicle users access to formerly undisturbed desert bighorn sheep habitat.

Population Status and Trend

The 2016 population estimate for the Las Vegas Range reflects a modest increase relative to last year. The slight population expansion in 2016 is largely related to high lamb numbers in the fall 2015 aerial survey.

Respiratory disease was recently confirmed in nearby desert bighorn sheep populations. Dispersing bighorn onto the Desert National Wildlife Range may have translocated pathogenic bacteria associated with or responsible for causing respiratory disease; it is likely that the Las Vegas Range herd has been exposed to respiratory disease.

CALIFORNIA BIGHORN SHEEP

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

Report by: Chris Hampson

Hunt Results

Hunters reported difficulty locating California bighorn sheep, especially mature rams during the 2015 hunting season. Three of the 7 tag-holders reported being unsuccessful in 2015. The 4 hunters who were successful harvested rams between the ages of 5 and 7 years of age.

Survey Data

The helicopter composition survey in Unit 012 was conducted during mid-August 2015. A total of 90 California bighorn sheep was classified during the survey and the sample provided a composition ratio of 67 rams:100 ewes:28 lambs. Eleven 6+ year-old rams were also observed on the 2015 pre-season survey. In 2014, a total of 106 sheep were observed that had a ratio of 43 rams:100 ewes:31 lambs.

Lamb ratios for this herd continue to be at or below maintenance levels and have averaged just 33 lambs per 100 ewes since 2007. The only above average lamb recruitment year between 2007 and 2015 was in 2011 following a wet winter and improved habitat conditions.

California bighorn sheep appear to have moved up in elevation due to the ongoing drought conditions and were found to be concentrated on the south end of the Calico Range. California bighorn sheep were also located in the area to the southwest of Chukar Gulch. Some of these areas are more difficult for hunters to access due to the Wilderness or National Conservation Area designation and the rough topography of the area. A report of another larger group of sheep was received to the north of Yellow Rock Canyon during mid-August 2015.

No reports of coughing or sneezing California bighorn sheep were reported by hunters in Unit 012 this past hunting season. On at least 2 separate occasions over the past few years, rams with nasal bot fly infections have been harvested from Unit 012. These infections can sometimes lead to poor body condition and rams acting lethargic.

Habitat

Intense summer thundershowers provided much needed moisture to most areas throughout Unit 012; however the precipitation soaked into the parched soil and was not enough to help recharge springs and other water sources that have been severely impacted from the long-term drought. Pit tanks used to help better distribute cattle grazing were observed to have water in them for the first time in many years. The water in the pit tanks helped to provide additional water for California bighorn sheep and other wildlife at various time throughout the summer.

The Northern Great Basin water basin shows between 97% and 114% of average for total precipitation and total snowfall received. Much more precipitation in the form of snow is needed during late winter and early spring in order to help reverse the effects from several years of severe drought. Water sources at the upper elevations of the Calico Range continued to flow throughout the drought and provided some relief and resources to California bighorn sheep. Other water sources at the mid and lower elevations continue to be completely dry despite the improved snowfall and moisture thus far in the winter of 2015-16.

Population Status and Trend

In February of 2012, 7 rams from various locations within Unit 012 were captured and sampled as part of a disease surveillance effort in response to several reports of bighorn coughing and wheezing. The lab

results from the samples taken all came back negative and determined that the herd was not experiencing any major health issues.

The lower recruitment values observed by biologists will once again result in a continued static to decreasing trend for this population of California bighorn sheep. Drought conditions have negatively impacted habitat conditions over the past several years; however the improved moisture received this winter will help to alleviate some but certainly not all of the negative impacts from the long-term drought. Quotas for the 2016 hunting season are expected to mimic current decreasing population trend.

Unit 014: Granite Range; Washoe County

Report by: Chris Hampson

Hunt Results

All 5 tag-holders for the 2015 hunting season reported being successful. One hunter was successful in harvesting a ram from the southern portion of the hunt unit near Granite Peak. The ram was only the second ram harvested from this portion of the Granite Range over the past 15 years. Most hunters choose to hunt the northern portion of the range near Negro Creek due to the much easier access and higher densities of bighorn.

A few of the hunters reported observing older and larger sheep during hunts in Unit 014 but were unable to get within range in order to harvest the rams. The southern portion of the range continues to be a difficult challenge for hunters attempting to locate California bighorn in the extremely rugged and hard to access area.

Survey Data

California bighorn sheep composition surveys resulted in a total of 50 California bighorn sheep being classified with a ratio of 22 rams:100 ewes:34 lambs. The bighorn were classified from the Negro Creek subpopulation in the area of Shovel Spring that is located on the northeastern portion of the Granite Range. The ram groups were more difficult to locate and were believed to be scattered at the higher elevations. All sheep appeared to be in excellent health and the recruitment rate was similar to ratios observed over the past couple of years.

The ram ratio was skewed low this year due to the difficulty in locating ram groups during the survey. The modeled ram ratio remains at 68 rams per 100 ewes which is similar to other California bighorn populations in northwestern Nevada.

Habitat

The winter of 2015-16 has seen a vast improvement in the amount of snowfall and overall precipitation received when compared with the last several years. The Nevada Water Supply Outlook Report shows most areas within the Northern Great Basin to be average to slightly above average for both snowfall and total precipitation as of mid-March 2016.

Unfortunately, a very warm and mild month of February 2016 decreased snowpack significantly in most mountain ranges within Washoe and western Humboldt Counties. Some areas at the mid to high elevations had as much as 3 to 5 feet of snow prior to the warm spell. The good news is that the snowmelt completely filled important lake beds and pit tanks used by wildlife on many of their summer ranges.

Population Status and Trend

The recruitment value observed this year will result in a continued static trend for this California bighorn population. Lamb ratios have been near maintenance levels over the past several years as the long-term drought has persisted. The expected improvement in overall habitat conditions due to the improved

moisture receipts are expected to reverse this trend in the coming year. Overall ram numbers in this unit remain strong and hunters report observing good numbers of rams during their hunts. However, larger more mature rams have been more difficult for hunters to locate.

The estimate and resulting quota for this California bighorn sheep herd is expected to remain similar to the previous years.

Units 021, 022: Virginia Mountains; Washoe County
Report by: Chris Hampson

Hunt Data

Three of the 4 tag-holders for this unit group were successful in 2015. The 2 largest rams ever taken from the Virginia Mountains were harvested this past hunting season. The 2 rams had Boone and Crockett scores of 166 6/8 and 162 3/8 inches. These bighorn were aged at 7 and 9 years of age.

Survey Data

No aerial surveys were conducted within the Virginia Mountains in 2015. The flight time for this survey was shifted to other hunt units within portions of Washoe and western Humboldt Counties. In 2014, the survey in the Virginia Mountains provided a sample of 51 California bighorn sheep that was classifies as 21 rams, 22 ewes and 8 lambs. The composition ratio from the sample was determined to be 95 rams:100 ewes:36 lambs. A good proportion of rams were located during the helicopter survey and allowed biologists a good look at the ram age structure for this population of California bighorn sheep.

Habitat

The improved moisture received during the winter of 2015-16 should help to alleviate some of the negative effects of the severe drought; however more moisture during the late winter and early spring months is needed to ensure that flows to springs and seeps continue through the summer months. An excellent green-up was available for most of the fall and winter of 2015-16 and provided California bighorn sheep with good quality forage. California bighorn ewes should enter into the lambing season in good condition.

Population Status and Trend

Habitat conditions are expected to be much improved this coming spring and summer due to the abundant moisture received this winter. California bighorn sheep should enter into the spring and summer in excellent condition. The lamb ratios over the past few years have allowed for a stable to slightly increasing trend for the herd living in the Virginia Mountains. Tag quotas are expected to remain at 4 tags for the 2016 season.

Unit 031: Double H, Montana and Trout Creek Mountains; Humboldt County
Report by: Ed Partee

Survey Data

Survey composition flights were conducted in late August 2015 and early February 2016. These 2 flights were conducted before and after a disease event that took place in the Montana Mountains. These flights were done in the Double H, Montana and the Trout Creek Mountains. During the August 2015 flight, a total of 100 animals were observed which was the same as the previous years' flights. Sheep numbers were still well distributed throughout both the Double H Mountains as well as the Montana Mountains. Ratios obtained from this survey were 29 rams:100 ewes:63 lambs. Ram ratios showed a slight decline from the previous year and were below the 5-year average.

The February 2016 flight was prompted by a disease event that was detected in the Montana Mountains at the beginning of December 2015. The entire unit was surveyed again in the same manner as the August 2015 flight. Conditions on this flight were ideal with fresh snow that fell the previous night. During the Double H Mountain portion of the survey, a total of 88 animals were observed. These animals appeared to be in excellent shape with good age representation. The Montana Mountain survey flight included the Trout Creek Mountains portion of the unit. A total of 15 sheep was observed during this flight with all observations in the Montana Mountains. The animals observed appeared to be in very poor body condition and had little to no startle response to the helicopter.

Habitat

Habitat conditions were a little better than those observed over the last couple of years. Despite the continued drought conditions, spring and summer moisture came at some ideal times. The early spring rains helped improve much needed forage in the upper elevations which in previous years was marginal, at best. The rain that came throughout the spring and summer months had positive effects on fire rehab efforts that have taken place in this unit. Winter conditions for 2015-16 have been much different than over the last few years. Snow conditions have been ideal throughout the winter with above average precipitation. Precipitation amounts currently are still above normal at 113% compared to last year's 34%. With the moisture that was received prior to winter and with the current conditions, available forage and rehab efforts on past fires should be ideal.

Population Status and Trend

This population has taken a severe hit with the disease event that took place in the Montana Mountains. Due to the fact that only 15 animals were observed during the February 2016 flight a difficult decision had to be made. In order to protect healthy sub-herds within this unit and herds adjacent in Oregon, the decision was made to euthanize any remaining California bighorn sheep in the Montana Mountains. This disease event has resulted in an approximately 45% loss in the population. All animals have been removed from the Montana Mountains leaving animals only in the Double H Mountains. This population has been reduced back to numbers that were seen 15 years ago. Despite the loss of animals in the Montana's, the Double H's continue to have healthy animals. A survey in the area showed a strong age distribution of rams and high lamb production. The Double H's are starting to see some distribution of animals east of the rims in this area. There will be continued monitoring of animals in the Double H's over the course of the next few years.

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

Report by: Ed Partee

Survey Data

Aerial surveys were conducted in late August 2015. This is a very large expansive unit with plenty of area to cover. The Pueblos and the Pine Forest Range were the only 2 areas surveyed this year with most of the sheep observed in the Pine Forest Range. A total of 152 sheep was classified which is substantially lower than last year's 253 and slightly lower than the 5-year average. Ratios for this survey equate to 43 rams:100 ewes:49 lambs and are within the 5-year average.

Habitat

Habitat conditions were fairly good going into the winter months. Prior to any snowfall occurring this year, rains had provided much needed relief to the dry conditions over the past few years. Spring and summer rains have been contributing factors to improved forage conditions this year. Higher elevations were in great shape throughout most of the year sustaining these herds. Plenty of quality forage was available allowing these sheep to remain in good body condition. Once again, this winter experienced mild temperatures allowing slightly warmer conditions between storms. As of March 1 2016, precipitation conditions have improved significantly with snow totals at 113% of average. With the benefit of the

snowpack and any added spring moisture, these California bighorn sheep should be able to maintain throughout the year. With the current green up and continued moisture, forage conditions should be ideal for the new lamb recruitment.

Population Status and Trend

The population estimate for this herd has increased slightly. Lamb ratios continue to show an increase which can be attributed to the animals spreading out to more available habitat. Ram ratios continue to hold near the 5 year average with excellent age class distribution. This unit continues to increase yearly despite the removal of animals for transplants and augmentations. This herd has provided more than 150 sheep that have been used in other areas to augment or establish new herds. The population has increased to nearly 300 animals despite the capture efforts that have taken place in this unit. Sheep have become distributed throughout the Pine Forest Range and surveys have indicated animals are now commonly observed throughout the range. With the sheep distribution to the north, this herd should continue to grow in this unit.

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

Report by: Chris Hampson

Hunt Results

Only 1 of 2 resident tag-holders reported being successful in harvesting a ram during the 2015 sheep season. The California bighorn ram was aged at 10 years old. In 2014, the decision was made to cut the ram quota on the Sheldon from 5 tags down to 2 tags. During the 2013 hunting season, 3 hunters reported being unsuccessful. Over the past several years, hunters have reported having a difficult time locating mature rams. Survey numbers on the Sheldon had also trended downward in the years leading up to the decision to reduce tag quotas.

Survey Data

Composition surveys were conducted during August 2015. A total of 62 California bighorn was classified as 10 rams, 38 ewes and 14 lambs with a ratio of 26 rams:100 ewes:37 lambs. The increase in the number of animals classified during this year's survey was encouraging; however the ram groups were difficult to locate.

The 37 lambs per 100 ewes show a slight increase in recruitment for this herd when compared with the recent past. Increased moisture received this year is thought to have helped improve survival. Unfortunately, the increased precipitation was not substantial enough to improve flows to water sources such as springs and smaller seeps. Despite the increased moisture, many areas on the Sheldon including some of the larger reservoirs remain very low or completely dry. Animal distribution may once again be altered due to the lack of available water later this summer.

In early 2014, the Nevada Department of Wildlife conducted a disease surveillance operation on the eastern border of the Sheldon. The crew captured 5 bighorn sheep and took numerous biological samples from each of the bighorn. Lab results from the samples indicated that the animals were all in good condition and that no major health issues were affecting the population.

Habitat

Habitat conditions have improved on the Sheldon due to the increase in moisture received during the winter of 2015-16; however, much more precipitation will be needed in order to reverse the impacts from the many years of drought. Spring flows and water levels at important reservoirs are well below average and will more than likely need several consecutive good water years to fully recover.

Over the past few years, wildlife living on the Sheldon has had to move from their very dry summer ranges in order to locate reliable water and better forage. In some cases, animals have moved long distances and have even moved to adjacent states or crossed into adjacent hunt units in order to try and locate better resources.

Population Status and Trend

The changes in animal distribution caused by the long-term drought have made it much more difficult for hunters to locate bighorn and other game animals on the Sheldon. Hunter success rates have also been negatively affected over the past few years. The aerial surveys have generally located fewer animals on survey due to the changes in animal distribution and scattered nature of the herds during these conditions. Tag quotas will remain static or could be further reduced due to the difficulty hunters have had locating mature rams within this hunt unit.

Unit 034: Black Rock Range; Humboldt County

Report by: Ed Partee

Survey Data

Surveys in this unit took place during in late August 2015. A total of 109 animals was classified which is up from the 77 that were observed during last year's flight and now within the 5-year average. These numbers yielded a ratio of 23 rams:100 ewes:35 lambs. The ram ratio has fallen from last year and is slightly below the 5-year average. In the past, animals have been observed in the Rough Canyon area but no animals were seen in this area during the survey, which contributed to the lower observed ram ratio. The bulk of the rams observed on this flight continue to occur around Big Mountain and Coleman Creek. Both ewes and lambs continue to hold stable within this unit which is providing good recruitment for future years.

Habitat

This year's habitat conditions have seen a slight reprieve when compared to the last couple of years. During this late August 2015 flight the upper elevations were in surprisingly good shape. The spring and summer precipitation that was received benefitted these areas. Fall saw good amounts of moisture prior to this year's snowfall. Unlike last year, winter conditions were ideal with good amounts of snow throughout the winter months. As of March 1, 2016, precipitation amounts are above normal and have been better than what we have seen over the last 3 years. Spring moisture will be needed to sustain these populations at the current levels throughout the year. Competition between feral horses and wildlife will continue to be an issue. Continued monitoring of this situation is vital.

Population Status and Trend

Population estimates for this herd have stayed relatively static. Lamb recruitment has been fairly consistent the last few years and in line with the 5-year average. Ram ratios have dropped significantly and are below the 5-year average. The age class of rams observed on this survey was well distributed with a continued strong middle age class of rams. Sheep are dispersing well throughout this range providing plenty of opportunity for harvest in several different locations. This herd is showing a stable trend at this time. With the much need moisture that was received, some additional forage should be available, which in turn may directly affect increases in this population.

Hunter access has been altered by the designation of the Black Rock-High Rock Immigrant Trail National Conservation Area and Wilderness Areas within the National Conservation Area. The Bureau of Land Management 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 good in this unit.

Unit 035: Jackson Mountains; Humboldt County
Report by: Ed Partee

Survey Data

This survey was conducted toward the end of August 2015. A total of 68 sheep was classified which is roughly double the number that was classified the previous year and slightly above the 5-year average. During this survey more rams were classified than the ewes, which is unusual. This population seems to be increasing steadily on an annual basis. Ratios from this survey resulted in 104 rams:100 ewes:48 lambs. Rams that were classified are distributed well with many age classes present.

Habitat

Habitat conditions in this unit are very similar to those throughout Humboldt County. Much needed winter precipitation was received in the form of snow this year. These snow storms followed a wetter than normal fall in which good moisture was received prior to the snowfall. This unit still shows above normal precipitation as of this report period. Continued moisture throughout the year should benefit this herd tremendously and reduce the competition with feral horses. Competition for forage and free water has been an issue in the past with the increase of feral horse populations. Horse numbers are still being monitored to see if there is any correlation between the horse numbers and the number of wildlife using these areas. At this time there is a flush of early forage that will benefit this population during the lambing period.

Population Status and Trend

This population continues to show an upward trend over the last few years. Animals are becoming well-distributed throughout this range and are expanding into some new areas. With the forage conditions that are available at this time this herd should continue to increase in the near future.

Hunter access has been influenced by the designation of the Black Rock-High Rock Immigrant Trail National Conservation Area and Wilderness Areas. The National Conservation Area boundaries embrace bighorn concentration areas of King Lear Peak and Parrot Peak. The Bureau of Land Management has marked the majority of the restricted access points and hunters who apply for this area need to understand these restrictions.

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

Hunt Results

In 2015, one tag was offered for the unit, the first tag available since 2006. Previously, hunting seasons occurred from 2001 to 2006. The 2015 tag holder was successful in harvesting an 11 year old ram that unofficially scored 168 1/8 Boone and Crockett inches from the Sahwave Mountains.

Survey Data

Ground surveys were performed in the Sahwave Mountains in late July 2015. A total of 40 California bighorns were classified, which provided ratios of 26 rams:100 ewes:48 lambs. To date, this was the largest sample ever obtained.

Population Estimate and Trend

California bighorn sheep are thought to have pioneered into the Sahwave Mountains sometime in the late 1980s or early 1990s. Unfortunately, this herd is located within the largest domestic sheep allotment in the western United States. However, domestic use in the Sahwave Mountains is limited to trailing through

the southern portion of the range in April-March. The origin of this pioneering herd is unknown. DNA work has confirmed that the herd is the California bighorn subspecies. California bighorn are thought to have pioneered into the area from the north or west out of the Virginia, Granite, Black Rock, Calico or Jackson Mountain Ranges. California bighorn sheep were transplanted in each of these mountain ranges during the late 1980s or early 1990s.

In 2001, the Sahwave herd was estimated at 50 animals and declined to approximately 20 by 2008. This decline was thought to be due to possible disease from domestic sheep and (or) predation. However, average lamb recruitment since 2012 has been 55 lambs:100 ewes and has enabled this herd to rebound back to an estimated 50 California bighorn sheep. Currently, a limited amount of mature rams exist to allow for a harvest objective of one.

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

Survey Data

This survey was conducted in late August 2015. A total of 114 California bighorn sheep was observed which is just above the 5-year average and similar to the sample that was obtained during the previous year. Ratio results yielded from this survey are 35 rams:100 ewes:25 lambs. Lamb production is pretty much in line with what was observed in 2014. This year's flight showed very little lamb recruitment on the north end of the range. This range now has 4 main areas in which the survey is concentrated: 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. The Calicos seem to be the shiny spot on these surveys with good lamb recruitment in this area. The Nevada Department of Wildlife has continued to monitor movement of rams between Oregon and Nevada and is still trying to assess the actual amount taking place in cooperation with Oregon Department of Fish and Wildlife.

Habitat

During 2015, precipitation was received at some ideal times for range conditions to improve. Rain, coupled with the great amount of winter precipitation, should improve range conditions for California bighorn sheep in this unit. At the time of this report period there is 113% of normal snowpack. With the moisture that has been received, rehabilitation efforts that have taken place on the previous fires have been very responsive. Continued moisture will help many of the efforts put forth to reestablish vegetation in these burned areas.

Population Status and Trend

The 2016 population estimate for this unit has dropped significantly from the previous year due to adjustments made in the modeling process to more realistically show what these herds are doing. We are currently in the process of studying lamb recruitment in these sub-populations as well as interstate movements of rams. Increased disease monitoring in this area has resulted in detection of poor lamb recruitment which is likely responsible for the decline taking affect in this herd. All of the sub-herds are being monitored at this time which will help to better understand overall health of the population as well as movements on this range. Continued cooperative efforts between Nevada and Oregon are taking place to further identify movement patterns in this herd at the north end of the Santa Rosa Range.

Units 066: Snowstorm Mountains; Western Elko County
Report by: Matthew Jeffress

Hunt Results

Due to the August 2011 all-age bacterial pneumonia die-off, the season was closed to ram harvest between 2012 and 2014. One tag was issued in 2015 resulting in the harvest of a 6.5-year old ram.

Survey Data

A combination of fall and winter surveys in 2015 documented a total of 38 California bighorn; yielding ratios of 48 rams:100 ewes:4 lambs. The year 2015 marked the second year of recruitment with 10-yearling California bighorn observed in May 2015. This spring biologists documented the lowest lamb production observed since the die-off; by December only one lamb remained alive. A combination of marked animals well distributed throughout occupied range, weeklong spring and summer ground surveys and a December trap-and-collaring event has resulted in a reliable estimate of the current population.

Habitat

Range conditions remain fair in the peripheral low elevations surrounding the Snowstorms. A combination of drought, livestock utilization and an overabundance of wild horses have contributed to degraded habitats, particularly riparian habitats on the west side of the Snowstorm Range. Many of the Immigrant Forage Kochia seedings in lower Jake Creek to Twenty-one Creek continue to be over utilized during late summer through early winter. On a positive note, due to the resiliency of the mid to upper elevations of the Snowstorm Range, much of the year-round California bighorn habitat remains in good to excellent condition.

Population Status and Trend

As part of a greater effort to understand the dynamics of post die-off survivors and how pathogens within surviving 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 gifted 11 California bighorn 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 being collared. The marked animals will allow the Nevada Department of Wildlife to continue monitoring Snowstorm California bighorn sheep in order to assess future 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. These ten ewes will be resampled in late 2016 and any ewe that is found to be shedding *Mycoplasma ovipneumoniae* during 2 consecutive sampling efforts will be removed from the population and donated to a research facility. Recruitment values will be collected for the next 5 years and these data, coupled with pathogen samples collected in 2011, 2012 and 2014, will guide future management of the Snowstorm herd.

Due to the lack of recruitment between 2011 and 2014, it is anticipated that only 1 ram tag will be issued for the 2016 hunting season. If lamb recruitment improves, the Nevada Department of Wildlife may be able to recommend 1 tag per year for the next few years as younger rams mature.

Units 068: Sheep Creek; Northern Lander and Eureka Counties

Report by: Jeremy Lutz

Hunt Results

All 4 tag holders were successful in harvesting a ram in 2015. The average age of harvested rams was 6.8 years and the average Boone and Crockett score was 154". This is the highest average Boone and Crockett score for harvested rams recorded for this population. In 2014 the Nevada Board of Wildlife Commissioners adopted the first ever California bighorn ewe hunt in Nevada. This hunt is intended to reduce densities in areas where populations are estimated to be above sustainable management levels. In 2015, 10 ewe tags were issued for the Sheep Creek Range with a reported harvest of 6 ewes.

Survey Data

In March 2016, a total of 107 California bighorn were observed during aerial composition surveys; yielding ratios of 154 rams:100 ewes:51 lambs. This is the second highest sample ever obtained in this unit.

Habitat

During 2012, both big game guzzlers in the Sheep Creek Range went dry due to prolonged drought conditions and high use by bighorn. In 2013 and 2014, both big game units were retrofitted with new aprons and tanks. This should help the guzzlers from going dry in the future by increasing the amount of catchment and increasing the storage capacity to nearly 9,000 gallons per unit. As of March 2016 both units were at 100% storage capacity.

The spring and fall of 2015 saw much needed rain and snow events across northern Nevada. The grass component in the upper elevations of the Sheep Creeks looked better in 2015 and the spring of 2016, than during the previous 4 years. Without a doubt, this precipitation is a welcome relief for bighorn sheep in the Sheep Creeks. The majority of sheep hunter checkout forms from 2015 indicate harvested rams and ewes were in good to excellent body condition.

While recent moisture receipts have provided some relief, California bighorn sheep habitat conditions in the Sheep Creek Range continue a downward trend over the long-term. If drought conditions and high levels of livestock use continue, long-term negative impacts to the Unit 068 California bighorn herd can be expected to continue in response to the loss of native perennial grasses. Due to the lack of a rangeland health evaluation for this allotment, livestock stocking rates remain at levels that compromise the area's ability to provide adequate habitat for current wildlife populations.

Population Status and Trend

Since 2012, over 70 California bighorn sheep have been removed from the Sheep Creek Range through relocation efforts and harvest in an effort to maintain the herd within sustainable management levels based on the current condition of habitat resources. The Unit 068 California bighorn sheep population primarily inhabits an area that also serves as winter range for several hundred deer, antelope and elk, as well as supporting several thousand livestock AUM's.

During drought, and even during normal winters, competition for resources is extremely high and lamb production, animal body condition, and to some extent horn growth of the California bighorn sheep can all be negatively impacted.

California bighorn sheep research indicates when sheep populations are managed at or below carrying capacity through strategies such as ewe harvest and trap and transplant, body condition and lamb production can improve, as well as the average Boone and Crocket score on harvested rams. If the desired management outcome for this population is to maintain a healthy, sustainable bighorn sheep herd, current management practices should continue for the foreseeable future.

ROCKY MOUNTAIN BIGHORN SHEEP

Unit 074: The Badlands; Elko County
Report by: Kari Huebner

Harvest Results

Because of a recent disease event, the season was closed and no tags were offered for the 2015 and 2016 season.

Survey Data

An aerial composition survey was conducted in September 2015 and a total of 12 bighorns were classified as 7 rams and 5 ewes. No lambs were seen on survey; however, 2 lambs were observed later in the fall.

Habitat

There was a burn on the west side of Black Mountain (Salmon Fire 4,846 acres) in August 2011. There was also a small burn (Black Mountain Fire) in the southern portion of the unit and a larger fire (Scott Creek Fire) in the northern portion of the unit in 2007. These fires are expected to have minimal impacts on this bighorn herd.

Population Status and Trend

This herd experienced an all age die-off during the fall 2014. Necropsies found bighorn to be suffering from severe chronic pneumonia. One ewe tested positive for *Mycoplasma ovipneumoniae* for both blood antibodies and presence of the organism on PCR. No lambs were recruited in 2014; however, it appears that 2 lambs may have survived that were born in spring 2015. The current population estimate is less than 20 bighorn.

A predator control project aimed at mountain lion removal is ongoing in this area. Five bighorn (4 ewes and 1 ram) have been collared to aid in bighorn distribution mapping and to help target areas for mountain lion removal. Three male lions have been removed so far. There have been no recorded mortalities of bighorn in the past year.

It is believed the initial disease event has subsided, but lamb recruitment will likely remain low for at least the short-term. Bighorn will continue to be monitored for lamb recruitment. Additional observations and monitoring of the existing mature rams through 2016 will be necessary to evaluate the potential for a hunt to be offered in 2017.

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

Harvest Results

One Nevada resident tag was offered in this unit for the 2015 season. The hunter was successful in harvesting a 7-year-old ram.

Survey Data

No survey was conducted in this unit this year. Nevada and Utah will conduct a combined bighorn and elk survey in the area during the summer 2016.

Habitat

A recent effort to construct an artificial water development was made on the mid slopes of Pilot Mountain as opposed to the benches to reduce the probability of bighorn sheep coming into contact with domestic sheep in the valley. The bighorn seem to be reacting favorably to this available water. 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, bacterial pneumonia was found present in the population. The disease event severely impacted lamb survival. There are believed to be approximately 30 bighorn currently in the population.

In 2012, 3 bighorn (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 very 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. The young ram has had 2 failed satellite collars so very little information was obtained from it. The bighorn were tested during the collaring operation and all of them had antibodies for *Mycoplasma ovipneumoniae* and 1 was still actively shedding the organism.

The short-term outlook for this herd is poor. Lambs are being born, but few if any are being recruited into the population. Future recommendations for the ram hunt will be dependent upon results of population monitoring and documented lamb recruitment.

Unit 114: North Snake Range – Mount Moriah; Eastern White Pine County
Report by: Kody Menghini

Hunt Results

In 2015, 2 tags were available for the eighth consecutive year. Neither hunter harvested a ram. This hunt continues to be physically and mentally demanding. Access to the Mount Moriah Wilderness area is challenging and rams are difficult to locate.

Survey Data

Aerial herd composition surveys were conducted in March 2016 in conjunction with post-season elk and spring mule deer surveys. A total of 41 bighorn were classified. The observed sex and age ratios were 16 rams:100 ewes:48 lambs. The previous aerial survey was conducted in July 2014, when a total of 44 bighorn were classified with ratios of 62 rams:100 ewes:57 lambs.

Weather and Habitat

Timely spring rains in 2015 resulted in improved habitat conditions for bighorn. Spring precipitation, along with periodic summer rains helped to alleviate dry habitat conditions that are a result of consecutive dry winters, and also allowed bighorn to maintain body condition. The 2015-16 winter was snowy and cold. As of March 1, the Silver Creek Snotel site had received 7.8" of precipitation since October 1st compared to 3.1" in 2015 during the same time period. As of March 1, local Snotel sites near Ely were between 125% and 149% of normal precipitation compared to the long-term (1981-2010) average.

Continued habitat limitations exist in the form of a band of dense mixed conifer and mountain mahogany that effectively separates seasonal ranges in much of the area presently occupied by bighorn. In July of 2014 the Hampton Fire burned approximately 12,500 acres at mid-elevation in dense trees. There was massive erosion in August and September 2014 due to bare soil and heavy monsoonal rains. Vegetation response to 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.

Population Status and Trend

This bighorn herd has experienced 3 consecutive years of good lamb recruitment. The population is showing an increase with a 2016 population estimate of 90 bighorn.

Unit 115: South Snake Range – Mount Wheeler: Eastern White Pine County
Report by: Kody Menghini

Hunt Results

In 2016, 1 tag was available for the fourth consecutive year. The hunter did not harvest, though numerous bighorn and mature rams were located by the hunter and his hunting group.

Survey Data

An aerial survey was conducted in late February 2016 in conjunction with post-season elk and spring mule deer surveys. A total of 10 bighorn were classified as 5 rams, 2 ewes and 3 lambs.

Weather and Habitat

Timely spring rains in 2015 resulted in improved habitat conditions for bighorn. The spring precipitation, along with periodic summer rains, most likely helped to alleviate dry habitat conditions that are a result of consecutive dry winters, and also allowed bighorn to maintain body condition. The 2015-16 winter was snowy and cold. As of March 1, the Wheeler Peak Snotel site had received 15.7" of precipitation since October 1st compared to 7.9" in 2015 during the same time period. As of March 1, local Snotel sites near Ely were between 125% and 149% of normal precipitation compared to the long-term (1981-2010) average.

Continued long-term habitat limitations in this unit are dense mixed conifer and mountain mahogany that effectively separate seasonal bighorn ranges. Pinyon-Juniper trees dominate much of the lower elevation that bighorn use during late-winter and spring and reduce forage availability.

Population Trend

An increasing bighorn population trend was observed in Unit 115 in the mid-2000s, similar to the trend in nearby Unit 114. The Nevada Department of Wildlife and Great Basin National Park have worked cooperatively since 2008 with the goal of enhancing both bighorn habitats and the bighorn population. Capture projects in 2009-10, 2013-14 and in February 2015 resulted in the deployment of bighorn with satellite GPS/VHF collars to increase knowledge of seasonal ranges and habitat use by this bighorn herd. Population data collected for this herd support a minimal ram harvest over the short-term. Harvest recommendations will continue to be made based on herd viability and performance. A December 20th through February 20th season was established to ensure the tag holder has the opportunity to pursue rams below the Park boundary when they descend from higher elevations in late winter. This bighorn population is stable with a population estimate of 30 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: Caleb McAdoo

Hunt Results

There were 13 mountain goat tags issued for the 2015 hunting season; however 1 tag was turned in prior to commencement of the season. 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 both Units 101 and 102. After 5 years of assessing survey and harvest data post-die-off, there is greater confidence in adult survival rates. This, along with average to good kid production in Units 102 and 103 supports more liberal tag quotas relative to the population size.

All 12 tag holders that hunted during the 2015 season were successful, and of the 12 mountain goats harvested only 1 (8%) was a nanny. The average age of harvested billies in Units 101 and 102 was approximately 6.5 and 5.5 years, respectively. The single billy harvested in Unit 103 was aged at 2.5 years. From 2007 – 2014, 20% or more of the annual harvest were of nannies. It is hoped that through education of both hunters and guides, that few if any nannies harvested as in 2015 will become the norm and not the exception in future years. Nanny harvest will continue to be monitored closely and assessed relative to quota development to minimize any potential impacts to herd productivity following the recent disease event documented in the Management Area 10 mountain goat population. In an effort to curtail nanny harvest, the Nevada Department of Wildlife has posted a non-mandatory, Mountain Goat Hunting Orientation document to its website to help hunters identify and determine sex of mountain goats in the field. Although quotas have been reduced in recent years, hunter success continues to be excellent and most hunters reported seeing many adult mountain goats during the 2015 season. For specific 2015 hunting season results, please refer to Harvest Tables in the Appendix Section.

Survey Data

Aerial mountain goat surveys were conducted in January and February 2016. The survey conducted in Unit 101 observed 63 mountain goats, of which 7 were kids, for an age ratio of 13 kids:100 adults. This is the highest observed kid:100 adult ratio observed in Unit 101 since the 2009-10 die-off.

The survey effort for Unit 102 yielded a sample of 93 total mountain goats, of which 12 were kids. The resulting age ratio was 15 kids:100 adults. Due to inclement weather, some areas were excluded from the survey and the observed kid ratio is likely biased low. Still, this observed age ratio is similar to that observed during the last survey year, 2013.

In Unit 103, 10 mountain goats were observed on survey, 3 of which were kids, for an observed age ratio of 43 kids:100 adults.

Because adult sex ratios were not obtainable during these surveys, caution should be used when interpreting the results. Assuming that approximately the same proportion of males and females existed during the 2015 surveys as in the 2014 surveys, a marked increase in kid recruitment was noted in Units 101 and 103. Similar comparative data is unavailable for Unit 102 because it was not surveyed during 2014.

Weather and Habitat

Goats live at the highest elevations on the mountain. Normally, snow banks accumulate throughout the winter and sustain preferred forage for goats during most of the hot and dry summer months. Even in dry years, sufficient snow usually falls in the high country to facilitate mountain goat survival. Precipitation received during the 2015-16 winter was well above average and in some months, at some sites, exceeded 170% percent of normal. These conditions should create ideal conditions to produce high quality forage on summer range. 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.

Population Status and Trend

Concern for the Unit 101 mountain goat herd still remains. The 2015 kid ratio of 13 was improved compared to single digit ratios since 2011, but is still well below the 27 – 41 kids:100 adults observed from 2003 - 2009. Until this year, recruitment levels have not been high enough to maintain a stable population. Studies to date support that the increased mortality in the kid segment of the population is due to pneumonia associated with the bacteria *Mycoplasma ovipneumoniae*. This pattern of the loss of young of the year has been documented throughout the west in annual summer bighorn lamb losses from pneumonia following all age die-offs in bighorn sheep herds. *Mycoplasma ovipneumoniae* was isolated from both bighorn sheep and mountain goats in the Ruby and East Humboldt mountain ranges during the latest die-off during the winter of 2009-10.

Little to no kid recruitment in Unit 101 from 2011-2015 has resulted in a decrease in the population. For Unit 101, the 2016 population estimate is 85 individuals, down from 100 in 2015. For Unit 102, as a result of the stable kid recruitment values observed over the last several years, the 2016 population has been estimated at 200 individuals. The Unit 103 population estimate remains stable at 45 individuals despite strong observed kid recruitment.

MOUNTAIN LION

Western Region; Areas: 1, 2, 3, 4, 5, 18, 19, 20 and 29

Report by: Carl Lackey

Harvest Results

Biologists recorded the take of 84 mountain lions between March 1, 2015 and February 28, 2016 within the Western Region (Table 1). This take included 59 animals harvested through licensed hunter harvest, a 55% increase over the previous season, and 18 by US Department of Agriculture Wildlife Services for depredation and predator control. Since its inception in 2003, the yearlong season has had little effect on total overall hunter harvest. The increase in hunter harvest was likely due in part to more favorable hunting conditions brought on by substantial snow fall.

Table 1: Western Region mountain lion harvest limits and mortalities by type for 2014-2015.

Management area	Harvest limit	Harvest Type				
		Hunter	Depredation	Predator projects	Other	Total
1	Regional 89	6	0	14	1	21
2		7	0	0	2	9
3		12	0	0	0	12
4		12	0	0	1	13
5		9	0	0	0	9
18		1	0	0	0	1
19		9	4	0	2	15
20		3	1	0	0	4
29		0	0	0	0	0
Totals	**89**	**59**	**5**	**14**	**6**	**84**

Table 2: Western Region mountain lion hunter harvest: 10-year sex and age comparisons, 2007-2016.

Year	Harvest			Mean age		
	Males	Females	Ratio Male:Female	Males	Females	All mountain lions
2006–2007	25	26	1m:1.0f	3.7	3.3	3.5
2007–2008	33	24	1m:0.7f	3.8	3.1	3.4
2008–2009	24	14	1m:0.6f	3.4	3.7	3.5
2009–2010	19	14	1m:0.7f	4.4	3.4	3.9
2010–2011	26	24	1m:0.9f	3.9	5.0	4.5
2011–2012	8	10	1m:1.3f	4.1	2.8	3.4
2012–2013	14	25	1m:1.8f	NA	NA	NA
2013–2014	15	13	1m:0.9f	3.5	2.8	3.2
2014–2015	12	12	1m:1f	4.1	2.6	3.0
2015-2016	**30**	**29**	**1m:1f**	**3.7**	**3.8**	**3.7**

Note: two mortalities (unknown sex) in 2008

The hunter harvest consisted of 30 male and 29 female mountain lions. Mountain lion hunter effort was measured by the number of days hunted for each hunter that reported a harvest. The mean for the 2015–2016 season was 2.5 days afield/hunter. Eighteen mountain lions were killed by US Department of Agriculture Wildlife Services. Take by Wildlife Services for predator control projects consisted of 8 males and 6 females. Mean ages of these mountain lions were 3.2 years and 4 years respectively. The Nevada Department of Wildlife routinely salvages mountain lion hides from a variety of sources, including unlawful

take, mountain lions taken by Wildlife Services and other sources. All salvageable mountain lion hides from around the state were skinned and dried, with most sold at the Nevada Trapper's Association's annual fur sale in Fallon, Nevada. Twenty-four hides were sold during the 2015-16 season bringing an average price of $257.00 with a high of $360.00.

Population Trend

Population structure and trends were based on harvest data and reports from guides and hunters. In comparison with the 10-year hunter harvest trend (Table 2), no major shifts in sex ratios or age cohorts were detected, suggesting that the mountain lion population in western Nevada is stable.

The Nevada Department of Wildlife continues working with the University of Nevada, Reno, and the Wildlife Conservation Society on a cougar research project in the Western Region. To date, roughly 49 mountain lions have been fitted with tracking collars.

Management Conclusions

Although there are some yearly fluctuations within harvest categories, the mean ages and ratio of males:females taken 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 capability to support harvest.

Table 3: 10-year Western Region mountain lion harvest trend, 2007-2016.

Season Year	Season Length	Hunter Harvest Limits	Harvest Type				
			Hunter	Depredation	Predator Project	Other	Total
2006–2007	365	114	51	6	NA*	8	65
2007–2008		114	57	27	NA*	6	90
2008–2009		114	38	12	NA*	2	52
2009–2010		103	33	12	NA*	2	47
2010–2011		103	50	22	NA*	7	79
2011–2012		169	18	24	15	12	69
2012–2013		169	39	5	8	6	58
2013–2014		89	28	8	9	4	49
2014–2015		89	24	6	3	5	38
2015-2016		**89**	**59**	**5**	**14**	**6**	**84**
10 year avg.	365	NA	39.7	12.7	9.8	5.8	63.1

*Mountain lions taken in association with the predator project (a project to remove mountain lions to mitigate predation on specific sensitive wildlife populations) were not classified separately prior to 2011.

Eastern Region: Areas 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15

Report by: Scott Roberts

Hunt Results

The eastern region maximum allowable hunter harvest for the 2015–16 season was 113 mountain lions. Two mountain lions were allocated to Unit 091 which exists as an interstate cooperative hunt with Utah, and the remaining 111 were allocated to the rest of the eastern region hunt units. No harvest limits were met during the 2015–16 season.

The eastern region reported hunter harvest for mountain lions for the 2015–16 season was 86 animals (Table 4). The mean harvest for the previous 5 seasons (2010–2015) was 72. Guided hunters made up 51% of the region's annual hunter harvest. The 2015–16 sex composition of hunter harvested lions was 64 males and 22 females for a ratio of 2.9 males:1 female.

The total documented mountain lion harvest for the Eastern Region in 2015–16, including all known take, was 103 mountain lions. The annual combined harvest was comprised of 75 males and 28 females.

Table 4: Eastern Region mountain lion hunter harvest by area, 2010-2016.

Area Group	2010-2011	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016
061–068	18	12	20	14	15	18
071–081	10	7	7	9	1	9
91	0	0	0	0	0	0
101–109	21	15	31	19	17	25
111–115	8	14	32	10	9	13
121	2	2	6	2	5	6
131–134	1	3	5	2	5	4
141–145	3	3	7	6	3	10
151–156	8	3	3	2	2	1
Eastern Region Total	71	59	111	64	57	86

Depredation and Other Harvest

Livestock depredation issues in 2015–16 resulted in the take of 8 mountain lions compared to 4 in 2014–15. There were 2 cases of private depredations in protection of property and in the name of public safety. Five mountain lions were taken as part of bighorn sheep protection projects in Units 074 and 115. Other harvest for the 2015–16 season included 2 additional lion mortalities, with 1 being incidentally trapped and 1 being struck by a vehicle.

Population Trend

Mountain lion harvest has been under close scrutiny by some sportsmen 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 is a locally reduced population (e.g., seeing fewer mountain lions are seen 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 age of mountain lions taken by hunters in the eastern region was 4.0 years, which is consistent with the 10-year-mean (Table 5). Based on sex and 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 5 and 6).

Table 5: Eastern Region frequency and mean age of harvested mountain lions, 2006-2016.

Year	Males harvested	Females harvested	Mean age males	Mean age females	Mean age all mountain lions
2006–2007	38	18	4.2	3.4	3.9
2007–2008	31	24	3.8	3.8	3.8
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

Table 6: All known take of mountain lions in Eastern Region, 2006-2016.

Year	Season Length (days)	Maximum allowable hunter harvest	Hunter harvest	Depredation take	Other take	Total take
2006–2007	365	167	56	12	6	74
2007–2008	365	167	55	10	0	65
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**
Mean	365	160	69	13	3	84

Management Conclusions

Persistent snow throughout much of the winter of 2015–16 led to above average hunter success throughout the Eastern Region. The maximum allowable hunter harvest objective for the Eastern Region was 113, of which hunters took 86 mountain lions.

Mountain lion population trends are stable within the Eastern Region. 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.

Southern Region: Areas 16, 17, 21, 22, 23, 24, 25, 26 and 27

Report by: Cooper Munson

Harvest Results

The 2015-16 mountain lion season ran from March 1, 2015 through February 29, 2016 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 regional harvest objective of 49 lions. Table 1 displays a comparison of harvest for the last 10 years. Table 2 displays the regional lion harvest for the March 1, 2015 – February 29, 2016 season.

Table 1: Comparison of Southern Region Harvest by area groups for the last 10 years

Area Group	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
161-164	5	6	3	11	8	5	3	2	3	7
171-173	10	10	8	4	4	3	3	7	1	2
211-212	2	1	0	0	0	0	0	0	1	0
221-223	1	6	6	3	6	12	12	8	8	10
231	1	1	6	2	4	2	9	4	5	5
241-245	4	5	4	4	7	5	6	6	2	3
251-253	0	1	3	1	1	0	1	0	0	0
261-268	2	4	2	0	1	1	1	2	0	1
271-272	2	0	0	0	0	1	0	0	0	1
Totals	**27**	**34**	**32**	**25**	**31**	**29**	**35**	**29**	**20**	**29**

Table 2: All Southern Region Mountain Lion Mortalities by Type/Distribution for 2015-2016

Management Area Groups	Harvest Limit	Harvest	Depredation Take	Other Take	Total Take
161-164	*Regional*	7			**7**
171-173	*49*	2			**2**
211-212		0			**0**
221-223		10			**10**
231		5			**5**
241-245		3			**3**
251-253		0			**0**
261-268		1			**1**
271-272		1			**1**
Totals:	**49**	**29**	**0**	**0**	**29**

Regional harvest for the 2015-2016 season consisted of 29 lions which shows and increase from the 20 lions harvested during the 2014-15 season.

Population Trend

The 2015-2016 Southern Region mountain lion harvest consisted of 21 males and 8 females for a male to female ratio of 2.6:1. The 5-year average is 1.65:1. Number of lions taken increased over the previous season with 20 lions harvested during 2014-2015. The average age of harvested males was 4.1, which is below the ten-year average age of 4.6. The average age of harvested females was 5.6, which is above the ten-year average age of 3.9. Overall, the average age of lions harvested in the southern region is 4.5 which is above the ten-year average of 4.2. The total harvest of 29 lions is slightly above the average of 28.5 over the last ten seasons (2006 – 2016). The Southern Region combined harvest was well below the 2015-2016 harvest limits of 49.

Table 3: Southern Region Harvest – 10 Year Sex and Age Comparisons.

Season/Year	Harvest		Average Age		
	# Males	# Females	Males	Females	All Lions
2006-2007	14	16	4.1	4	4.05
2007-2008	18	14	4.8	4.6	4.7
2008-2009	11	14	3.2	3.3	3.24
2009-2010	13	12	5	4.5	4.8
2010-2011	13	12	5.2	3.5	4.4
2011-2012	16	9	4.8	3.6	4.3
2012-2013	24	8	4.5	3.9	4.15
2013-2014	16	10	3.44	3.55	3.48
2014-2015	9	11	4.5	4.73	4.6
2015-2016	21	8	4.1	5.63	4.52

Table 4: 10 Year Southern Region Mountain Lion Harvest Trend – All known mortalities.

Season Year	Season Length	Harvest Limits	Take			
			Harvest	Depredation	Other	Total
2006-2007	365	68	27	2	1	**30**
2007-2008	365	68	32	0	2	**34**
2008-2009	365	68	25	3	4	**32**
2009-2010	365	60	25	0	0	**25**
2010-2011	365	60	25	5	1	**31**
2011-2012	365	60	25	3	1	**29**
2012-2013	365	99	32	1	2	**35**
2013-2014	365	52	26	2	1	**29**
2014-2015	365	49	18	2	0	**20**
2015-2016	365	49	29	0	0	**29**
Averages:	**365**	**63.3**	**26.4**	**1.8**	**1.2**	**29.4**

Management Conclusions

The harvest of 29 mountain lions was above the previous years' harvest of 20 lions and consistent with the average harvest in the southern region. No depredation lions were taken in the southern region during the reporting period. Above average precipitation was received throughout the southern region during 2015 and may have resulted in a slightly higher abundance of prey species.

The western portion of the southern region, Management Areas 16, 17 and 21, accounted for 31% of the southern region lion harvest compared to 25% in 2014-2015 and 31% in 2013-2014. Days hunted reported by hunters was an average of 1.9 days. The conclusion drawn from looking at the data from harvested mountain lions as well as the Mountain Lion Harvest Reports is that the mountain lion population in the southern region continues to be stable. Lack of snowfall in previous years may have made it more difficult for hunters to be successful. Increased hunter success during the 2015-16 season was likely higher due to more snowfall.

BLACK BEAR

Western Region
Report by: Carl Lackey

Specific data on all black bears handled by Nevada Department of Wildlife personnel was first recorded in 1997 with a sample size of 12 individuals. During the last 10 years, the number of black bears handled, including captures, recaptures and documented mortalities [e.g., lethal removal, road kill]) has varied (Table 1). The cumulative total since 1997 through the end of 2015 is 1,336 black bears.

Table 1: Black Bears handled in the Western Region, 2006-2015.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Bears handled	88	159	68	40	79	78	83	97	141	121
Cumulative total[a] (since 1997)	471	630	698	738	817	895	978	1075	1215	1336

[a] *Includes recaptured bears previously handled and marked in the same or preceding years.*

The Nevada Department of Wildlife maintains a database containing various data on all black bears captured or handled since 1997. Black bears captured and released have been routinely marked with ear tags and tattoos since 1998. Passive Integrated Transponder (PIT) tags, also known was microchips, were first applied in 2010 as an additional means of permanently marking each bear. To date, the Nevada Department of Wildlife has marked 494 black bears with ear tags and/or PIT tags.

Hunt Analysis

The hunt structure has remained mostly constant other than variations in season length. The inaugural 2011 season was 134 days long beginning on August 20, 2011, but the season length since that time has been 108 days, with the opener occurring on September 15. The harvest limit established by the Nevada Board of Wildlife Commissioners has remained at 20 bears each year. Forty-five tags were available each year to resident and non-resident licensed hunters. 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; and 2,339 in 2015. These figures do not include applications for bonus points only.

The Nevada Department of Wildlife's Black Bear Management Plan specifies annual harvest data will be analyzed along with harvest data from the most recent 3 years. Further, to fully evaluate the demographics of the state's bear population, the Nevada Department of Wildlife supplements this hunter harvest data with mark-recapture analyses to determine population size and trend. This allows the Nevada Department of Wildlife 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 are required to personally bring the hide and skull of harvested black bears to a Nevada Department of Wildlife representative for check. Information on each harvest was recorded, including the sex of each bear, estimated age, physical condition, location of harvest, method of harvest and other related parameters. Of the 71 successful hunters to date; six (8.4%) were female hunters, 89% saved the bear meat, 18% were guided by professional guides and three (4%) were nonresident hunters.

Analyses of harvest data from the last 3 years indicate that the number and age cohorts of black bears harvested during the hunt can be considered light and well within the criteria adopted to maintain a sustainable black bear population (Table 2).

Table 2: Hunter harvest data from Nevada bear hunts, 2011-2015.

Data from all successful hunters	2011	2012	2013	2014	2015	Last 3 years	Harvest criteria indicator	All Years
Male bears harvested	9	10	10	12	8	**30**		49
Female bears harvested	5	1	4	6	6	**16**		22
% females in harvest	***36%***	***9%***	***29%***	***33%***	***43%***	***35%***	***Moderate harvest***	***31%***
% adult females within female harvest	***80%***	***100%***	***75%***	***100%***	***83%***	***75%***	***Light harvest***	***77%***
Mean age males (years)	***5.9***	***5.1***	***6.1***	***7***	***8.5***	***7.1***	***Light harvest***	***6.6***
Mean age females (years)	6.9	9.0	7.8	10.5	6.5	**8.3**		7.8
Mean age all (years)	5.9	5.5	6.6	8.2	7.6	**7.5**		6.9
Male:female ratio	1.8	10.0	2.5	2.0	1.3	**1.9**		2.2
Hunter success rate	31%	24%	31%	40%	31%	**34%**		32%
Hunter effort in days/harvest	8.3	8.7	7.8	5.1	6.7	**6.4**		7.1
Average days scouted	7.0	2.1	4.0	2.9		**3.4**		4.0
Average days hunted	8.3	8.7	8.4	5.1	6.7	**6.6**		7.2
Hunt Method: Dogs or Other	12 2	7 4	8 5	13 5	9 5	**30** **15**		49 21

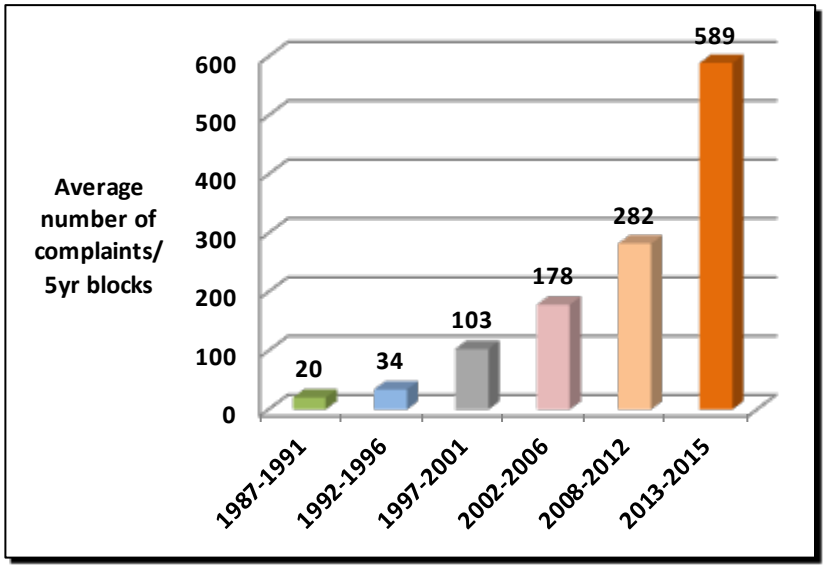

Figure 1: Statewide human-bear conflicts by 5-year block (*1500+ complaints in 2007 withdrawn***)**

Conflicts

In 2015 human-bear conflicts decreased 20% compared to the conflicts recorded in 2014, with Nevada Department of Wildlife staff handling 566 complaints and reports of bears. With 2015 the fifth year of drought conditions in western Nevada, complaints were expected to rise; however a late hard-freeze in May damaged most of the area's fruit-bearing tree blossoms, greatly reducing the amount of these types of attractants in neighborhoods. Annual conflicts vary in number depending on climatic conditions and other factors, but when the conflict history is viewed in 5-year periods, a continued rise is clear (Figure 1). The anomaly was 2007,

when over 1,500 complaints were received.

The majority of complaints received are of bears accessing garbage or other sources of human foods. Other common complaints were of bears damaging apiaries, breaking into garbage enclosures or sheds, damage to fruit trees, breaking into homes and vehicles, or just a bear frequenting a particular area. Per Nevada Department of Wildlife policy the usual course of action is to first advise the complainant on how to avoid future conflicts by removing access to all human sources of food. For those people living in or near the urban-wildland interface, tolerance of wildlife is also encouraged. Traps are often set in non-conflict and conflict situations so that the bears may be sampled, marked for future identification and subjected to hazing techniques. Regardless of the reason for capture, bears are marked and released roughly 87% of the time.

The fall months of September–November are predominantly when most calls were received (53%) with over 270 complaints in this time period. Reported conflicts in 2015 were predominantly from Washoe County (44%)(Figure 2). Personal property damage for the year was reported at over $9,715. However, it should be noted that most people do not report damage unless it is substantial and even these figures are not always reported.

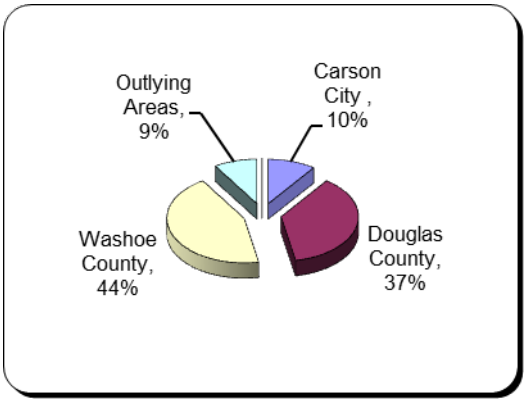

Figure 2: Human-bear conflicts by county, 2015.

Including recaptures and multiple captures per event, 109 individual bears were handled on approximately 121 capture events. This included 19 bears handled for research purposes only. Of the 109, 76 were first-event bears (those not previously captured or handled). Additionally, some bears were caught incidental to ongoing complaints but not necessarily as conflict bears.

Most bears were either caught in culvert traps or by free-ranging capture techniques. Twenty-nine cubs of the year were handled. Fourty first-event bears were marked and released while 36 were documented as mortalities on the initial incident (e.g., unknown bears hit by vehicles, sport harvest; Table 3).

Table 3: Documented mortalities of black bears in Nevada, 2006–2015. (Marked Nevada bears removed in other states are excluded -27 since 2001).

Mortality Type	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total (1997–present)
Hit by Car	22	35	6	8	8	3	9	12	18	21	**209**
Public Safety	4	10	17	3	12	8	4	5	1	9	**93**
3 – Strikes	NA	1	6	3	8	0	1	0	0	0	**19**
Sport Hunt	NA	NA	NA	NA	NA	14	11	14	18	14	**71**
Depredation	5	5	1	0	2	1	2	2	2	0	**35**
Illegal	0	3	0	0	1	1	0	0	1	0	**7**
Other	1	8	2	1	3	6	4	9	9	5	**62**
Yearly Total	32	62	32	15	34	33	31	42	49	49	**496**
Cumulative Total (since 1997)	149	211	243	258	292	325	356	398	447	496	

Mortalities

There were 49 documented mortalities recorded this year (Table 3), and 13 of these were marked bears. Nine bears were removed by the Nevada Department of Wildlife for public safety concerns. Of these, two were in Washoe County; six were in Douglas County and one in Lyon County.

Status

Viable populations of black bears exist in the Carson Range of the Sierra Nevada, 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. Random sightings and captures in historical habitat have been documented and these instances are increasing, however it is unlikely viable populations exist in these areas at this time. Five instances of confirmed presence of bears in historical range occurred this year. In May, a black bear was observed and photographed in Lincoln County, south of Caliente. In July 2015, the Nevada Department of Wildlife biologists trapped an adult male in Coleman Valley, northern Washoe County. Also in July 2015, several people spotted a bear near Cave Lake in White Pine County. Later, in October 2015, bear scat was confirmed southeast of Wheeler Peak in Elko County. A young male bear was accidentally killed in a non-target cougar snare on 49er Mountain, Washoe County, by US Department of Agriculture Wildlife Services.

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.

Several research projects are coming to an end. Manuscripts are in draft stages for the cooperative study on genetics with University Nevada, Reno, and the isotope analysis study with the University of Tennessee. Further, the project lead for the Habitat modeling/RSF models project with the University of Columbus has finished and submitted the first draft manuscript dissertation for publication. Additionally, a collaborative analysis among the Nevada Department of Wildlife, Colorado Parks and Wildlife, The Nature Conservancy, The Wildlife Conservation Society and US Department of Agriculture Wildlife Services was published in Biological Conservation.

APPENDIX

Harvest, Survey, and Population Tables

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TABLE 1. 2015 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	1			2	4	10	6		1	23			
012	3			1	3	8	13			25			
013	2				9	9	14	1		33			
unk^					1					1	82	43%	88
014	3			6	30	40	24	1	1	102	102	25%	105
015	2			0	2	5	4	1		12	12	42%	14
021	1				3	15	24	7	3	52	52	65%	53
022				1	7	21	24	6	1	60	60	52%	60
031	8			1	34	57	69	9	7	177	177	48%	185
032	3			4	23	41	19	2		89	89	24%	92
033	1			2	11	11	11	1		36	36	33%	37
034	1			2	8	19	19	1	2	51	51	43%	52
035	6			4	11	30	21	2		68	68	34%	74
041	1				4	8	7			19			
042						2	4			6			
unk^							1			1	26	46%	27
043	13		1	3	26	20	17	1	1	68			
044	10			2	12	9	13	2		38			
045	2				3	10	13	1		27			
046	3			3	11	26	14			54			
unk^						1			1	2	189	33%	218
051	30			6	59	68	74	11	2	220	220	40%	250
061	73	2	4	5	90	64	61	7		227			
062	168	2	13	18	153	114	152	18	9	464			
064	41			5	29	28	24	3	2	91			
066	29			1	15	16	18	3		53			
067	25	1			21	29	43	8	1	102			
068	89	2	1	2	35	31	63	11	2	144			
unk^	1						1	1		2	1,083	39%	1,534
065				3	5	23	34	3		68	68	54%	68
071	98	1	9	4	23	19	28	2	1	77			
072	64	1	4	3	31	28	39	5	1	107			
073	68	2	5	1	22	17	26	2	3	71			
074	5				7	10	7	1		25			
075	105		6	3	52	45	59	7		166			
076	20	1	2	2	12	19	16	3		52			
077	39	1	1	1	7	8	18	2		36			
078	1				2	2	1			5			
079	5				1	8	1			10			
091										0			
unk^				1		1	1			3	552	40%	990
081					1	5	19	4	2	31	31	81%	31
101	112	7	8	12	125	83	73	13	4	310			
102	205	5	15	34	156	129	137	11	6	473			
103	9			17	73	29	35	1	1	156			
104	5	1		7	38	21	22			88			

TABLE 1. 2015 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+				
105					3	3	1			7			
106	1				6	7	6		1	20			
107			1		4	1				5			
108	2			5	29	26	10	1		71			
109	19	1	1		6	4	3		1	14			
unk^	1				3		2			5	1,149	29%	1,542
111	31		4	14	130	89	89	13	2	337			
112	1			1	5	6	5			17			
113	2			2	5	3	3			13			
unk^								1		1	368	31%	406
114	7				10	20	9	4	1	44			
115	13	1	1	4	17	16	31	7	2	77			
unk^					1					1	122	44%	144
121	7	1	2	6	85	61	57	6	4	219	219	31%	229
131	8	1		7	70	79	80	12	4	252			
132	3			2	21	25	47	6	5	106			
133					6	6	7	3	1	23			
134							3	1	1	5			
unk^	1			1	1				1	3	389	44%	402
141	8			4	33	26	27	1	1	92			
142					6	6	1	1		14			
143	1			3	23	17	6	2	1	52			
144	2			6	56	51	26	1	1	141			
145	2			8	18	14	11			51	350	23%	363
151	2			3	18	20	13			54			
152	13		1	4	10	11	13	2	1	41			
153	3			1	3	5	4			13			
154	3			2	17	14	8	1	1	43			
155	14			4	11	8	10			33			
156					2	4	1			7			
unk^										0	191	28%	227
161	14			6	50	47	39	7	4	153			
162	4		1	6	25	39	46	5		121			
163				1	15	7	16	2	1	42			
164	1				1	3	4	2	1	11			
unk^							1			1	328	39%	348
171	5			5	13	16	21		2	57			
172	8	1		1	9	7	9			26			
173	10	1	1	3	51	38	38	1		131			
unk^					1					1	215	33%	241
181	7			1	14	10	8	4	3	40			
182				1		1	3			5			
183	1			2	6	10	13	3		34			
184	1			1	7	11	9			28	107	40%	116
192	3			3	16	22	21	4	3	69	69	41%	72

TABLE 1. 2015 MULE DEER POINT CLASS BY UNIT AND UNIT GROUP

Unit of Harvest	Does	Fawns Female	Fawns Male	Bucks by Antler Points 1	2	3	4	5	6+	Unit Buck Total	Unit Group Buck Total	% 4+ pts	TOTAL DEER
194					3	11	27	9	8	58			
196					5	9	22	5		41	99	72%	99
195				1	5	8	8			22	22	36%	22
201				2	8	6	5			21			
204				3	1	1	3			8			
unk^							1			1	30	30%	30
202	1				4	16	9	1	1	31			
205					3	2				5			
206	1				4	8	4			16			
207										0			
208						1				1	53	28%	55
203	4				8	24	19	1		52	52	38%	56
211	1				9	6	4		1	20			
212					4	1	2		1	8			
213										0	28	29%	29
221	1			5	28	24	43	8	5	113			
222	11		1	6	60	75	58	9	5	213			
223	4			1	17	6	18	1	2	45			
unk^					1	1	1			3	374	40%	391
231	5			2	30	50	99	25	6	212	212	61%	217
241	2				4	12	17	7	4	44			
242					2	9	21	8	2	42			
243						2	2			4			
245					1	1	6	3		11			
unk^						1	1			2	103	69%	105
251	2			1	2	7	17	2	1	30			
252										0	30	67%	32
261					1		4		1	6			
262	2			1	6	15	19	5		46			
263							3			3			
264										0			
265						1				1	56	57%	58
271	1				1	2	6	1		10			
272				1	4	2	5	3	1	16	26	62%	27
291	2			1	11	18	11	6		47	47	36%	49
TOTAL	**1,487**	**32**	**82**	**287**	**2,188**	**2,191**	**2,405**	**335**	**131**	**7,537**		**38%**	**9,138**

^unable to verify correct unit of harvest in hunt group

SPECIAL TAGHOLDER HARVEST BY UNIT

HUNT	UNIT	#
PIW	014	1
PIW	021	2
PIW	074	1
PIW	101	1
PIW	194	2
PIW	195	1
PIW	196	2
PIW	223	1
PIW	231	1
PIW	241	1
PIW	261	1
SILVER	222	1
HERITAGE	242	1
DREAM	111	1

TABLE 2. % FOUR-POINT OR BETTER MULE DEER HARVEST BY UNIT GROUP, 2006 - 2015

Unit Group	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
011- 013	51%	47%	59%	56%	51%	56%	40%	38%	38%	43%
014	59%	38%	49%	60%	51%	48%	54%	41%	40%	25%
015	52%	40%	50%	44%	53%	59%	47%	42%	36%	42%
021	63%	60%	50%	48%	42%	56%	47%	45%	46%	65%
022	50%	48%	48%	50%	48%	73%	67%	57%	51%	52%
031	51%	44%	46%	54%	46%	36%	39%	48%	50%	48%
032	36%	39%	34%	43%	38%	24%	27%	32%	34%	24%
033	51%	45%	38%	44%	51%	49%	26%	36%	44%	33%
034	59%	49%	36%	75%	62%	56%	45%	64%	45%	43%
035	46%	49%	63%	60%	67%	40%	39%	45%	30%	34%
041, 042	42%	41%	55%	58%	55%	43%	21%	27%	55%	46%
043 - 046	38%	47%	49%	47%	47%	34%	32%	33%	35%	33%
051	34%	39%	39%	46%	33%	29%	27%	38%	40%	40%
061,062,064,066-068	44%	47%	47%	47%	44%	49%	46%	40%	39%	39%
065	60%	64%	72%	64%	65%	71%	58%	58%	51%	54%
071 - 079, 091	42%	41%	38%	43%	41%	40%	40%	33%	33%	40%
081	59%	58%	59%	84%	71%	78%	65%	71%	87%	81%
101 - 108	34%	33%	33%	39%	39%	37%	30%	28%	27%	29%
111 - 113	29%	21%	27%	32%	27%	31%	24%	26%	25%	31%
114, 115	57%	43%	44%	46%	48%	59%	40%	41%	45%	44%
121	32%	20%	31%	32%	28%	32%	22%	36%	32%	31%
131 - 134	50%	43%	44%	53%	43%	56%	45%	43%	42%	44%
141 - 145	28%	29%	37%	36%	40%	35%	27%	30%	28%	23%
151, 152, 154, 155	38%	40%	48%	54%	49%	42%	32%	31%	37%	28%
161 - 164	40%	29%	46%	47%	34%	35%	34%	39%	30%	39%
171 - 173	36%	33%	41%	45%	33%	36%	26%	33%	28%	33%
181 - 184	28%	37%	49%	41%	40%	39%	37%	32%	36%	40%
192	43%	51%	35%	35%	46%	17%	41%	54%	38%	41%
194, 196	66%	61%	62%	59%	54%	68%	64%	61%	60%	72%
195	49%	35%	35%	46%	52%	38%	66%	25%	74%	36%
201, 204	39%	43%	30%	45%	17%	25%	42%	19%	23%	30%
202, 205-208	43%	31%	44%	46%	38%	53%	27%	49%	46%	28%
203	37%	38%	28%	34%	26%	35%	33%	42%	39%	38%
211, 212	24%	29%	33%	42%	64%	30%	39%	44%	55%	29%
221 - 223	47%	37%	48%	48%	48%	48%	42%	43%	37%	40%
231	57%	51%	61%	69%	61%	65%	55%	55%	54%	61%
241 - 245	52%	56%	66%	65%	76%	74%	62%	62%	65%	69%
251 - 253	40%	54%	72%	54%	31%	65%	56%	53%	74%	67%
261 - 268	13%	7%	25%	40%	52%	27%	35%	27%	40%	57%
271, 272	57%	35%	55%	70%	90%	44%	54%	45%	65%	62%
291	42%	51%	40%	41%	46%	23%	22%	46%	34%	36%
Statewide	**40%**	**38%**	**41%**	**46%**	**42%**	**42%**	**37%**	**37%**	**37%**	**38%**

*Includes harvest from all hunts and weapon classes combined

TABLE 3. 2015 MULE DEER JUNIOR HUNT HARVEST BY UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags Sold	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% Bucks
011 - 013	86	75	75	75	2 to 1	96%	37	51%	81%
014	82	55	55	55	2 to 1	93%	32	60%	91%
015	17	10	10	10	2 to 1	90%	5	50%	60%
021	65	15	15	15	5 to 1	93%	10	67%	90%
022	35	25	25	25	2 to 1	96%	16	64%	100%
031	62	55	56	55	2 to 1	98%	43	78%	81%
032	26	60	60	60	1 to 1	100%	31	52%	87%
033	21	20	20	20	1 to 1	100%	10	50%	90%
034	17	15	15	15	2 to 1	80%	10	73%	100%
035	35	35	35	35	1 to 1	100%	23	66%	74%
041, 042	20	15	15	15	2 to 1	87%	5	33%	100%
043 - 046	120	110	110	110	1 to 1	95%	60	55%	82%
051	101	130	130	130	1 to 1	97%	75	58%	79%
061, 062, 064, 066 - 068	485	475	475	474	1 to 1	94%	328	72%	87%
065	26	20	20	20	2 to 1	95%	16	80%	94%
071 - 079, 091	259	225	225	225	2 to 1	96%	165	75%	85%
081	24	10	10	9	3 to 1	89%	6	67%	100%
101 - 108	201	350	310	310	1 to 1	93%	167	56%	69%
111 - 113	191	170	172	170	2 to 1	96%	109	65%	66%
114, 115	82	90	90	89	1 to 1	93%	38	44%	82%
121	94	85	86	85	2 to 1	94%	67	81%	84%
131 - 134	204	160	161	159	2 to 1	92%	111	73%	88%
141 - 145	112	155	141	141	1 to 1	91%	85	63%	84%
151 - 155	77	100	100	100	1 to 1	96%	52	53%	79%
161 - 164	170	170	170	169	1 to 1	97%	114	69%	82%
171 - 173	93	140	140	140	1 to 1	96%	65	47%	60%
181 - 184	77	70	70	70	1 to 1	96%	34	50%	76%
192	44	20	20	20	3 to 1	90%	13	70%	77%
194, 196	162	30	30	30	6 to 1	97%	26	87%	100%
195	27	10	10	10	3 to 1	90%	8	80%	100%
201, 204	31	10	10	10	4 to 1	80%	5	60%	100%
202, 205 - 208	41	20	20	19	3 to 1	84%	11	63%	82%
203	44	40	40	40	1 to 1	98%	24	60%	83%
211, 212	22	20	21	20	1 to 1	100%	9	45%	89%
221 - 223	253	200	201	200	2 to 1	89%	118	63%	87%
231	157	80	81	80	2 to 1	94%	56	73%	88%
241 - 245	112	35	35	35	4 to 1	94%	25	74%	92%
251 - 253	18	30	30	29	1 to 1	97%	10	34%	80%
261 - 268	35	20	20	20	2 to 1	100%	15	75%	87%
271, 272	32	20	20	20	2 to 1	90%	7	35%	86%
291	44	25	25	25	2 to 1	96%	14	56%	86%
TOTALS	**3,804**	**3,400**	**3,354**	**3,339**	**2 to 1**	**94%**	**2,055**	**63%**	**82%**

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

hunt returns thru 2/19/2016

TABLE 4. 2015 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	3,834	22	21	175 to 1	86%	14	71%	79%
HERITAGE MULE DEER ANY LEGAL WEAPON HUNT 1100 AND 1201								
STATEWIDE		2	2		50%	1	--	100%
SILVER STATE MULE DEER ANY LEGAL WEAPON HUNT 1300								
STATEWIDE	3,842	1	1	3842 to 1	100%	1	100%	100%
DREAM TAG MULE DEER ANY LEGAL WEAPON HUNT 1500								
STATEWIDE		1	1		100%	1	100%	0%
RESIDENT AND NONRESIDENT MULE DEER LANDOWNER DAMAGE COMPENSATION HUNT 1115 AND 1215								
011, 013			6		100%	5	83%	100%
015			2		100%	0	0%	
031			7		100%	7	100%	86%
032			1		100%	1	100%	0%
034			7		86%	3	43%	67%
035			4		100%	4	100%	75%
045			1		100%	1	100%	100%
051			12		92%	9	75%	56%
062			6		100%	2	33%	50%
065			2		100%	2	100%	50%
101 - 103			31		87%	25	87%	84%
111			2		100%	2	100%	50%
114 , 115			8		88%	2	25%	100%
121			2		100%	1	50%	100%
131 - 133			22		95%	11	50%	82%
141 - 144			10		90%	6	60%	50%
152, 154			7		100%	5	71%	80%
172			1		100%	1	100%	100%
202			1		100%	1	100%	0%
231			61		95%	35	59%	80%
241, 242, 245			11		100%	8	73%	100%
TOTALS			**204**		**94%**	**131**	**66%**	**78%**
RESIDENT ANTLERED MULE DEER ANY LEGAL WEAPON HUNT 1331								
011 - 013 Early	416	105	102	4 to 1	97%	22	22%	18%
011 - 013 Late	264	30	27	9 to 1	100%	11	41%	73%
014 Early	308	85	81	4 to 1	96%	32	41%	19%
014 Late	340	45	42	8 to 1	100%	23	55%	35%
015	117	30	28	4 to 1	100%	9	32%	56%
021	467	40	40	12 to 1	100%	26	65%	62%
022	392	65	64	7 to 1	100%	34	53%	44%
031	565	180	175	4 to 1	98%	106	61%	46%

TABLE 4. 2015 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
032	242	130	126	2 to 1	95%	46	37%	28%
033 Early	77	35	34	3 to 1	97%	10	29%	10%
033 Late	100	13	11	8 to 1	100%	7	64%	14%
034	100	35	35	3 to 1	100%	28	80%	46%
035	172	75	74	3 to 1	97%	36	50%	25%
041, 042	193	45	44	5 to 1	95%	17	39%	47%
043 - 046 Early	461	191	187	3 to 1	98%	60	33%	20%
043 - 046 Late	223	70	69	4 to 1	94%	28	42%	43%
051	556	250	248	3 to 1	96%	107	44%	32%
061, 062, 064, 066 - 068 E	2141	1100	1094	2 to 1	95%	510	48%	31%
061, 062, 064, 066 - 068 L	1251	130	126	10 to 1	97%	89	71%	64%
065	512	60	59	9 to 1	93%	37	64%	59%
071 - 079, 091 Early	1258	400	397	4 to 1	96%	215	55%	33%
071 - 079. 091 Late	1193	100	98	12 to 1	95%	67	70%	52%
081	346	40	38	9 to 1	95%	17	45%	88%
101 - 109 Early	1213	1000	985	2 to 1	93%	269	28%	13%
101 - 109 Mid	1055	1000	989	2 to 1	94%	317	33%	22%
101 - 109 Late	599	200	193	3 to 1	96%	116	61%	44%
111 - 113 Early	914	375	372	3 to 1	97%	195	53%	25%
111 - 113 Late	432	40	39	11 to 1	100%	25	64%	56%
114, 115 Early	157	100	99	2 to 1	95%	31	32%	23%
114, 115 Late	105	45	45	3 to 1	98%	7	16%	57%
121 Early	369	170	168	3 to 1	94%	107	65%	22%
121 Late	208	20	20	11 to 1	100%	17	85%	59%
131 - 134 Early	959	325	320	3 to 1	96%	180	58%	34%
131 - 134 Late	511	35	34	15 to 1	91%	23	71%	65%
141 - 145 Early	476	355	353	2 to 1	93%	177	52%	19%
141 - 145 Late	167	50	49	4 to 1	100%	25	51%	28%
151 - 156 Early	351	225	224	2 to 1	96%	77	35%	14%
151 - 156 Late	131	40	39	4 to 1	92%	16	44%	56%
161 - 164 Early	705	325	319	3 to 1	97%	136	43%	40%
161 - 164 Late	361	40	39	10 to 1	97%	21	54%	48%
171 - 173 Early	526	350	342	2 to 1	96%	81	24%	26%
171 - 173 Late	204	100	97	3 to 1	95%	34	36%	53%
181 - 184	395	180	180	3 to 1	96%	58	33%	36%
192	260	40	40	7 to 1	88%	28	75%	25%
194, 196	1988	60	54	34 to 1	96%	43	81%	79%
195	209	20	19	11 to 1	95%	7	37%	57%
201, 204	290	25	25	12 to 1	100%	16	64%	25%
202, 205, 206	249	55	55	5 to 1	98%	28	51%	29%
203	159	55	55	3 to 1	98%	21	38%	43%
211, 212	140	45	44	4 to 1	89%	13	32%	46%
221 - 223 Early	968	275	269	4 to 1	97%	138	52%	23%
221 - 223 Mid	385	140	134	3 to 1	87%	55	44%	42%

TABLE 4. 2015 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
221 - 223 Late	723	25	24	29 to 1	96%	12	50%	75%
231	1530	150	146	11 to 1	100%	94	64%	53%
241 - 245	966	95	92	11 to 1	96%	60	66%	72%
251 - 253	83	40	39	3 to 1	87%	11	31%	55%
261 - 268	471	50	50	10 to 1	96%	33	68%	58%
271, 272	145	30	30	5 to 1	97%	13	43%	62%
291	262	50	49	6 to 1	100%	26	53%	35%
TOTALS	**30,360**	**9,384**	**9,230**	**4 to 1**	**95%**	**4,047**	**45%**	**34%**
RESIDENT ANTLERED MULE DEER MUZZLELOADER HUNT 1371								
011 - 013	26	6	5	5 to 1	100%	0	0%	
014	44	15	12	3 to 1	100%	4	33%	0%
015	3	2	2	2 to 1	100%	0	0%	
021	18	3	3	6 to 1	100%	3	100%	100%
022	28	4	4	7 to 1	100%	2	50%	50%
031	28	10	10	3 to 1	100%	5	50%	80%
032	12	7	6	2 to 1	100%	2	33%	0%
033	11	4	4	3 to 1	100%	2	50%	50%
034	7	3	3	3 to 1	100%	2	67%	50%
035	15	15	14	1 to 1	93%	6	43%	50%
041, 042	2	2	2	1 to 1	100%	0	0%	
043 - 046	30	20	20	2 to 1	85%	6	35%	50%
051	48	25	24	2 to 1	92%	6	25%	67%
061, 062, 064, 066 - 068	209	110	108	2 to 1	96%	48	45%	29%
065	38	5	4	8 to 1	100%	3	75%	33%
071 - 079, 091	131	50	50	3 to 1	98%	26	52%	31%
081	67	5	5	14 to 1	100%	4	80%	75%
101 - 109	229	225	218	2 to 1	97%	71	33%	30%
111 - 113	60	35	34	2 to 1	100%	20	59%	30%
114, 115	125	55	53	3 to 1	98%	23	43%	70%
121	30	10	10	3 to 1	100%	6	60%	50%
131 - 134	192	50	49	4 to 1	96%	31	65%	39%
141 - 145	32	30	30	2 to 1	93%	17	60%	6%
151 - 156	34	25	23	2 to 1	100%	12	52%	17%
161 - 164	69	35	35	2 to 1	97%	13	37%	31%
171 - 173	81	75	74	2 to 1	96%	11	15%	18%
181 - 184	44	15	15	3 to 1	93%	6	40%	33%
192	28	15	14	2 to 1	100%	6	43%	50%
194, 196	60	7	7	9 to 1	100%	5	71%	60%
195	12	3	3	4 to 1	100%	1	33%	0%
201, 204	6	2	2	3 to 1	100%	1	50%	0%
202, 205, 206	11	6	6	2 to 1	100%	5	83%	20%
211, 212	11	8	8	2 to 1	88%	2	25%	0%
221 - 223	89	30	25	3 to 1	88%	12	52%	67%

TABLE 4. 2015 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
231	99	20	18	5 to 1	89%	6	33%	100%
241 - 245	41	4	4	11 to 1	100%	3	75%	33%
251 - 253	8	5	4	2 to 1	100%	2	50%	100%
261 - 268	22	2	2	11 to 1	100%	1	50%	0%
271, 272	10	10	9	1 to 1	89%	1	11%	0%
291	12	3	3	4 to 1	100%	0	0%	
TOTALS	**2,022**	**956**	**922**	**3 to 1**	**96%**	**374**	**41%**	**37%**
RESIDENT ANTLERED MULE DEER ARCHERY HUNT 1341								
011 - 013	44	23	23	2 to 1	100%	4	17%	50%
014	39	10	10	4 to 1	100%	4	40%	0%
015	5	4	4	2 to 1	100%	0	0%	
021	59	30	30	2 to 1	93%	4	13%	25%
022	35	15	15	3 to 1	87%	3	20%	67%
031	26	20	19	2 to 1	79%	5	32%	60%
032[A]	59	60	58	1 to 1	91%	1	2%	0%
033	9	5	5	2 to 1	80%	3	60%	67%
034	16	15	15	2 to 1	93%	3	20%	33%
035	24	25	25	1 to 1	100%	1	4%	0%
041, 042	16	10	10	2 to 1	100%	1	10%	100%
043 - 046	110	110	109	1 to 1	97%	23	21%	26%
51[A]	88	140	126	1 to 1	94%	16	13%	44%
061, 062, 064, 066 - 068	319	250	248	2 to 1	94%	57	24%	28%
065	28	10	10	3 to 1	100%	3	30%	33%
071 - 079, 091 Early	254	225	217	2 to 1	95%	49	23%	29%
071 - 079. 091 Late	86	25	24	4 to 1	100%	10	42%	70%
081	8	2	1	4 to 1	100%	1	100%	0%
101 - 109 Early[A]	244	600	472	1 to 1	90%	71	16%	28%
101 - 109 Late	48	25	23	2 to 1	91%	7	30%	57%
111 - 113	69	40	40	2 to 1	90%	18	48%	11%
114, 115[A]	92	95	95	1 to 1	92%	11	13%	55%
121 Early	51	30	30	2 to 1	93%	13	43%	31%
121 Late	53	8	8	7 to 1	100%	5	63%	20%
131 - 134	134	35	35	4 to 1	97%	17	49%	59%
141 - 145[A]	118	120	119	1 to 1	92%	29	25%	10%
151 - 156[A]	68	100	91	1 to 1	97%	20	22%	25%
161 - 164	224	190	183	2 to 1	97%	38	21%	29%
171 - 173[A]	170	180	174	1 to 1	95%	17	10%	24%
181 - 184	59	55	54	2 to 1	94%	4	7%	25%
192 Early	21	15	15	2 to 1	93%	4	27%	75%
192 Late	46	25	25	2 to 1	92%	14	60%	43%
194, 196 Early	82	15	15	6 to 1	93%	5	33%	40%
194, 196 Late	91	15	13	7 to 1	92%	9	69%	56%
195	23	3	3	8 to 1	100%	1	33%	0%

TABLE 4. 2015 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
201, 202, 204 - 206 Early	8	8	7	1 to 1	57%	0	--	
201, 204 Late	14	10	10	2 to 1	90%	5	50%	20%
202, 205, 206 Late	12	6	6	2 to 1	67%	1	17%	100%
203 Early[A]	40	30	31	2 to 1	97%	2	6%	50%
203 Late	31	30	30	2 to 1	80%	4	17%	0%
211, 212	16	15	15	2 to 1	93%	1	7%	0%
221 - 223	124	65	63	2 to 1	90%	18	30%	72%
231	146	45	42	4 to 1	90%	10	26%	80%
241 - 245	43	10	10	5 to 1	100%	4	40%	100%
251 - 253	12	10	10	2 to 1	100%	5	50%	80%
261 - 268	29	6	6	5 to 1	100%	4	67%	0%
271, 272[A]	16	10	12	2 to 1	100%	3	25%	33%
291	20	10	10	2 to 1	100%	3	30%	33%
TOTALS	**3,329**	**2,785**	**2,596**	**2 to 1**	**93%**	**531**	**21%**	**35%**
RESIDENT ANTLERLESS MULE DEER DEPREDATION HUNT 1101								
114, 115 Early	25	5	5	5 to 1	100%	2	40%	
114, 115 Late	45	30	30	2 to 1	97%	14	47%	
TOTALS	**70**	**35**	**35**	**2 to 1**	**97%**	**16**	46%	
RESIDENT ANTLERLESS MULE DEER ANY LEGAL WEAPON HUNT 1181								
043 - 046	73	50	51	2 to 1	90%	22	45%	
051	42	35	35	2 to 1	94%	14	40%	
061 - 064, 066 - 068 Early[A]	301	375	367	1 to 1	93%	219	62%	
061 - 064, 066 - 068 Late[A]	45	375	372	1 to 1	93%	192	54%	
071 - 079, 091[A]	84	650	642	1 to 1	96%	422	67%	
101, 102, 109[A]	249	1000	993	1 to 1	94%	343	36%	
152[A]	15	40	40	1 to 1	98%	11	28%	
155[A]	39	40	40	1 to 1	90%	14	38%	
TOTALS	**848**	**2,565**	**2,540**	**1 to 1**	**94%**	**1,237**	**50%**	
NONRESIDENT PIW ANTLERED MULE DEER ANY LEGAL WEAPON HUNT 1200								
STATEWIDE	2,629	3	3	877 to 1	100%	3	100%	100%
NONRESIDENT GUIDED ANTLERED MULE DEER ANY LEGAL WEAPON HUNT 1235								
011 - 013 Early	6	6	6	1 to 1	100%	3	50%	67%
011 - 013 Late	1	1	1	1 to 1	100%	0	0%	
014 Early	6	3	3	2 to 1	100%	2	67%	100%
014 Late	36	1	1	36 to 1	100%	0	0%	
015	2	1	1	2 to 1	100%	0	0%	
021	8	1	1	8 to 1	100%	1	100%	100%
022	3	2	2	2 to 1	100%	2	100%	100%
031	10	7	6	2 to 1	100%	5	83%	80%
032	8	5	5	2 to 1	100%	3	60%	67%
033 Early	1	3	1	1 to 1	0%	0	--	
033 Late	1	1	1	1 to 1	100%	0	0%	

TABLE 4. 2015 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
034	5	1	1	5 to 1	100%	1	100%	0%
035	4	4	3	1 to 1	100%	1	33%	100%
041, 042	1	1	1	1 to 1	100%	1	100%	100%
043 - 046 Early	2	7	2	1 to 1	50%	1	--	100%
043 - 046 Late	6	3	2	2 to 1	100%	0	0%	
051	5	11	5	1 to 1	100%	3	60%	100%
061, 062, 064, 066 - 068 E	56	51	48	2 to 1	94%	35	75%	83%
061, 062, 064, 066 - 068 L	66	5	5	14 to 1	100%	4	80%	100%
065	15	2	2	8 to 1	100%	2	100%	100%
071 - 079, 091 Early	60	32	32	2 to 1	100%	21	66%	67%
071 - 079. 091 Late	29	6	6	5 to 1	100%	6	100%	83%
081	16	1	1	16 to 1	100%	0	0%	
101 - 109, Early	27	58	22	1 to 1	100%	14	64%	57%
101 - 109 Mid	53	51	51	2 to 1	98%	27	53%	48%
101 - 109, Late	27	12	12	3 to 1	100%	11	92%	82%
111 - 113 Early	21	22	17	1 to 1	94%	14	82%	50%
111 - 113 Late	15	2	2	8 to 1	100%	2	100%	100%
114, 115 Early	2	3	2	1 to 1	100%	2	100%	100%
114, 115 Late	2	1	1	2 to 1	100%	0	0%	
121 Early	7	6	6	2 to 1	83%	0	0%	
121 Late	2	1	1	2 to 1	100%	1	100%	100%
131 - 134 Early	17	12	12	2 to 1	92%	6	50%	67%
131 - 134 Late	9	1	1	9 to 1	100%	1	100%	0%
141 - 145 Early	15	14	13	2 to 1	100%	6	46%	17%
141 - 145 Late	1	1	1	1 to 1	100%	0	0%	
151 - 156 Early	6	6	6	1 to 1	100%	1	17%	100%
151 - 156 Late	4	1	1	4 to 1	100%	1	100%	100%
161 - 164 Early	9	13	9	1 to 1	89%	7	78%	57%
161 - 164 Late	1	1	1	1 to 1	100%	1	100%	100%
171 - 173 Early	2	17	2	1 to 1	100%	1	50%	100%
171 - 173 Late	4	5	4	1 to 1	100%	4	100%	50%
181 - 184	7	7	7	1 to 1	86%	4	57%	75%
192	1	1	1	1 to 1	100%	1	100%	100%
194, 196	27	2	2	14 to 1	100%	2	100%	100%
202, 205, 206	2	2	2	1 to 1	100%	0	0%	
203	3	2	2	2 to 1	100%	0	0%	
211, 212	1	1	1	1 to 1	100%	1	100%	0%
221 - 223 Early	28	13	12	3 to 1	100%	7	58%	100%
222 - 223 Mid	39	5	4	8 to 1	100%	2	50%	100%
221 - 223 Late	90	1	1	90 to 1	100%	0	0%	
231	38	6	6	7 to 1	100%	3	50%	67%
241 - 245	231	1	1	231 to 1	100%	0	0%	
251 - 253	1	1	0	1 to 1	--	--	--	--
261 - 268	3	1	1	3 to 1	100%	1	100%	0%

TABLE 4. 2015 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
271, 272	2	1	1	2 to 1	100%	1	100%	0%
291	1	2	1	1 to 1	100%	1	100%	100%
TOTALS	**1,045**	**428**	**342**	**3 to 1**	97%	**213**	**63%**	**69%**
NONRESIDENT ANTLERED MULE DEER ANY LEGAL WEAPON HUNT 1331								
011 - 013 Early	129	7	7	19 to 1	100%	3	43%	0%
011 - 013 Late	99	3	3	33 to 1	100%	2	67%	100%
014 Early	85	6	6	15 to 1	100%	6	100%	17%
014 Late	182	4	3	46 to 1	100%	0	0%	
015	81	2	1	41 to 1	100%	0	0%	
021	137	4	4	35 to 1	100%	4	100%	50%
022	67	5	4	14 to 1	75%	2	50%	100%
031	161	15	15	11 to 1	100%	11	73%	55%
032	53	10	9	6 to 1	100%	5	56%	40%
033 Early	27	3	3	9 to 1	100%	3	100%	0%
033 Late	78	2	2	39 to 1	100%	1	50%	0%
034	34	3	3	12 to 1	100%	3	100%	67%
035	36	5	3	8 to 1	100%	3	100%	0%
041, 042	18	4	4	5 to 1	75%	1	25%	100%
043 - 046 Early	50	22	22	3 to 1	100%	14	64%	36%
043 - 046 Late	28	5	5	6 to 1	100%	5	100%	20%
051	129	22	21	6 to 1	100%	11	52%	64%
061, 062, 064, 066 - 068 E	400	70	65	6 to 1	97%	36	57%	58%
061, 062, 064, 066 - 068 L	506	10	10	51 to 1	100%	8	80%	100%
065	72	5	5	15 to 1	100%	4	80%	50%
071 - 079, 091 Early	260	15	15	18 to 1	100%	11	73%	36%
071 - 079. 091 Late	396	5	5	80 to 1	100%	3	60%	67%
081	427	3	3	143 to 1	100%	1	33%	100%
101 - 109, Early	228	90	88	3 to 1	89%	28	34%	46%
101 - 109, Mid	135	65	63	3 to 1	100%	27	43%	52%
101 - 109, Late	281	10	10	29 to 1	100%	5	50%	40%
111 - 113 Early	125	20	19	7 to 1	100%	15	79%	67%
111 - 113 Late	99	3	3	33 to 1	100%	2	67%	50%
114, 115 Early	24	10	7	3 to 1	100%	4	57%	50%
114, 115 Late	42	4	3	11 to 1	100%	2	67%	100%
121 Early	41	15	15	3 to 1	93%	9	60%	44%
121 Late	22	2	2	11 to 1	100%	2	100%	50%
131 - 134 Early	138	25	23	6 to 1	96%	18	78%	50%
131 - 134 Late	200	3	3	67 to 1	100%	3	100%	100%
141 - 145 Early	88	28	28	4 to 1	100%	14	50%	43%
141 - 145 Late	23	5	5	5 to 1	100%	4	80%	50%
151 - 156 Early	39	18	18	3 to 1	100%	12	67%	25%
151 - 156 Late	19	3	3	7 to 1	100%	1	33%	100%
161 - 164 Early	74	25	25	3 to 1	100%	11	44%	45%

TABLE 4. 2015 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
161 - 164 Late	85	3	2	29 to 1	100%	1	50%	100%
171 - 173 Early	100	35	35	3 to 1	100%	17	49%	53%
171 - 173 Late	44	8	7	6 to 1	100%	4	57%	100%
181 - 184	32	15	14	3 to 1	100%	8	57%	75%
192	29	4	4	8 to 1	100%	3	75%	67%
194, 196	378	5	4	76 to 1	100%	4	100%	50%
195	8	2	2	4 to 1	100%	2	100%	0%
201, 204	33	3	3	11 to 1	67%	2	100%	100%
202, 205, 206	38	4	4	10 to 1	100%	4	100%	75%
203	15	4	4	4 to 1	100%	3	75%	67%
211, 212	47	4	4	12 to 1	100%	2	50%	50%
221 - 223 Early	95	20	16	5 to 1	94%	11	69%	64%
222 - 223 Mid	39	12	11	4 to 1	100%	6	55%	83%
221 - 223 Late	1192	2	2	596 to 1	100%	1	50%	100%
231	439	15	14	30 to 1	100%	12	86%	75%
241 - 245	1308	10	9	131 to 1	100%	3	33%	100%
251 - 253	22	4	3	6 to 1	100%	2	67%	50%
261 - 268	12	4	4	3 to 1	100%	3	75%	100%
271, 272	36	2	2	18 to 1	100%	1	50%	100%
291	28	5	5	6 to 1	100%	2	40%	50%
TOTALS	**9,013**	**717**	**682**	**13 to 1**	**97%**	**385**	**57%**	**55%**
NONRESIDENT ANTLERED MULE DEER MUZZLELOADER HUNT 1371								
011 - 013	12	2	2	6 to 1	100%	0	0%	
014	23	2	1	12 to 1	100%	1	100%	0%
015	14	2	2	7 to 1	100%	0	0%	
021	31	2	2	16 to 1	100%	2	100%	100%
022	16	2	2	8 to 1	100%	2	100%	50%
031	5	2	2	3 to 1	100%	2	100%	100%
032	3	2	2	2 to 1	100%	2	100%	50%
033	16	2	2	8 to 1	100%	0	0%	
034	13	2	1	7 to 1	100%	0	0%	
035	4	2	2	2 to 1	100%	0	0%	
041, 042	3	2	2	2 to 1	100%	1	50%	0%
043 - 046	5	2	1	3 to 1	100%	1	100%	0%
051	9	3	3	3 to 1	100%	2	67%	100%
061, 062, 064, 066 - 068	42	6	6	7 to 1	100%	4	67%	50%
065	7	2	1	4 to 1	100%	1	100%	0%
071 - 079, 091	24	3	3	8 to 1	100%	1	33%	100%
081	78	2	1	39 to 1	100%	1	100%	100%
101 - 109	43	10	9	5 to 1	89%	6	67%	33%
111 - 113	15	4	3	4 to 1	100%	2	67%	0%
114, 115	114	4	3	29 to 1	100%	3	100%	100%
121	10	2	2	5 to 1	100%	2	100%	50%
131 - 134	66	5	2	14 to 1	100%	1	50%	100%

TABLE 4. 2015 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
141 - 145	5	3	3	2 to 1	100%	0	0%	
151 - 156	4	2	2	2 to 1	100%	2	100%	50%
161 - 164	14	4	3	4 to 1	100%	3	100%	67%
171 - 173	8	6	6	2 to 1	100%	2	33%	0%
181 - 184	22	2	1	11 to 1	100%	1	100%	100%
192	6	2	2	3 to 1	100%	1	50%	100%
194, 196	16	2	2	8 to 1	100%	0	0%	
195	2	2	2	1 to 1	100%	1	50%	100%
201, 204	9	2	2	5 to 1	100%	1	50%	100%
202, 205, 206	14	2	2	7 to 1	100%	2	100%	50%
211, 212	8	2	2	4 to 1	100%	0	0%	
221 - 223	25	3	3	9 to 1	100%	2	67%	50%
231	61	2	2	31 to 1	100%	0	0%	
241 - 245	73	2	2	37 to 1	100%	0	0%	
251 - 253	3	2	2	2 to 1	100%	2	100%	50%
261 - 268	4	2	2	2 to 1	100%	1	50%	0%
271, 272	3	2	2	2 to 1	100%	1	50%	100%
291	3	2	2	2 to 1	100%	2	100%	0%
TOTALS	**833**	**109**	**96**	**8 to 1**	**99%**	**55**	**57%**	**55%**
NONRESIDENT ANTLERED MULE DEER ARCHERY HUNT 1341								
011 - 013	12	3	3	4 to 1	100%	1	33%	0%
014	26	2	2	13 to 1	100%	0	0%	
015	4	2	1	2 to 1	100%	0	0%	
021	13	3	3	5 to 1	100%	0	0%	
022	11	2	2	6 to 1	100%	0	0%	
031	7	2	2	4 to 1	100%	1	50%	0%
032	11	7	7	2 to 1	100%	3	43%	0%
033	12	2	2	6 to 1	100%	0	0%	
034	6	2	2	3 to 1	100%	1	50%	0%
035	5	3	3	2 to 1	100%	0	0%	
041, 042	4	2	2	2 to 1	100%	0	0%	
043 - 046	13	10	8	2 to 1	88%	0	0%	
51[A]	21	15	26	2 to 1	92%	6	23%	50%
061, 062, 064, 066 - 068	79	25	20	4 to 1	90%	4	20%	0%
065	5	2	2	3 to 1	100%	0	0%	
071 - 079, 091 Early	71	20	18	4 to 1	89%	4	22%	75%
071 - 079. 091 Late	43	2	2	22 to 1	100%	0	0%	
081	29	2	2	15 to 1	100%	1	50%	100%
101 - 109 Early[A]	133	60	168	3 to 1	91%	33	21%	33%
101 - 109 Late	51	3	3	17 to 1	100%	2	67%	0%
111 - 113	18	4	4	5 to 1	100%	0	0%	
114, 115	14	10	10	2 to 1	100%	5	50%	40%
121 Early	13	3	3	5 to 1	100%	1	33%	0%
121 Late	16	2	2	8 to 1	100%	0	0%	

TABLE 4. 2015 MULE DEER HARVEST BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	% 4+pts
131 - 134	74	4	4	19 to 1	100%	2	50%	100%
141 - 145	18	14	13	2 to 1	92%	1	8%	0%
151 - 156[A]	12	10	14	2 to 1	79%	4	36%	50%
161 - 164	37	20	16	2 to 1	94%	4	25%	75%
171 - 173[A]	28	20	22	2 to 1	95%	3	14%	33%
181 - 184	6	6	4	1 to 1	100%	1	25%	0%
192 Early	2	2	2	1 to 1	100%	0	0%	
192 Late	7	2	2	4 to 1	100%	0	0%	
194, 196 Early	13	2	1	7 to 1	100%	0	0%	
194, 196 Late	83	2	2	42 to 1	100%	1	50%	0%
195	5	2	2	3 to 1	100%	1	50%	0%
201, 202, 204 - 206 Early	5	2	2	3 to 1	100%	1	50%	0%
201, 204 Late	6	2	2	3 to 1	100%	0	0%	
202, 205, 206 Late	4	2	2	2 to 1	100%	2	100%	50%
203 Early[A]	5	6	5	1 to 1	100%	1	20%	0%
203 Late	5	5	5	1 to 1	80%	1	20%	0%
211, 212	5	2	1	3 to 1	100%	0	0%	
221 - 223	41	7	6	6 to 1	100%	3	50%	67%
231	110	5	4	22 to 1	100%	2	50%	50%
241 - 245	106	2	2	53 to 1	100%	0	0%	
251 - 253	4	2	2	2 to 1	50%	0	--	
261 - 268	5	2	2	3 to 1	100%	1	50%	100%
271, 272	0	2	-	1 to 1	--	--	--	--
291	3	2	2	2 to 1	100%	1	50%	0%
TOTALS	**1,201**	**313**	**414**	**4 to 1**	**93%**	**91**	**23%**	**36%**

[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 - based on # of successful hunters divided by Tags for Hunt (formula includes correction factor for unreported harvest)

TABLE 5. 2015 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					54	54	54	54
012					26		26	
013					34		34	
014					25	85	25	85
015					50	50	50	50
021					19		19	
022					20	39	20	39
031	55	1	3	6	92	92	157	157
032	17			1	58		76	
034	4			1	37	95	42	118
033					44	44	44	44
035	10		1	2	60	60	73	73
041	16		2	2	52		72	
042	8			2	49	101	59	131
043					16		16	
044					10		10	
045							0	
046					9	35	9	35
051					51	51	51	51
061	32	1	3	4	14		54	
062	24		2	1	37		64	
064	19	1	1	1	7		29	
071	6	1		4	7		18	
073	27		2	6	34	99	69	234
065	25		1	4	64		94	
142	3						3	
144	1		2	1	1	65	5	102
066	5	1		1	24	24	31	31
067	31	1	2	5	40		79	
068	34	1	2	8	54	94	99	178
072	11			1	29		41	
074	5				19		24	
075	15	2	1	1	40	88	59	124
076					28		28	
077					14		14	
079					4		4	
081					5		5	
091					1	52	1	52

hunt returns thru 3/9/16

TABLE 5. 2015 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	2			1	2		5	
105	3			1	7		11	
106	5		1		7		13	
107	3						3	
121	48	1	1	7	45	61	102	134
101	5				2		7	
102	4			1	4		9	
103	3				3		6	
104	5	2		4	6		17	
108	11		1	2	11		25	
109							0	
144	9		1	2	5	31	17	81
111	23		1	4	58		86	
112	3			1	6		10	
113	2				9		11	
114	3		2	3	18	91	26	133
115				1	11		12	
231					24		24	
242						35	0	36
131	16	2	1	2	42		63	
145	7				6		13	
163					7		7	
164					4	59	4	87
132					19		19	
133					10		10	
134					5		5	
245					2	36	2	36
141	30		2	7	37		76	
143	11	2		1	12		26	
151	13			1	18		32	
152	14			3	16		33	
153	28		2	3	19		52	
154	9	1	2	3	14		29	
155	8	4	1	1	18		32	
156	24			4	32	166	60	340
161					27		27	
162					11	38	11	38
171					11		11	
172					16		16	
173					11	38	11	38

hunt returns thru 3/9/16

TABLE 5. 2015 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
181					5		5	
182					5		5	
183					18		18	
184					22	50	22	50
202					1		1	
204					2	3	2	3
203							0	
291					1	1	1	1
205					10		10	
206					6		6	
207							0	
208						16	0	16
211							0	
212					1		1	
213					2	3	2	3
221					5		5	
222					5		5	
223							0	
241					5	15	5	15
251					24	24	24	24
TOTAL	**637**	**21**	**37**	**103**	**1,795**			**2,593**

HERITAGE, SILVER STATE, DREAM AND PIW TAGHOLDER HARVEST BY UNIT

HUNT	UNIT	#	HUNT	UNIT	#
PIW	011	1	Heritage		
PIW	022	2	Silver	091	1
PIW	251	1	Dream		

TABLE 6. 2015 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags Sold	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success
RESIDENT PIW ANTELOPE ANY LEGAL WEAPON HUNT 2000								
STATEWIDE	1,723	5	5	5	345 to 1	100%	4	80%
HERITAGE ANTELOPE ANY LEGAL WEAPON HUNT 2100 & 2200								
STATEWIDE	--	2	2	2		50%	0	--
SILVER STATE ANTELOPE ANY LEGAL WEAPON HUNT 2300								
STATEWIDE	1,570	1	1	1	1570 to 1	100%	1	100%
DREAM TAG ANTELOPE ANY LEGAL WEAPON HUNT 2500								--
STATEWIDE	--	1	1	1		100%	0	0%
RESIDENT AND NONRESIDENT BUCK ANTELOPE LANDOWNER COMPENSATION HUNT 2115 AND 2215								
015			2	2		100%	2	100%
031			8	8		100%	7	88%
032, 034, 035			6	6		100%	5	83%
044			2	2		100%	2	100%
051			4	4		100%	4	100%
062			4	4		75%	2	50%
065			2	2		100%	2	100%
068			2	2		100%	2	100%
114			1	1		100%		0%
115			2	2		100%	1	50%
121			2	2		100%	2	100%
141			1	1		100%	1	100%
153, 156			8	8		100%	8	100%
161			3	3		100%	3	100%
164			1	1		100%	1	100%
172			12	12		100%	12	100%
183, 184			6	6		67%	3	67%
TOTALS			66	66		95%	57	88%
RESIDENT BUCK ANTELOPE ANY LEGAL WEAPON HUNT 2151								
011	389	70	70	62	6 to 1	95%	43	71%
012 - 014	819	120	120	112	7 to 1	100%	71	63%
015	473	75	75	72	7 to 1	99%	38	53%
021, 022	1,068	40	40	36	27 to 1	97%	32	92%
031	535	140	140	135	4 to 1	96%	73	56%
032, 034	566	155	155	147	4 to 1	98%	70	48%
033 Early	439	35	35	27	13 to 1	100%	16	59%
033 Late	126	35	35	31	4 to 1	90%	20	68%
035	262	80	80	77	4 to 1	92%	45	61%
041, 042 Early	788	65	65	62	13 to 1	97%	42	69%
041, 042 Late	204	65	65	60	4 to 1	98%	40	67%

TABLE 6. 2015 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags Sold	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success
043 - 046	159	35	35	33	5 to 1	100%	28	85%
051	232	55	55	52	5 to 1	100%	37	71%
061, 062, 064, 071, 073	839	95	95	95	9 to 1	99%	85	89%
065, 142, 144	379	70	70	69	6 to 1	93%	54	81%
066	122	30	30	29	5 to 1	97%	20	69%
067, 068	378	95	95	94	4 to 1	96%	74	81%
072, 074, 075	385	110	110	106	4 to 1	97%	72	69%
076, 077, 079, 081, 091	355	50	50	48	8 to 1	94%	42	92%
078, 105 - 107, 121	319	65	65	63	5 to 1	100%	51	81%
101 – 104, 108, 109, 144	246	30	30	29	9 to 1	100%	25	86%
111 – 114	689	100	100	97	7 to 1	95%	69	73%
115, 231, 242	264	30	30	30	9 to 1	97%	25	83%
131, 145, 163, 164	354	60	60	56	6 to 1	98%	47	84%
132 – 134, 245	357	40	40	39	9 to 1	97%	28	72%
141, 143, 151 - 156	602	190	190	185	4 to 1	96%	130	72%
161, 162	248	35	35	35	8 to 1	94%	30	89%
171 - 173	169	30	30	29	6 to 1	93%	24	86%
181 - 184	259	45	45	44	6 to 1	98%	39	89%
202, 204	72	7	7	6	11 to 1	100%	3	50%
203, 291	37	5	5	5	8 to 1	100%	1	20%
205, 206, 207, 208	72	25	25	25	3 to 1	92%	14	60%
211 - 213	29	4	4	3	8 to 1	100%	3	100%
221 – 223, 241	321	15	15	15	22 to 1	100%	11	73%
251	293	25	25	23	12 to 1	100%	18	78%
TOTALS	12,849	2,126	2,126	2,031	7 to 1	97%	1,420	71%

RESIDENT BUCK ANTELOPE MUZZLELOADER HUNT 2171

011	11	3	3	2	4 to 1	100%	1	50%
012 - 014	13	4	4	3	4 to 1	100%	3	100%
015	8	2	2	1	4 to 1	100%	1	100%
021, 022	19	3	3	2	7 to 1	100%	0	0%
033	11	2	2	2	6 to 1	100%	1	50%
065, 142, 144	18	7	7	6	3 to 1	83%	2	33%
078, 105 - 107, 121	6	3	3	3	2 to 1	100%	2	67%
101 – 104, 108, 109, 144	7	2	2	2	4 to 1	100%	2	100%
111 – 114	11	5	5	5	3 to 1	100%	2	40%
115, 231, 242	9	2	2	2	5 to 1	100%	1	50%
131, 145, 163, 164	5	4	4	4	1 to 1	100%	2	50%
132 - 134, 245	6	2	2	2	3 to 1	100%	1	50%
221 – 223, 241	7	2	2	2	4 to 1	100%	1	50%
TOTALS	131	41	41	36	4 to 1	97%	19	53%

TABLE 6. 2015 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags Sold	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success
RESIDENT BUCK ANTELOPE ARCHERY HUNT 2161								
011	37	20	20	17	2 to 1	100%	1	6%
012 - 014	56	15	15	12	4 to 1	100%	2	17%
015	42	15	15	14	3 to 1	93%	3	21%
021, 022	52	3	3	3	18 to 1	100%	1	33%
031	25	10	10	10	3 to 1	100%	2	20%
032, 034	66	51	51	46	1 to 1	96%	11	24%
033	30	6	6	4	5 to 1	100%	1	25%
035	27	25	25	25	1 to 1	96%	6	24%
041, 042	66	12	12	11	6 to 1	100%	6	55%
043 - 046	13	7	7	7	2 to 1	100%	2	29%
051	37	30	30	26	1 to 1	96%	5	19%
061, 062, 064, 071, 073	45	20	20	20	3 to 1	95%	5	25%
065, 142, 144	22	20	20	18	1 to 1	94%	1	6%
066	7	5	5	5	1 to 1	100%	2	40%
067, 068	31	30	30	30	1 to 1	90%	7	23%
072, 074, 075	38	35	35	34	1 to 1	97%	6	18%
076, 077, 079, 081, 091	14	10	10	10	1 to 1	90%	5	50%
078, 105 - 107, 121	16	10	10	9	2 to 1	89%	1	11%
101 – 104, 108, 109, 144	17	7	7	7	3 to 1	86%	1	14%
111 – 114	46	30	30	27	2 to 1	100%	12	44%
115, 231, 242	26	10	10	8	3 to 1	100%	7	88%
131, 145, 163, 164	15	3	3	3	5 to 1	67%	2	100%
132 – 134, 245	25	7	7	7	4 to 1	100%	3	43%
141, 143, 151 - 156	43	40	40	40	1 to 1	95%	5	13%
161, 162	17	10	10	9	2 to 1	89%	3	33%
171 - 173	13	3	3	3	5 to 1	67%	1	33%
181 - 184	26	10	10	9	3 to 1	100%	1	11%
203, 291	1	1	1	1	1 to 1	100%		0%
205, 206, 207, 208	20	10	10	10	2 to 1	100%	1	10%
211 - 213	4	3	3	3	1 to 1	100%		0%
221 – 223, 241	17	7	7	6	3 to 1	100%	2	33%
251	13	2	2	2	7 to 1	100%	1	50%
TOTALS	907	467	467	436	2 to 1	96%	106	25%
RESIDENT DOE ANTELOPE ANY LEGAL WEAPON HUNT 2181								
031	319	100	100	98	4 to 1	96%	65	68%
032, 034	126	35	35	35	4 to 1	100%	23	66%
035	81	15	15	15	6 to 1	100%	13	87%
041, 042	466	40	40	40	12 to 1	100%	30	75%
061 - 064, 071, 073	415	180	180	178	3 to 1	98%	136	77%
065, 142, 144	82	50	50	50	2 to 1	100%	37	74%
066	24	10	10	10	3 to 1	90%	7	70%
067, 068	236	110	110	110	3 to 1	97%	84	77%
072, 073, 074	81	50	50	49	2 to 1	94%	36	76%

TABLE 6. 2015 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags Sold	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success
078, 105 - 107, 121	115	95	95	95	1 to 1	98%	74	79%
101 – 104, 108, 109, 144	108	70	70	70	2 to 1	93%	50	74%
111 - 114	151	45	45	44	4 to 1	98%	37	84%
114, 115, Baker Ranch	25	10	10	10	3 to 1	90%	6	60%
131, 145	98	40	40	39	3 to 1	97%	28	72%
141, 143, 152, 154, 155	263	160	160	160	2 to 1	94%	99	64%
151, 153, 156	180	100	100	100	2 to 1	100%	75	75%
TOTALS	2,770	1,110	1,110	1,103	3 to 1	97%	800	74%

NONRESIDENT BUCK ANTELOPE ANY LEGAL WEAPON HUNT 2251

011	131	8	8	8	17 to 1	100%	8	100%
012 – 014	245	15	15	15	17 to 1	100%	8	53%
015	132	8	8	7	17 to 1	100%	6	86%
021, 022	244	5	5	5	49 to 1	100%	4	80%
031	160	15	15	14	11 to 1	100%	10	71%
032, 034	137	16	16	14	9 to 1	100%	9	64%
033 Early	1,194	4	4	4	299 to 1	100%	2	50%
033 Late	118	4	4	4	30 to 1	100%	3	75%
035	30	8	8	7	4 to 1	100%	5	71%
041, 042 Early	163	7	7	7	24 to 1	100%	7	100%
041, 042 Late	45	7	7	7	7 to 1	100%	5	71%
043 - 046	17	4	4	4	5 to 1	100%	3	75%
051	58	6	6	5	10 to 1	100%	4	80%
061 - 064, 071, 073	93	10	10	9	10 to 1	100%	7	78%
065, 142, 144	65	8	8	7	9 to 1	100%	6	86%
066	35	3	3	3	12 to 1	100%	2	67%
067, 068	69	10	10	10	7 to 1	90%	9	100%
072, 074, 075	75	10	10	9	8 to 1	89%	7	78%
076, 077, 079, 081, 091	140	6	6	6	24 to 1	100%	5	83%
078, 105 - 107, 121	30	7	7	6	5 to 1	100%	4	67%
101 – 104, 108, 109, 144	36	3	3	3	12 to 1	100%	3	100%
111 – 114	61	10	10	9	7 to 1	100%	7	78%
115, 231, 242	40	3	3	2	14 to 1	100%	1	50%
131, 145, 163, 164	51	7	7	7	8 to 1	100%	7	100%
132 - 134, 245	29	4	4	3	8 to 1	100%	3	100%
141, 143, 151 - 156	81	25	25	24	4 to 1	96%	20	83%
161, 162	37	4	4	4	10 to 2	100%	4	100%
171 - 173	18	3	3	3	6 to 2	100%	2	67%
181 - 184	27	5	5	4	6 to 1	100%	3	75%
205, 206, 207, 208	18	3	3	3	6 to 1	100%	1	33%
221 – 223, 241	41	2	2	1	21 to 1	100%	1	100%
251	55	4	4	4	14 to 1	100%	4	100%
TOTALS	3,675	234	234	218	16 to 1	99%	170	78%

TABLE 6. 2015 PRONGHORN HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags Sold	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success
NONRESIDENT BUCK ANTELOPE ARCHERY HUNT 2261								
011	9	2	2	2	5 to 1	100%	0	0%
012 – 014	18	2	2	1	9 to 1	100%	1	100%
015	13	2	2	2	7 to 1	100%	0	0%
021, 022	14	1	1	1	14 to 1	100%	0	0%
031	5	1	1	0	5 to 1	--		
032, 034	13	7	7	7	2 to 1	100%	3	43%
033	72	2	2	1	36 to 1	100%	1	100%
035	5	3	3	3	2 to 1	67%	1	33%
041, 042	15	1	1	1	15 to 1	100%	1	100%
051	4	3	3	3	1 to 1	100%	1	33%
061 - 064, 071, 073	5	2	2	2	3 to 1	100%	1	50%
065, 142, 144	2	2	2	1	1 to 1	100%	0	0%
067, 068	3	3	3	3	1 to 1	100%	1	33%
072, 074, 075	8	4	4	3	2 to 1	100%	2	67%
076, 077, 079, 081, 091	10	1	1	0	10 to 1	--		
078, 105-107, 121	1	1	1	1	1 to 1	100%	1	100%
101 – 104, 108, 109, 144	1	1	1	1	1 to 1	100%	0	0%
111 – 114	6	3	3	3	2 to 1	100%	1	33%
115, 231, 242	2	1	1	1	2 to 1	100%		0%
131, 145, 163, 164	5	1	1	0	5 to 1	--		
132 - 134, 245	3	1	1	1	3 to 1	100%	1	100%
141, 143, 151 - 156	7	5	5	5	1 to 1	100%	2	40%
171 - 173	5	1	1	1	5 to 1	100%	1	100%
181 - 184	2	1	1	1	2 to 1	100%	0	0%
205, 206, 207, 208*	1	1	1	1	1 to 1	100%	0	0%
TOTALS	229	52	52	45	5 to 1	98%	18	40%

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; under current tag return process, many tags that are returned are not able to be reallocated and go unused

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.

TABLE 7. 2015 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		1		1	1	3	5	6	11	10	8	5	3	54	30%
012 - 014			1			5	7	9	18	14	19	6	4	83	35%
015	1			1	4	2	5	3	7	13	7	3	2	48	25%
021, 022							1	5	5	12	6	8	1	38	39%
031*			1	5	4	4	4	9	14	19	15	5	2	82	27%
032, 034*				4	9	6	7	17	15	17	8	7	1	91	18%
033			1			1	2	6	5	8	14	6	1	44	48%
035*			1	4	3	3	6	10	10	10	7	2	1	57	18%
041, 042	1			2		6	5	10	14	22	25	11	3	99	39%
043 - 046*					1	3	2	5	5	12	2	2		32	13%
051*					1	2	3	4	9	14	9	3	2	47	30%
061,062,064,071,073				2	1	3	2	8	13	30	30	7	1	97	39%
065, 142, 144					1	1		9	10	18	15	7	2	63	38%
066						2		2	5	4	7	4		24	46%
067, 068*				1	2	3	4	15	10	25	11	14	5	90	33%
072, 074, 075			1	2	3	6	2	11	11	21	22	6	3	88	35%
076,077,079,081,091					1	1		3	7	9	17	10	4	52	60%
078, 105 - 107, 121			1	3	1	4	5	6	8	20	9	1	1	59	19%
101–104,108,109,144		2				1	1	2	3	8	12	2		31	45%
111 – 114		2	1	1	1	5	13	20	19	20	8	1		91	10%
115, 231, 242*					1	1	1	7	10	6	7	1		34	24%
131, 145, 163, 164*					2	3	4	7	12	13	11	4	2	58	29%
132 – 134, 245				1			2	3	8	7	10	3	1	35	40%
141, 143, 151 - 156*		1	2	2	5	11	7	20	33	47	15	11		154	17%
161, 162*						1		3	7	11	9	6		37	41%
171 - 173*				1		1	3	2	6	9	4	2		28	21%
181 - 184*			2	2	2	1	2	4	13	7	7	2		42	21%
202, 204					1				1		1			3	33%
203, 291*					1									1	0%
205, 206, 207, 208				1	2			1	3	5	3	1		16	25%
211 - 213									1		1	1		3	67%
221 – 223, 241						1	1	4	1	3	4	1		15	33%
251				1		1		3	2	7	6	4		24	42%
TOTALS	2	6	11	34	47	81	94	214	296	421	329	146	39	1720	30%

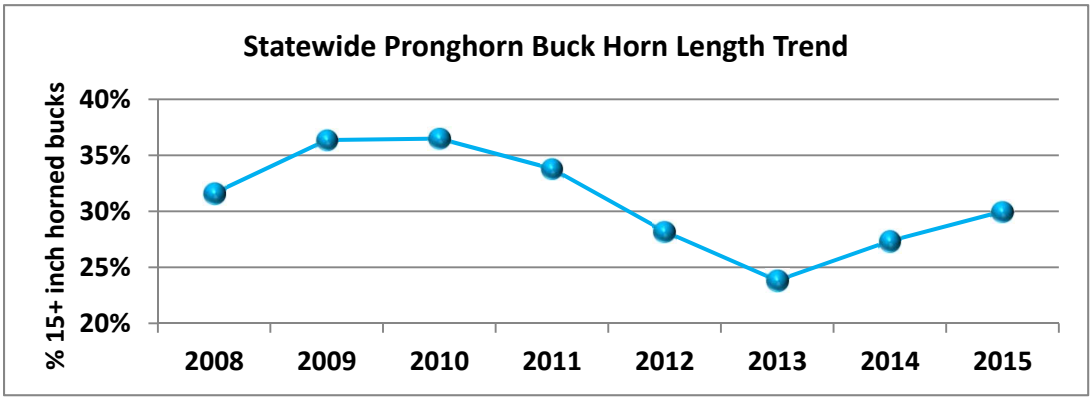
Horn length measured by hunter of the longest horn to the nearest inch for bucks harvested from Horns Longer than Ear Hunts. Statewide 96% response rate on measuring the horn.

*> 5% of successful hunters for that unit didn't provide horn measurement

hunt returns thru 3/9/16

TABLE 8. PRONGHORN HORN TRENDS - % OF BUCKS 15+ INCHES BY UNIT GROUP

Unit Group	2008	2009	2010	2011	2012	2013	2014	2015
011	30%	41%	46%	39%	32%	22%	28%	30%
012 - 014	34%	44%	27%	38%	32%	15%	31%	35%
015	35%	31%	49%	37%	31%	10%	21%	25%
021, 022	38%	68%	55%	53%	41%	32%	55%	39%
031	29%	32%	32%	20%	27%	20%	18%	27%
032, 034	30%	36%	39%	37%	29%	27%	19%	18%
033	60%	66%	62%	55%	36%	19%	44%	48%
035	45%	35%	38%	27%	14%	16%	6%	18%
041, 042	41%	53%	44%	34%	40%	31%	26%	39%
043 - 046				50%	40%	10%	24%	13%
051	17%	23%	36%	40%	20%	24%	21%	30%
061, 062, 064, 071, 073	16%	26%	30%	30%	26%	23%	31%	39%
065, 142, 144	48%	30%	52%	54%	33%	42%	39%	38%
066	44%	50%	47%	67%	29%	48%	36%	46%
067, 068	34%	24%	32%	30%	27%	24%	31%	33%
072, 074, 075	38%	33%	33%	33%	21%	28%	35%	35%
076, 077, 079, 081, 091	48%	62%	51%	40%	43%	50%	54%	60%
078, 105 - 107, 121	20%	26%	22%	35%	26%	8%	27%	19%
101 – 104, 108, 109, 144	26%	37%	27%	27%	21%	25%	34%	45%
111 – 114	14%	13%	14%	15%	13%	14%	8%	10%
115, 231, 242	18%	31%	48%	11%	40%	20%	22%	24%
131, 145, 163, 164	30%	29%	31%	35%	20%	27%	38%	29%
132 – 134, 245	33%	43%	53%	41%	32%	38%	37%	40%
141, 143, 151 - 156	46%	29%	32%	29%	31%	28%	24%	17%
161, 162	47%	60%	38%	23%	32%	35%	20%	41%
171 - 173	18%	44%	35%	36%	12%	27%	14%	21%
181 - 184	26%	54%	30%	29%	13%	19%	21%	21%
202, 204	0%	17%	0%	0%	0%	0%	0%	33%
203, 291	67%	25%	20%	0%	0%		25%	0%
205, 206, 207, 208	17%	0%	18%	7%	17%	13%	20%	25%
211, 212					50%	0%	100%	67%
221 – 223, 241	32%	26%	28%	24%	12%	14%	31%	33%
251	46%	64%	50%	76%	53%	46%	60%	42%
Statewide	**32%**	**36%**	**37%**	**34%**	**28%**	**24%**	**27%**	**30%**



updated 2/29/16

TABLE 9. 2015 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	Cows Calves	1	2	3	4	5	6	7+	Bull Total	% 6+ pts	ELK
051										1		1	100%	1
061	112	9	4		7			1	12	20	1			
071	147	8	8	288	22			2	11	21	7	104	47%	392
062	73	6	5		5	1			6	17	3			
064	10	1									1			
066	32	2	2		4				3	12	2			
067	31	2	2		3				4	21	3			
068	30	2		198	1			1	1	5	1	94	69%	292
065	5			5								0		5
072	237	12	13		2	2	1	3	26	111	22			
073	45	4	4		1			1	2	16	1			
074	64	4	7	390		1	1	1	4	14	2	211	79%	601
075	87	8	3	98				1	9	33	4	47	79%	145
076	74	4	3		5	2			6	26	4			
077	79	7	5		8			3	4	30	3			
079	18	3	2		1				3	8				
081	115	4	8	322	7		1	1	5	62	10	189	76%	511
078	6								1	5				
105	19				1				3	11	1			
106										1				
107	1													
109	10		2	38	1					5		29	79%	67
091				0						3	1	4	100%	4
101	13	1						1	1	5				
102	7				1		1		3	2	1			
103	6			27	2			1	3	6		27	52%	54
104									1	1	1			
108	3	1				1			3	2	1			
121	42	4	6	56		1	1	2	10	21	2	47	60%	103
108	2								1	1				
131	33					1	1	1	7	16	5			
132	3			38						8	1	42	74%	80
111	103	2	3		2	1		6	13	69	19			
112	5								1	2	2			
113	27	2	2		1			2		8	1			
114	43		2					1	1	10	1			
115	13			202					3	6	4	153	80%	355
144	1						1		1	2				
145	6			7					1	4		9	44%	16
161	35		1		1			1	5	8	1			
162	78	3	1		3		2	1	10	22	1			
163	4								1	3				
164	1								1					
173				123					1			61	57%	184
221	40	5	3						8	29	7			
222	100	3	3		5			4	11	44	10			
223	4			158		1					1	120	76%	278

TABLE 9. 2015 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	Cows Calves	1	2	3	4	5	6	7+	Bull Total	% 6+ pts	ELK
231	152	15	9				1	3	16	55	15			
241										2				
242	2			178						1	1	94	79%	272
262					1			1	2	1		5	20%	5
TOTAL	**1,918**	**112**	**98**	**2,128**	**84**	**11**	**10**	**38**	**204**	**750**	**140**	**1,237**	**72%**	**3,365**

HERITAGE, SILVER STATE, DREAM, AND PIW TAGHOLDER HARVEST BY UNIT

HUNT	UNIT	#
PIW	076	1
PIW	222	1

HUNT	UNIT	#
Heritage	115	1

HUNT	UNIT	#
Silver State	121	1
Dream	231	1

TABLE 10. 2015 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%6+pts
PIW RESIDENT ANTLERED ELK ANY LEGAL WEAPON HUNT 4000								
STATEWIDE	2,152	2	2	1076 to 1	100%	2	100%	50%
HERITAGE ELK ANY LEGAL WEAPON HUNT 4100 and 4200								
STATEWIDE		2	2		50%	1	100%	?
SILVER STATE ELK ANY LEGAL WEAPON HUNT 4300								
STATEWIDE	4,328	1	1	4328 to 1	100%	1	100%	100%
DREAM ELK ANY LEGAL WEAPON HUNT 4500								
STATEWIDE		1	1		100%	1	100%	100%
ELK INCENTIVE ANY LEGAL WEAPON HUNT 4131 AND 4231								
061, 071			3		100%	1	33%	100%
062, 064, 066 - 068			1		100%	1	100%	100%
072, 073, 074			2		100%	2	100%	100%
075			6		100%	4	67%	50%
076, 077, 079, 081			29		100%	27	93%	89%
104, 108, 121			2		100%	2	100%	100%
111-115			6		100%	3	50%	67%
221 - 223			9		100%	8	89%	100%
231			6		83%	5	100%	60%
241, 242			2		100%	2	100%	100%
TOTALS			66		98%	55	85%	85%
ELK INCENTIVE MUZZLELOADER HUNT 4133 AND 4233								
061, 071			2		100%	2	100%	100%
072, 073, 074			9		100%	9	100%	100%
075			11		91%	6	55%	83%
TOTALS			22		95%	17	68%	94%
ELK INCENTIVE ARCHERY HUNT 4132 AND 4232								
061, 071			1		100%	0	0%	--
072, 073, 074			3		67%	0	0%	--
075			1		100%	0	0%	--
076, 077, 079, 081			12		100%	8	67%	100%
111 - 115			7		100%	3	43%	67%
221 - 223			4		100%	2	50%	100%
231			4		100%	2	50%	100%
TOTALS			31		97%	15	48%	93%

TABLE 10. 2015 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%6+pts
RESIDENT ANTLERED ELK ANY LEGAL WEAPON DEPREDATION HUNT 4102								
101 - 103 Early	635	50	46	13 to 1	96%	18	39%	61%
101 - 103 Late	232	50	48	5 to 1	85%	9	21%	33%
144, 145 Early	366	10	8	37 to 1	100%	2	25%	50%
144, 145 Mid	38	10	10	4 to 1	100%	3	30%	67%
144, 145 Late	112	15	15	8 to 1	93%	4	27%	75%
TOTALS	1,383	135	127	11 to 1	92%	36	29%	56%
RESIDENT ANTLERED ELK ANY LEGAL WEAPON HUNT 4151								
051	317	2	2	159 to 1	100%	1	50%	100%
061, 071 Early	451	65	56	7 to 1	98%	27	48%	63%
061, 071 Late	211	65	63	4 to 1	94%	17	29%	35%
062, 064, 066 - 068 Early	462	50	49	10 to 1	100%	30	61%	67%
062, 064, 066 - 068 Late	272	50	49	6 to 1	92%	27	57%	81%
065	106	2	1	53 to 1	100%	0	0%	--
072, 073, 074 Early	688	170	155	5 to 1	95%	77	51%	73%
072, 073, 074 Late	382	160	151	3 to 1	93%	59	40%	73%
075 Early	88	25	22	4 to 1	95%	14	64%	71%
075 Late	51	25	23	3 to 1	87%	10	48%	90%
076, 077, 079, 081 Early	814	85	83	10 to 1	99%	58	70%	81%
076, 077, 079, 081 Late	340	80	76	5 to 1	97%	53	71%	79%
078, 105 - 107, 109 Early	117	10	10	12 to 1	90%	6	60%	100%
078, 105 - 107, 109 Late	63	10	9	7 to 1	100%	9	100%	78%
091	187	5	4	38 to 1	100%	4	100%	100%
104, 108, 121	248	45	45	6 to 1	98%	33	73%	53%
108, 131, 132	295	50	49	6 to 1	96%	28	59%	75%
111 - 115 Early	1,337	100	91	14 to 1	98%	58	65%	76%
111 - 115 Late	424	85	80	5 to 1	95%	45	58%	78%
161 - 164, 171 - 173 Early	889	10	9	89 to 1	100%	9	100%	67%
161 - 164, 171 - 173 Late	220	50	45	5 to 1	98%	24	53%	46%
221 - 223 Early	1,016	75	71	14 to 1	97%	45	65%	78%
221 - 223 Late	402	70	65	6 to 1	98%	35	54%	66%
231 Early	788	55	53	15 to 1	98%	31	58%	74%
231 Late	313	55	52	6 to 1	96%	28	56%	67%
241, 242	59	5	4	12 to 1	100%	2	50%	100%
262	211	4	4	53 to 1	100%	4	100%	25%
TOTALS	10,751	1,408	1,321	8 to 1	96%	733	56%	72%
RESIDENT ANTLERED ELK MUZZLELOADER HUNT 4156								
061, 071	132	30	29	5 to 1	100%	17	59%	88%
062, 064, 066-068	97	15	15	7 to 1	100%	8	53%	88%

TABLE 10. 2015 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%6+pts
072, 073, 074	258	60	56	5 to 1	95%	29	54%	89%
075	40	10	10	4 to 1	100%	5	50%	80%
076, 077, 079, 081	60	10	7	6 to 1	100%	2	29%	100%
078, 105 - 107, 109	29	7	7	5 to 1	100%	5	71%	80%
104, 108, 121	17	5	5	4 to 1	80%	3	60%	33%
108, 131, 132	19	10	9	2 to 1	56%	3	44%	67%
111 – 115	101	25	23	5 to 1	96%	12	52%	83%
161 - 164, 171 - 173	55	35	32	2 to 1	97%	15	47%	67%
221 - 223	100	20	15	5 to 1	100%	6	40%	67%
231	66	10	9	7 to 1	89%	3	33%	100%
241, 242	2	2	1	1 to 1	100%	1	100%	?
262	19	1	1	19 to 1	100%	1	100%	0%
TOTALS	995	240	219	5 to 1	95%	110	51%	81%

RESIDENT ANTLERED ELK ARCHERY HUNT 4161

061, 071	79	35	33	3 to 1	91%	2	6%	50%
062, 064, 066 - 068	50	15	15	4 to 1	100%	2	13%	100%
072, 073, 074	128	45	40	3 to 1	100%	8	20%	75%
075	23	10	10	3 to 1	100%	4	40%	75%
076, 077, 079, 081	95	30	29	4 to 1	93%	5	17%	100%
078, 104, 105 - 107, 109	51	10	10	6 to 1	100%	6	60%	83%
104, 108, 121	43	8	8	6 to 1	88%	2	25%	100%
108, 131, 132	49	10	9	5 to 1	100%	6	67%	83%
111 – 115	231	30	27	8 to 1	96%	9	33%	100%
161 - 164, 171 - 173	84	25	20	4 to 1	100%	6	30%	67%
221 - 223	191	25	23	8 to 1	96%	11	48%	73%
231	140	20	19	7 to 1	100%	6	32%	83%
241, 242	4	2	2	2 to 1	100%	0	0%	--
262	19	1	1	19 to 1	100%	0	0%	--
TOTALS	1,187	266	246	5 to 1	97%	67	27%	82%

RESIDENT SPIKE ELK ANY LEGAL WEAPON HUNT 4651

061, 071 Early	100	40	39	3 to 1	90%	11	31%
061, 071 Mid	47	40	40	1 to 1	98%	12	30%
061, 071 Late	57	35	35	2 to 1	89%	4	11%
062, 064, 066 - 068 Early	59	30	30	2 to 1	100%	7	23%
062, 064, 066 - 068 Mid	33	30	28	1 to 1	100%	1	4%
062, 064, 068 Late	53	30	30	2 to 1	80%	5	20%
076, 077, 079, 081 Early	65	20	20	4 to 1	100%	8	40%
076, 077, 079, 081 Mid	24	20	20	1 to 1	100%	4	20%
076, 077, 079, 081 Late	42	20	19	3 to 1	84%	7	42%

TABLE 10. 2015 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%6+pts
078, 105-107, 109	19	6	6	4 to 1	100%	2	33%	
TOTALS	499	271	267	2 to 1	93%	61	24%	

RESIDENT ANTLERLESS ELK ANY LEGAL WEAPON DEPREDATION HUNT 4107

081 1st	95	55	55	2 to 1	95%	15	27%	
081 2nd	75	55	54	1 to 1	98%	25	46%	
081 3rd	53	45	45	1 to 1	100%	21	47%	
081 4th	49	45	45	1 to 1	96%	17	38%	
101 - 103	90	75	75	1 to 1	85%	8	12%	
113	26	25	24	1 to 1	100%	5	21%	
121 1st	66	50	50	1 to 1	98%	21	42%	
121 2nd	28	25	24	1 to 1	100%	3	13%	
121 3rd	42	40	40	1 to 1	83%	2	5%	
144, 145 1st	14	10	10	1 to 1	90%	1	10%	
144, 145 2nd	10	10	10	1 to 1	80%	2	20%	
144, 145 3rd	10	10	9	1 to 1	100%	4	44%	
144, 145 4th*	15	20	20	1 to 1	95%	0	0%	
TOTALS	573	465	461	2 to 1	94%	124	27%	

*1st Draw Tag Sales were only 15

RESIDENT ANTLERLESS ELK ANY LEGAL WEAPON HUNT 4181

051	80	2	2	40 to 1	100%	0	0%	
061, 071 Early	722	440	431	2 to 1	96%	163	39%	
061, 071 Mid	213	170	167	1 to 1	98%	43	26%	
061, 071 Late	242	190	188	1 to 1	80%	20	12%	
062, 064, 066 - 068 Early	523	305	299	2 to 1	96%	78	27%	
062, 064, 066 - 068 Mid	101	70	68	1 to 1	96%	18	26%	
062, 064, 066 - 068 Late	301	150	150	3 to 1	67%	25	21%	
065	52	10	10	6 to 1	100%	5	50%	
072 Early	321	275	270	1 to 1	98%	76	29%	
072 Mid	227	225	214	1 to 1	93%	35	17%	
072 Wilderness*	58	200	197	0 to 1	93%	56	29%	
073 Early	35	25	24	1 to 1	96%	3	13%	
073 Mid	44	40	40	1 to 1	95%	9	23%	
074 Early	44	40	39	1 to 1	95%	14	36%	
074 Mid	35	35	34	1 to 1	97%	9	26%	
075 Early	63	50	49	1 to 1	98%	22	45%	
075 Mid	55	55	54	1 to 1	93%	11	20%	
072 - 075 Late	563	425	425	1 to 1	81%	117	31%	
076, 077, 079, 081 Early	553	150	147	4 to 1	99%	46	31%	
076, 077, 079, 081 Mid	197	160	158	1 to 1	96%	46	30%	

TABLE 10. 2015 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%6+pts
076, 077, 079, 081 Late	236	130	128	2 to 1	89%	74	62%	
078, 105 - 107, 109	138	50	49	3 to 1	98%	29	59%	
104, 108, 121	261	50	50	6 to 1	100%	23	46%	
108, 131, 132 Early	174	30	30	6 to 1	97%	16	53%	
108, 131, 132 Late	87	25	25	4 to 1	88%	4	16%	
111, 112 Early	901	130	127	7 to 1	96%	43	35%	
111, 112 Late	328	65	65	6 to 1	95%	31	49%	
113 Early	66	25	21	3 to 1	95%	8	38%	
113 Late	53	35	36	2 to 1	89%	15	44%	
114, 115 Early	160	80	79	2 to 1	97%	20	25%	
114, 115 Late	83	55	54	2 to 1	87%	21	43%	
161 - 164 Early	335	100	100	4 to 1	96%	30	31%	
162 Wilderness	58	40	39	3 to 1	95%	17	46%	
161 - 164 Late	272	120	120	1 to 1	91%	36	32%	
221 Early	244	40	39	7 to 1	87%	15	41%	
221 Late	71	25	25	3 to 1	88%	5	20%	
222, 223 Early	540	110	108	5 to 1	96%	30	29%	
222 Early Wilderness	33	25	24	1 to 1	100%	12	50%	
222, 223 Late	313	90	90	4 to 1	87%	27	32%	
222 Late Wilderness	34	25	25	1 to 1	88%	10	44%	
231 Early	534	65	65	9 to 1	94%	33	52%	
231 Mid	154	85	85	2 to 1	98%	35	41%	
231 Late	206	130	127	2 to 1	85%	20	17%	
231 Wilderness	35	30	30	1 to 1	100%	13	43%	
241, 242 Early	22	8	8	3 to 1	100%	1	13%	
241, 242 Late	30	8	8	4 to 1	63%	0	0%	
TOTALS	9,717	4,591	4,521	3 to 1	92%	1,364	31%	

*1st Draw Tag Sales were only 58

RESIDENT ANTLERLESS ELK MANAGEMENT ANY LEGAL WEAPON HUNT 4481

Mule Deer Season

061 - 064, 066 - 068 Early	1,183	575	543	3 to 1	94%	51	10%	
061 - 064, 066 - 068 Late	683	25	24	28 to 1	96%	2	8%	
071 - 077, 079, Early	710	400	211	2 to 1	94%	59	29%	
071 - 077, 079, Late	664	100	52	7 to 1	90%	14	29%	
101 - 103 Early	370	400	315	1 to 1	90%	8	3%	
101 - 103 Mid	218	400	200	1 to 1	95%	5	3%	
101 - 103 Late	136	150	44	1 to 1	95%	2	5%	
131 - 132	440	40	39	11 to 1	100%	7	18%	
161-164 Early	340	120	117	3 to 1	98%	24	21%	
161-164 Late	222	15	14	15 to 1	100%	1	7%	

TABLE 10. 2015 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%6+pts
221 - 223 Early	587	100	95	6 to 1	98%	23	24%	
221 - 223 Mid	202	40	39	6 to 1	90%	16	44%	
231	950	75	73	13 to 1	100%	33	45%	
Bull Elk Season								
075 Early	44	25	12	2 to 1	92%	3	25%	
075 Late	33	25	14	1 to 1	86%	2	14%	
108, 131, 132	149	5	5	30 to 1	100%	4	80%	
TOTALS	6,931	2,495	1,797	4 to 1	94%	254	14%	

RESIDENT ANTLERLESS ELK MUZZLELOADER HUNT 4176

062, 064, 066 - 068	64	30	22	3 to 1	95%	4	18%	
072	137	110	110	1 to 1	92%	28	26%	
073	26	25	24	1 to 1	96%	5	21%	
074	9	7	7	1 to 1	100%	3	43%	
075*	38	45	44	1 to 1	100%	7	16%	
076, 077, 079, 081	117	75	71	2 to 1	97%	20	28%	
078, 105 - 107, 109	22	10	10	3 to 1	100%	7	70%	
104, 108, 121	22	6	6	4 to 1	100%	2	33%	
108, 131, 132	42	10	10	5 to 1	90%	3	30%	
111, 112	121	40	39	4 to 1	100%	11	28%	
113	11	5	5	3 to 1	100%	1	20%	
114, 115	33	30	26	1 to 1	92%	10	38%	
161 – 164	57	30	29	2 to 1	97%	4	14%	
221 - 223	104	35	34	3 to 1	94%	8	24%	
231	115	45	45	3 to 1	93%	14	33%	
241, 242	3	3	3	1 to 1	67%	0	0%	
TOTALS	921	506	485	2 to 1	95%	127	27%	

*1st Draw Tag Sales were only 38

RESIDENT ANTLERLESS ELK MANAGEMENT MUZZLELOADER HUNT 4476

Mule Deer Season

061 - 064, 066 - 068	90	40	39	3 to 1	100%	5	13%	
071 - 077, 079	89	50	37	2 to 1	100%	5	14%	
101 - 103	46	225	43	0 to 1	95%	4	9%	
131, 132	95	5	5	19 to 1	100%	1	20%	
161-164	40	30	19	1 to 2	100%	3	16%	
231	53	15	10	4 to 3	80%	3	30%	
TOTALS	413	365	153	3 to 1	97%	21	14%	

TABLE 10. 2015 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%6+pts
RESIDENT ANTLERLESS ELK ARCHERY HUNT 4111								
061, 071	85	50	49	2 to 1	88%	7	16%	
062, 064, 066 - 068	54	45	44	1 to 1	100%	7	16%	
072	63	55	54	1 to 1	100%	11	20%	
073	7	7	7	1 to 1	100%	0	0%	
074	3	3	3	1 to 1	100%	0	0%	
075	11	10	10	1 to 1	100%	1	10%	
076, 077, 079, 081	83	70	64	1 to 1	95%	22	36%	
078, 105 - 107, 109	27	15	15	2 to 1	100%	2	13%	
104, 108, 121	20	7	7	3 to 1	100%	5	71%	
108, 131, 132	32	7	7	5 to 1	100%	2	29%	
111, 112	135	40	40	4 to 1	100%	18	45%	
113	13	10	10	1 to 1	100%	2	20%	
114, 115	52	45	45	1 to 1	96%	7	16%	
161 – 164	62	45	42	1 to 1	95%	7	17%	
221 - 223	138	45	45	4 to 1	100%	12	27%	
231	106	50	50	3 to 1	96%	12	24%	
241, 242	5	3	3	2 to 1	100%	1	33%	
TOTALS	896	507	495	2 to 1	97%	116	24%	
RESIDENT ANTLERLESS ELK MANAGEMENT ARCHERY HUNT 4411								
Mule Deer Season								
061 - 064, 066 - 068	124	25	25	5 to 1	96%	0	0%	
071 - 077, 079, Early	142	225	114	1 to 1	94%	11	10%	
071 - 077, 079, Late	41	25	8	2 to 1	100%	0	0%	
101 – 103 Early	43	50	40	1 to 1	88%	0	0%	
101 – 103 Late	13	20	3	1 to 1	67%	0	0%	
131-134	103	5	5	21 to 1	100%	1	20%	
161-164	114	20	18	6 to 1	94%	1	6%	
231	84	25	22	4 to 1	86%	5	23%	
TOTALS	664	395	235	3 to 1	92%	18	8%	
NONRESIDENT ANTLERED ELK ANY LEGAL WEAPON HUNT 4251								
061, 071 Early	105	7	6	15 to 1	100%	5	83%	100%
061, 071 Late	41	7	7	6 to 1	100%	4	57%	25%
062, 064, 066 - 068 Early	122	6	5	21 to 1	100%	5	100%	100%
062, 064, 066 - 068 Late	56	6	6	10 to 1	100%	6	100%	100%
072, 073, 074 Early	258	15	15	18 to 1	100%	12	80%	83%
072, 073, 074 Late	154	15	13	11 to 1	100%	7	54%	86%
075 Early	28	5	5	6 to 1	100%	4	80%	100%
076, 077, 079, 081 Early	227	10	9	23 to 1	100%	8	89%	100%

TABLE 10. 2015 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%6+pts
076, 077, 079, 081 Late	101	10	8	11 to 1	100%	6	75%	67%
078, 105 - 107, 109 Early	31	1	1	31 to 1	100%	0	0%	--
078, 105 - 107, 109 Late	9	1	1	9 to 1	100%	1	100%	100%
104, 108, 121	40	6	5	7 to 1	100%	5	100%	80%
108, 131, 132	24	6	5	4 to 1	100%	5	100%	60%
111 - 115 Early	985	12	11	83 to 1	91%	8	73%	100%
111 - 115 Late	196	10	9	20 to 1	100%	8	89%	88%
161 - 164, 171 - 173 Early	1,306	1	1	1306 to 1	100%	0	0%	--
161 - 164, 171 - 173 Late	50	6	5	9 to 1	100%	5	100%	60%
221 - 223 Early	318	10	9	32 to 1	100%	6	67%	83%
221 - 223 Late	107	10	10	11 to 1	100%	7	70%	100%
231 Early	295	6	6	50 to 1	100%	4	67%	100%
231 Late	77	6	6	13 to 1	83%	4	67%	100%
TOTALS	4,530	156	143	30 to 1	99%	110	77%	86%

NONRESIDENT ANTLERED ELK MUZZLELOADER HUNT 4256

061, 071	63	4	4	16 to 1	100%	1	25%	100%
062, 064, 066 - 068	66	2	2	33 to 1	100%	2	100%	100%
072, 073, 074	378	8	8	48 to 1	100%	6	75%	100%
076, 077, 079, 081	15	1	1	15 to 1	100%	1	100%	100%
104, 108, 121	5	1	1	5 to 1	100%	1	100%	0%
111 – 115	79	3	3	27 to 1	100%	3	100%	67%
161 - 164, 171 - 173	23	4	2	6 to 1	100%	0	0%	--
221 - 223	24	2	2	12 to 1	100%	0	0%	--
231	34	1	1	34 to 1	100%	0	0%	--
TOTALS	687	26	24	27 to 1	100%	14	58%	86%

NONRESIDENT ANTLERED ELK ARCHEY HUNT 4261

061, 071	20	4	3	5 to 1	100%	1	33%	0%
062, 064, 066 - 068	17	1	1	17 to 1	100%	0	0%	--
072, 073, 074	118	6	6	20 to 1	83%	2	33%	100%
076, 077, 079, 081	49	4	3	13 to 1	100%	1	33%	100%
078, 105-107, 109	30	1	1	30 to 1	100%	0	0%	--
104, 108, 121	14	1	1	14 to 1	100%	0	0%	--
111 – 115	888	4	4	222 to 1	100%	4	100%	75%
161 - 164, 171 - 173	35	3	3	12 to 1	100%	1	33%	100%
221 - 223	261	4	4	66 to 1	100%	3	75%	100%
231	94	2	2	47 to 1	100%	1	50%	100%
TOTALS	1,526	30	28	51 to 1	96%	13	46%	85%

TABLE 10. 2015 ELK HUNT RESULTS BY HUNT AND UNIT GROUP

UNIT GROUP	Apps	Tag Quota	Tags For Hunt	Demand	% Return	# Succ. Hunters	% Hunter Success	%6+pts
NONRESIDENT ANTLERLESS ELK ANY LEGAL WEAPON HUNT 4281								
061, 071 Early	71	45	44	2 to 1	98%	23	52%	
061, 071 Mid	20	20	20	1 to 1	95%	6	30%	
061, 071 Late	25	20	17	1 to 1	82%	1	6%	
062, 064, 066 - 068 Early	42	30	29	1 to 1	100%	16	55%	
062, 064, 066 - 068 Mid	9	8	8	1 to 1	100%	2	25%	
062, 064, 066 - 068 Late	36	15	15	3 to 1	100%	3	20%	
072 Early	32	30	27	1 to 1	96%	9	33%	
072 Mid	25	25	23	1 to 1	96%	8	35%	
072 - 075 Late	82	50	50	2 to 1	80%	19	44%	
111, 112 Early	41	15	14	3 to 1	100%	6	43%	
111, 112 Late	25	7	7	4 to 1	86%	4	57%	
231 Early	9	8	8	1 to 1	100%	2	25%	
231 Mid	11	10	10	1 to 1	100%	3	30%	
231 Late	22	15	15	1 to 1	100%	3	20%	
TOTALS	450	298	287	2 to 1	94%	105	38%	

Apps - # of unsuccessful 1st choice applicants plus successful 1st - 5th choice applicants for given unit group

Tags Sold - tags sold from all drawings and tag allocations (special and landowner type tags) including tags leftover after the main draw to both residents and nonresidents

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)

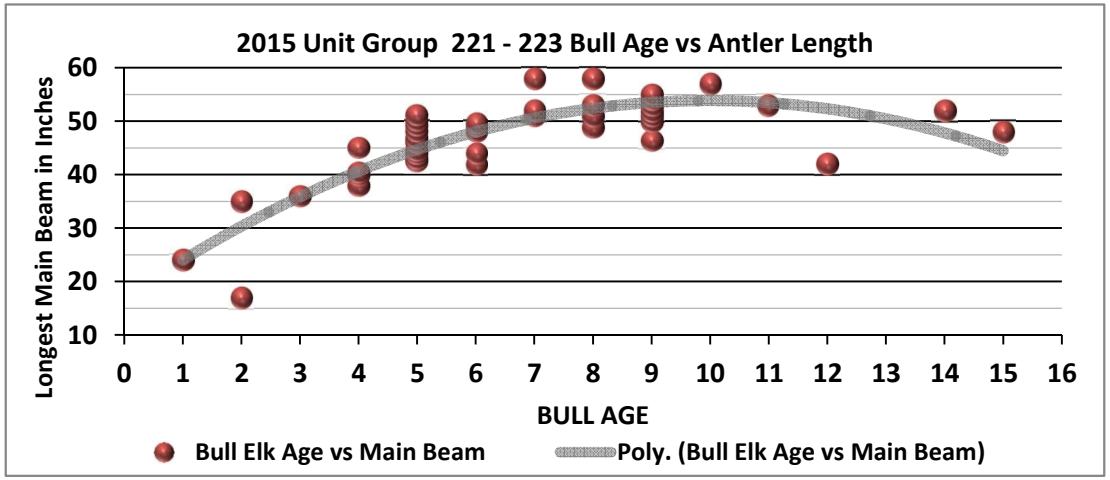
% Return - Percent of hunt questionnaires received compared to total tags available

% 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.

TABLE 11. 2015 BULL ELK TOOTH AGES

Unit Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL	Average Age	% Aged of Total Harvest
051									1								1	**9.0**	100%
061, 071		3	4	8	6	4	4		1								30	**4.3**	29%
062, 064, 066-068		1	6	8	7	7	2	1	2	1							35	**4.4**	37%
072, 073, 074		3	10	14	21	19	8	8	2	1	1						87	**5.2**	41%
075		1	3	3	1	1	1		2								12	**3.3**	26%
076, 077, 079, 081	1	5	14	11	11	4	3	3	2	1							55	**4.3**	29%
078, 105 - 107, 109			2	3	2	3	1	1				1					13	**5.8**	45%
091				1						1							2		50%
104, 108, 121	1		4	4	3	1	1	1	1								16	**4.6**	34%
108, 131, 132	1	2	1	2	1	4	2	1	3			1					18	**6.1**	43%
111 – 115		1	6	5	7	12	3	7	8	3	2	2	1			1	58	**6.7**	38%
161 - 164, 171 - 173	1	1	1	2	6	7	1	3	5				1				28	**5.9**	46%
221 - 223	1	3	1	4	10	6	3	4	9	1	1	1		1	1		46	**6.7**	38%
231		2	5	2	8	3	9	3	5	1	3	2	1		1		45	**6.6**	50%
241, 242									1								1		25%
262			1	1													2		40%
TOTAL	5	22	58	68	83	71	38	32	42	9	7	7	3	1	2	1	449	**5.4**	37%

Table includes approximately 90% of tooth samples submiitted to Matson's Laboratory. Tooth age data from remaining 10% was not available at time of printing.



An example graph using Unit Group 221 -223 showing the relationship of bull elk age and main beam length. Typically there is regression of antler characteristics beyond 10 years of age.

Updated 4/24/2016

TABLE 12. 2015 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**	**5"- 29"**	**30"- 43"**	**44"-49"**	**50"+**	**Length**
051	0	0	0	1	1	0%	0%	0%	100%	54.0
061, 071	33	35	20	16	104	32%	34%	19%	15%	35.7
062, 064, 066 - 068	12	21	35	24	92	13%	23%	38%	26%	42.7
072, 073, 074	9	68	72	53	202	4%	34%	36%	26%	44.2
075	2	20	11	13	46	4%	43%	24%	28%	43.6
076, 077, 079, 081	25	65	59	37	186	13%	35%	32%	20%	41.9
078, 104, 105 107, 109	2	5	10	12	29	7%	17%	34%	41%	46.4
091	0	0	3	1	4	0%	0%	75%	25%	48.0
101, 102, 103	3	18	3	3	27	11%	67%	11%	11%	37.2
104, 108, 121	3	20	11	14	48	6%	42%	23%	29%	43.6
108, 131, 132	3	9	16	12	40	8%	23%	40%	30%	45.1
111-115	6	35	39	73	153	4%	23%	25%	48%	47.3
144, 145	0	6	2	1	9	0%	67%	22%	11%	41.9
161 - 164, 171 - 173	7	14	20	19	60	12%	23%	33%	32%	44.4
221, 222, 223	8	28	32	51	119	7%	24%	27%	43%	46.1
231, 241, 242	4	27	29	33	93	4%	29%	31%	35%	45.0
262	1	2	1	1	5	20%	40%	20%	20%	36.8
TOTAL	**118**	**373**	**363**	**364**	**1,218**	**10%**	**31%**	**30%**	**30%**	**43.5**

*Antler length is from hunter measurement of the longest main beam. Statewide 99% response rate on measuring antler.

TABLE 13. PERCENT OF BULL ELK WITH MAIN BEAM ANTLER 50+ INCHES BY UNIT GROUP TREND 2008 - 2015

Unit Group	2008	2009	2010	2011	2012	2013	2014	2015
061, 071	16%	18%	23%	17%	12%	10%	10%	15%
062, 064, 066 - 068	50%	29%	49%	55%	24%	27%	34%	26%
072, 073, 074	29%	33%	33%	31%	32%	23%	30%	26%
075	11%	12%	18%	11%	37%	13%	12%	28%
076, 077, 079, 081	23%	28%	28%	27%	23%	18%	33%	20%
078, 104, 105 107, 109	60%	40%	63%	58%	40%	42%	42%	41%
091	25%	40%	33%	100%	33%	0%	67%	25%
101, 102, 103	11%	38%	22%	23%	14%	15%	5%	11%
104, 108, 121	27%	43%	29%	48%	34%	38%	42%	29%
108, 131, 132	21%	33%	40%	38%	20%	16%	70%	30%
111-115	28%	28%	28%	39%	40%	46%	48%	48%
144, 145					30%	20%	33%	11%
161 - 164, 171 - 173	31%	26%	18%	40%	40%	40%	44%	32%
221 - 223	24%	25%	27%	28%	32%	34%	47%	43%
231, 241, 242	18%	25%	24%	36%	42%	40%	39%	35%
262	0%	0%	67%	0%	33%	0%	20%	20%
Statewide	**25%**	**27%**	**29%**	**32%**	**29%**	**26%**	**34%**	**30%**

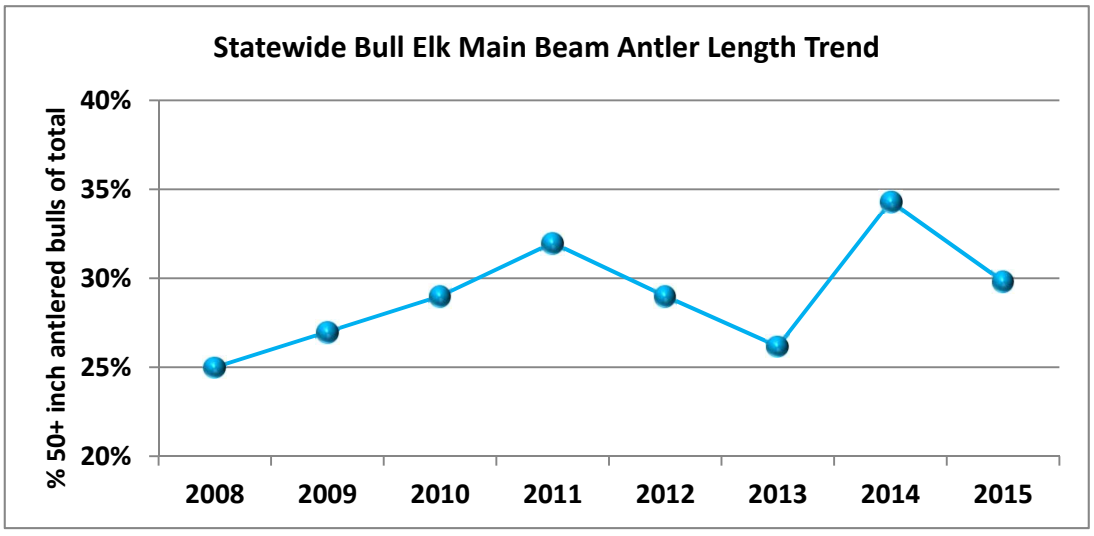


TABLE 14. 2015 BIGHORN SHEEP HUNT RESULTS BY HUNT AND UNIT GROUP

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	2,277	1	1	2,277 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	3,997	1	1	3,997 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	382	11	10	35 to 1	100%	10	100%	6.0	4
045, 153	169	6	6	29 to 1	100%	5	83%	5.4	
131, 164	70	5	5	14 to 1	100%	4	80%	5.8	2
132	33	1	0	33 to 1					
133, 245	36	3	3	12 to 1	100%	2	67%	6.0	
134	62	3	3	21 to 1	100%	3	100%	5.3	
161 Early	172	5	5	35 to 1	100%	5	100%	5.2	
161 Late	84	3	3	28 to 1	100%	3	100%	5.4	
162, 163	112	8	8	14 to 1	100%	7	88%	6.1	4
173	119	5	5	24 to 1	100%	4	80%	7.0	1
181	504	16	16	32 to 1	100%	15	94%	7.1	8
183	320	11	11	30 to 1	100%	11	100%	6.1	5
184	119	4	4	30 to 1	100%	4	100%	3.6	
202, 204	156	6	6	26 to 1	100%	5	83%	6.0	2
205	201	10	10	21 to 1	100%	8	80%	6.0	2
206, 208	33	6	6	6 to 1	100%	5	83%	6.4	1
207	40	7	7	6 to 1	100%	7	100%	6.6	
211	71	9	9	8 to 1	100%	9	100%	6.0	
212 Early	88	9	9	10 to 1	100%	9	100%	6.7	1
212 Late	88	9	9	10 to 1	100%	8	89%	6.5	
213	90	16	16	6 to 1	100%	14	88%	6.3	
223, 241	54	2	2	27 to 1	100%	2	100%	6.5	
241	35	3	3	12 to 1	100%	2	67%	5.5	1
243	20	5	5	4 to 1	100%	5	100%	6.0	1
244	116	5	5	24 to 1	100%	5	100%	8.3	4
252	227	8	7	29 to 1	100%	7	100%	7.3	4
253	1,297	6	6	217 to 1	100%	6	100%	7.6	8
254	15	2	2	8 to 1	100%	2	100%	7.0	1
261	62	5	5	13 to 1	100%	5	100%	7.2	
262	237	6	6	40 to 1	100%	6	100%	7.5	2

TABLE 14. 2015 BIGHORN SHEEP HUNT RESULTS BY HUNT AND UNIT GROUP

Group	Apps	Tag Quota	Tags for Hunt	Demand	% Returns	# Succ. Hunters	% Hunter Success	Avg Age	160+
263	296	7	7	43 to 1	100%	7	100%	6.3	3
264, 265	88	6	6	15 to 1	100%	6	100%	5.5	1
266	86	2	2	43 to 1	100%	2	100%	7.0	1
267	236	7	7	34 to 1	100%	7	100%	7.4	1
268	1,680	25	25	68 to 1	100%	24	96%	6.1	9
271	155	12	12	13 to 1	100%	9	75%	7.9	3
272	27	2	2	14 to 1	100%	2	100%	3.0	1
280	26	3	3	9 to 1	100%	1	33%	6.0	
281	42	5	5	9 to 1	100%	5	100%	7.0	2
282	42	5	5	9 to 1	100%	3	60%	6.0	2
283, 284	61	5	4	13 to 1	100%	2	50%	7.3	1
286	35	2	2	18 to 1	100%	2	100%	5.5	
TOTAL	**7,786**	**276**	**272**	**29 to 1**	**100%**	**248**	**91%**		**75**

NONRESIDENT DESERT BIGHORN RAM HUNT 3251

044, 182	204	2	2	102 to 1	100%	2	100%		
161	294	2	2	147 to 1	100%	2	100%		
173	145	1	1	145 to 1	100%	1	100%		
181	454	2	2	227 to 1	100%	2	100%		
183	250	2	2	125 to 1	100%	2	100%		
184	45	1	1	45 to 1	100%	1	100%		
205	141	2	2	71 to 1	100%	2	100%		
207	134	2	2	67 to 1	100%	2	100%		
211	215	2	2	108 to 1	100%	2	100%		
213	80	4	4	20 to 1	100%	4	100%		
261	134	1	1	134 to 1	100%	1	100%		
262	459	1	1	459 to 1	100%	1	100%		
263	652	1	1	652 to 1	100%	1	100%		
267	593	1	1	593 to 1	100%	1	100%		
268	3,495	4	4	874 to 1	100%	4	100%		
271	431	2	2	216 to 1	100%	2	100%		
283, 284	110	1	1	110 to 1	100%	1	100%		
TOTAL	**7,836**	**31**	**31**	**253 to 1**	**100%**	**31**	**100%**		

RESIDENT DESERT BIGHORN EWE HUNT 3181

212	44	40	40	2 to 1	98%	28	70%		
213	43	40	40	2 to 1	98%	28	70%		
253	28	20	20	2 to 1	100%	15	75%		
268	61	40	40	2 to 1	100%	28	70%		
TOTAL	**176**	**140**	**140**	**2 to 1**	**99%**	**99**	**71%**		

There were 14 tagholders across all units that retained their tags but did not hunt

RESIDENT PARTNERSHIP IN WILDLIFE (PIW) CALIFORNIA BIGHORN RAM HUNT 8000

Statewide	2,239	1	1	2,239 to 1	100%	1	100%		

TABLE 14. 2015 BIGHORN SHEEP HUNT RESULTS BY HUNT AND UNIT GROUP

Group	Apps	Tag Quota	Tags for Hunt	Demand	% Returns	# Succ. Hunters	% Hunter Success	Avg Age	160+
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	609	6	6	102 to 1	100%	3	50%	6.0	
014	194	5	5	39 to 1	100%	5	100%	5.4	
021, 022	322	4	4	81 to 1	100%	3	75%	7.3	2
031	2,376	8	8	297 to 1	100%	8	100%	7.0	6
032	767	9	9	86 to 1	100%	9	100%	6.9	3
033	131	2	2	66 to 1	100%	1	50%	10.0	
034	595	8	8	75 to 1	100%	7	88%	7.2	
035	121	3	3	41 to 1	100%	2	67%	6.0	1
041	410	1	1	410 to 1	100%	1	100%	11.0	1
051	216	3	3	72 to 1	100%	3	100%	6.0	1
066	96	1	1	96 to 1	100%	1	100%	6.0	1
068	405	4	4	102 to 1	100%	4	100%	6.8	
TOTAL	**6,242**	**54**	**54**	**116 to 1**	**100%**	**47**	**87%**		**15**
NONRESIDENT CALIFORNIA BIGHORN RAM HUNT 8251									
012	910	1	1	910 to 1	100%	1	100%		
031	4,321	1	1	4,321 to 1	100%	1	100%		
032	947	2	2	474 to 1	100%	2	100%		
034	507	2	2	254 to 1	100%	2	100%		
TOTAL	**6,685**	**6**	**6**	**1,115 to 1**	**100%**	**6**	**100%**		
RESIDENT CALIFORNIA BIGHORN EWE HUNT 8181									
Statewide	81	10	10	9 to 1	90%	6	60%		

RESIDENT ROCKY MOUNTAIN BIGHORN RAM HUNT 9151								Avg Age	170+
091	1,813	1	1	1,813 to 1	100%	1	100%	7.0	
114	1,369	2	2	685 to 1	100%	0	0%		
115	702	1	1	702 to 1	100%	0	0%		
TOTAL	**3,884**	**4**	**4**	**971 to 1**	**100%**	**1**	**25%**		**0**

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)

Avg Age - Average age of rams from all tagholders for given unit group 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 15. 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						
1996	122	81%	7.4	5.4	144 6/8	177 3/8
1997	109	74%	7.9	6.1	145 5/8	170 6/8
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
Total/Avg	**3,951**	**86%**	**5.9**	**6.3**	**151 4/8**	**189 6/8**

* Includes Rocky Mtn or possibly hybrid Desert/Rocky Rams harvested in Unit 131

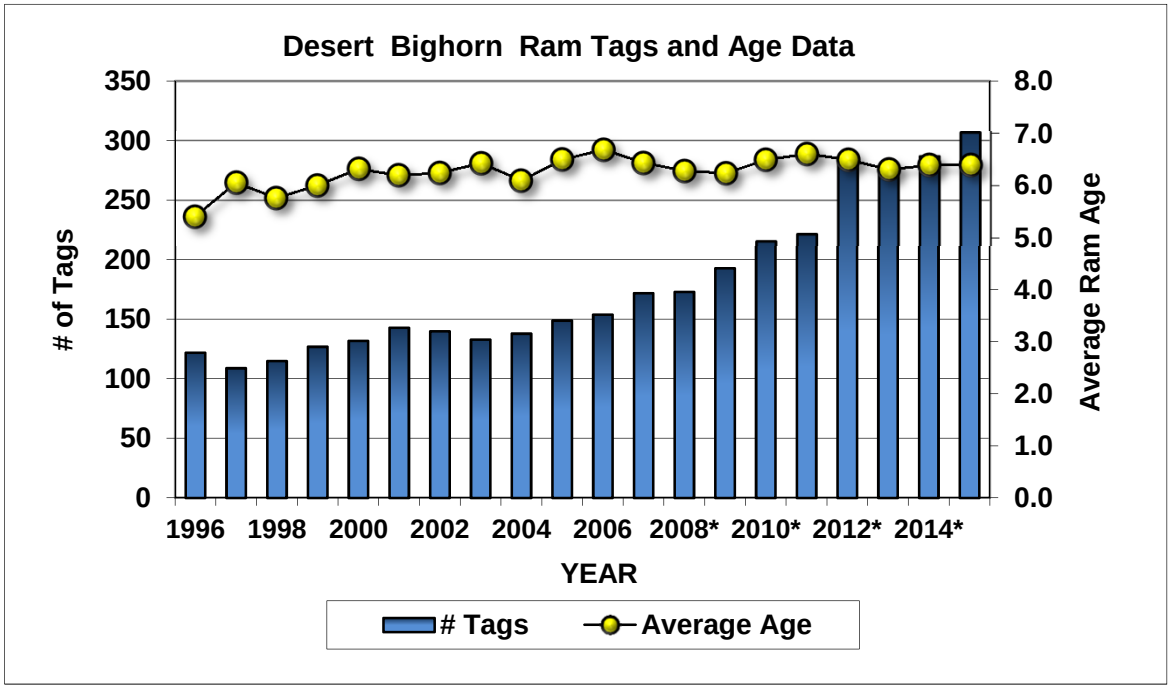


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TABLE 15. BIGHORN SHEEP RAM HARVEST HISTORY

Year/ Unit Group	# Tags Issued	Percent Success	Average Days Hunted	Average Age	Average B&C Score	Maximum B&C Score
DESERT BIGHORN 2005 - 2015						
044, 182	87	91%	5.2	5.5	147 4/8	172 7/8
045, 153	21	90%	7.8	5.9	148 5/8	165 6/8
131*, 164	39	92%	5.1	5.9	148 1/8	189 6/8
132	11	91%	7.8	6.1	150 1/8	165 7/8
133, 245	31	68%	7.1	6.0	150 2/8	165 7/8
134	57	84%	5.0	5.5	147 6/8	161 2/8
161	122	89%	5.6	6.4	153 7/8	172 7/8
162, 163	49	90%	3.9	5.7	150 7/8	167
173	52	88%	4.8	6.5	150 3/8	175 3/8
181	97	93%	4.8	6.9	157 4/8	175
183	93	100%	3.7	6.0	154 1/8	168 3/8
184	61	80%	5.9	5.6	146 5/8	164 3/8
202	28	93%	2.8	5.6	148 7/8	165
204	12	92%	5.3	5.4	143 2/8	163 4/8
205	80	88%	6.0	6.2	151 1/8	173
206, 208	31	81%	5.5	6.5	148 7/8	164 6/8
207	76	95%	4.9	5.8	146 7/8	164 7/8
211	67	91%	5.2	6.7	146 7/8	166
212	80	94%	4.1	7.2	150 1/8	167 5/8
213	95	92%	3.5	6.1	140 1/8	158 4/8
223, 241	27	74%	8.4	5.6	149 3/8	170
241	10	40%	11.6	6.5	160 6/8	176 5/8
243	30	53%	8.6	6.8	151 4/8	182 3/8
244	42	88%	7.0	7.4	155 5/8	175 6/8
252	67	96%	5.5	6.9	161 5/8	179 2/8
253	76	99%	3.9	7.5	167 1/8	181 7/8
254	30	90%	7.3	7.3	149	162 5/8
261	61	85%	5.4	7.2	151 3/8	168 3/8
262	63	87%	5.6	7.3	160	177
263	110	97%	5.9	6.6	160 6/8	181 1/8
264, 265	42	93%	5.1	6.2	151 7/8	169 3/8
266	41	93%	4.7	5.9	150 7/8	174 2/8
267	73	97%	3.7	6.7	156 1/8	181 6/8
268	237	95%	4.4	6.6	154 7/8	183 3/8
271	89	91%	5.5	6.4	152 7/8	175 4/8
272	26	58%	8.7	5.3	149 2/8	176 2/8
280	35	49%	6.4	7.7	154	167 6/8
281	46	80%	5.5	7.2	153	169 7/8
282	36	83%	6.6	6.3	153 2/8	174 1/8
283, 284	62	74%	8.3	6.3	154	169 6/8
286	29	90%	6.3	5.8	153 6/8	171 6/8

* Includes Rocky Mtn or possible hybrid Desert/Rocky Rams

TABLE 15. 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
ROCKY MOUNTAIN BIGHORN						
1996	2	50%	10.0	10.0	165 6/8	165 6/8
1997	3	67%	7.3	8.5	164 6/8	169 1/8
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
Total	117	88%	5.5	7.2	166	195 4/8

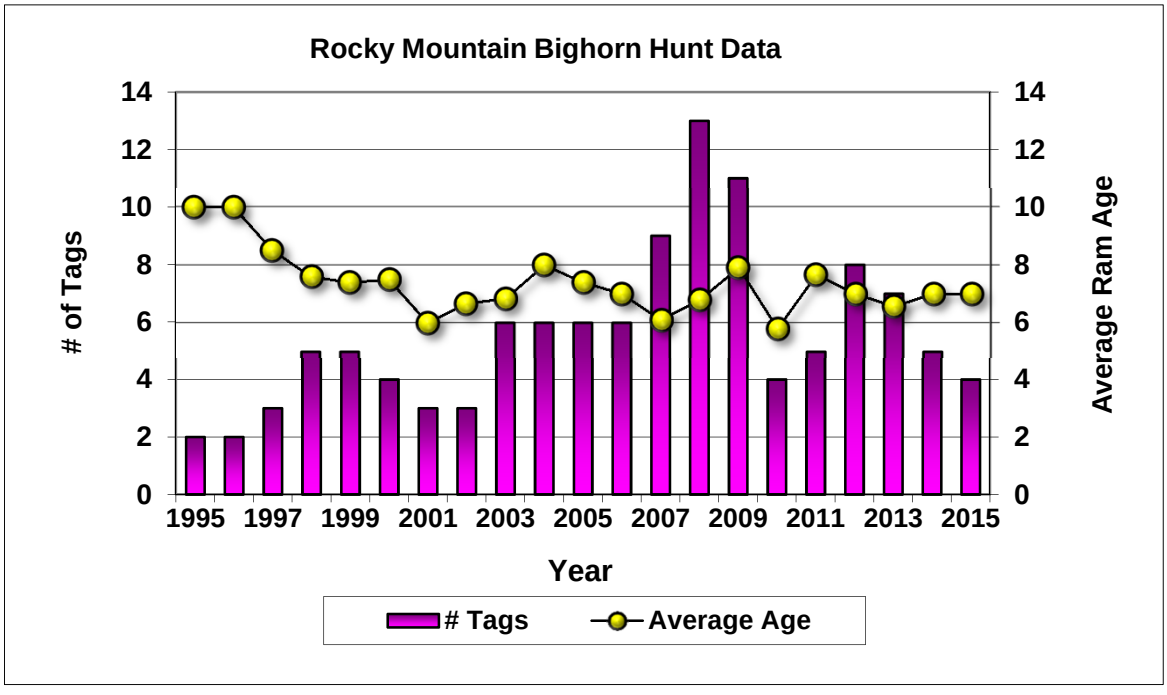

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TABLE 15. BIGHORN SHEEP RAM HARVEST HISTORY

Year/ Unit Group	# Tags Issued	Percent Success	Average Days Hunted	Average Age	Average B&C Score	Maximum B&C Score
ROCKY MOUNTAIN BIGHORN 2005 - 2015						
074	19	95%	5.0	6.6	157 5/8	176 7/8
091	4	100%	6.5	7.8	155 6/8	169 3/8
114	17	65%	10.4	6.2	149 1/8	170
115	5	80%	10.6	8.8	160 4/8	172 5/8
CALIFORNIA BIGHORN						
1996	33	88%	6.1	7.6	151 4/8	170 2/8
1997	36	86%	6.6	6.9	147 4/8	175 2/8
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	169 4/8
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
Total/Avg	1,000	89%	6.2	7.0	150 6/8	184 7/8

TABLE 15. 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 2005 - 2015						
012	95	89%	7.0	7.3	153 6/8	169 7/8
014	26	96%	5.8	6.4	146	166 2/8
021, 022	19	100%	6.2	6.3	149 4/8	160 2/8
031	73	99%	4.0	7.3	157 2/8	173 4/8
032	86	95%	5.1	7.5	155 4/8	175 1/8
033	50	92%	8.2	7.1	149 4/8	164 4/8
034	81	95%	5.5	7.6	156 1/8	172 4/8
035	29	83%	7.9	7.0	146 5/8	168 7/8
041	3	100%	10.7	5.7	135 3/8	158 1/8
051	26	88%	10.0	6.5	150 2/8	171 3/8
066	24	83%	8.3	6.8	150 2/8	167 7/8
068	30	97%	7.6	5.1	142 3/8	157 7/8

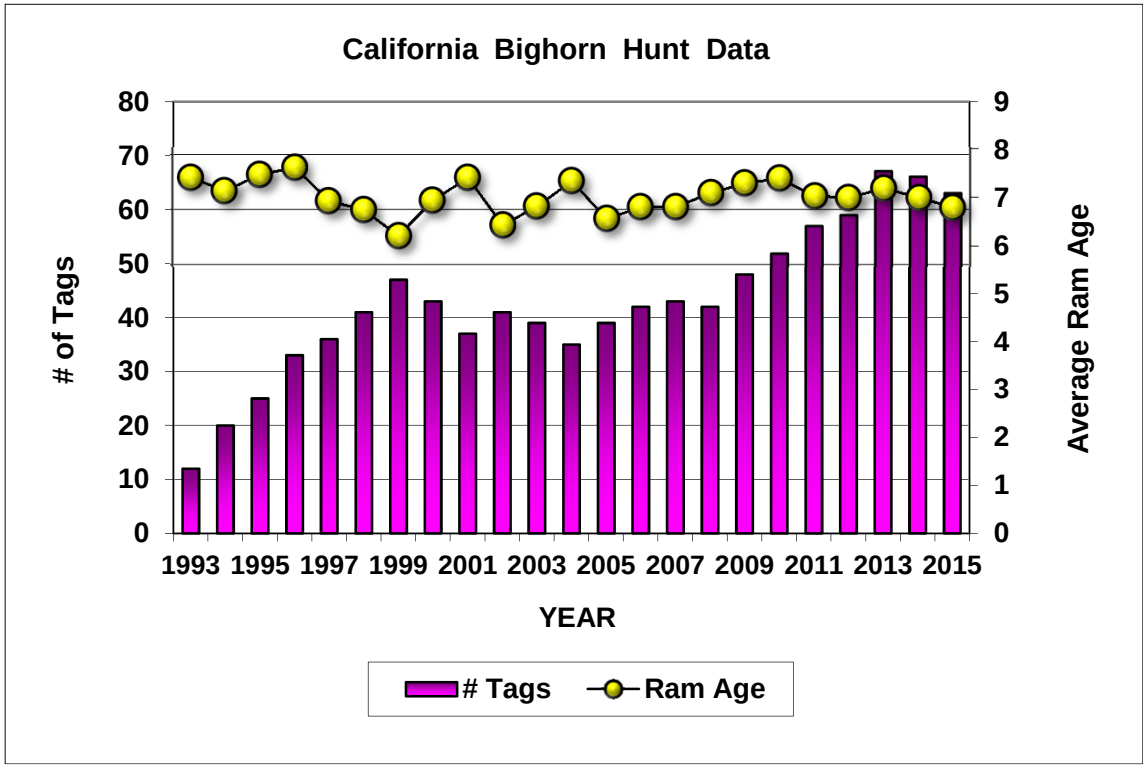

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TABLE 16. 2015 MOUNTAIN GOAT HUNT RESULTS BY UNIT GROUP

UNIT GROUP	Apps	Tags	Demand	% Returns	# Succ. Hunters	% Hunter Success	% Male Harvest
RESIDENT MOUNTAIN GOAT HUNT 7151							
101	1,673	6	279 to 1	100%	6	100%	83%
102*	1,946	5	390 to 1	100%	5	100%	100%
103	536	1	536 to 1	100%	1	100%	100%
TOTAL	**4,155**	**12**	**347 to 1**	**100%**	**12**	**100%**	**92%**

*1 tag was returned and not reissued from the original 6 tag quota

Apps - # of unsuccessful 1st choice applicants plus successful 1st - 5th choice applicants for given unit group

Demand - # of "Apps" for every one tag sold

% Return - Percent of hunter questionnaire records received compared to total tags sold

% Hunter Success - based on # of successful hunters divided by Tags Sold

% Male Harvest - Percent of Billy (male) mountain goats of total harvest

TABLE 17. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2000 - 2015

Year	Harvest	Average Age	Average Left Horn	Average Right Horn	Average Days Hunted
Unit 101 - East Humboldt Range					
2000	5	4.4	9.0	9.0	1.8
2001	6	6.5	8.9	8.9	2.7
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
5-Year Avg.	**3**	**6.2**	**8.2**	**8.3**	**2.4**
Long-term Avg.	**5**	**4.8**	**8.5**	**8.4**	**2.2**
Unit 102 - Ruby Mountains					
2000	9	4.6	8.7	8.7	8.9
2001	14	4.1	8.2	8.5	3.7
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
5-Year Avg.	**5**	**5.4**	**8.4**	**7.8**	**5.1**
Long-term Avg.	**12**	**4.7**	**8.7**	**8.6**	**4.1**

TABLE 17. MOUNTAIN GOAT HARVEST HISTORY BY UNIT AND YEAR, 2000 - 2015

Unit 103 - Pearl Peak Area, Southern Ruby Mountains

Year	Harvest	Average Age	Average Left Horn	Average Right Horn	Average Days Hunted
2000	2	6.0	9.1	8.2	2.0
2001	2	4.0	8.4	8.4	2.5
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
5-Year Avg.	**1**	**5.0**	**8.7**	**8.8**	**7.5**
Long-term Avg.	**1**	**4.9**	**8.7**	**8.8**	**4.0**

ALL UNITS

Year	Hunter Success	# of Tags	Harvest	# of Billies	# of Nannies	% Nannies
2000	89%	18	16	15	1	6%
2001	96%	23	22	16	6	27%
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%
Total/Avg.	**93%**	**333**	**309**	**250**	**59**	**19%**

TABLE 18. 2015 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	2,209	41	40	54 to 1	38	95%	5	13	34%
NONRESIDENT BLACK BEAR HUNT 6251									
Statewide	129	4	4	33 to 1	4	100%	2	1	25%

BLACK BEAR HARVEST RESULTS

YEAR	Gender	Harvest	Mean Age	3-yr Average Age	Average Days Hunted by Successful Tagholders
2015	Males	8	8.5	7.1	5.9
	Females	6	6.5	8.3	

Apps - # of unsuccessful applicants plus successful applicants in main draw.

Tags Avail - Available tags at season opener - accounts for tags returned for any reason and alternate tags issued

Demand - # of "Apps" for every one tag sold.

% Return - Percent of hunter questionnaires received compared to total tags sold

% Hunter Success - based on # of successful hunters divided by tag returns

BLACK BEAR HARVEST BY UNIT

UNIT	# Bears
192	1
194	2
291	11
TOTAL	**14**

Hunt Returns thru 3/9/2016

TABLE 19. FALL 2015 AND SPRING 2016 MULE DEER SURVEY COMPOSITION

UNIT GROUP	2015 FALL TOTAL	2015 Bucks: 100 Does	2015 Fawns: 100 Does	2015 Fawns: 100 Adults	2016 Spring Adults	2016 Spring Fawns	2016 Spring TOTAL	2016 Fawns: 100 Adults
011 - 013	329	31	58	**44**	129	45	174	**35**
014	198	34	51	**39**	150	55	205	**37**
015	--	--	--	**--**	420	168	588	**40**
021	--	--	--	**--**	231	91	322	**39**
022	--	--	--	**--**	73	28	101	**38**
031	332	28	48	**37**	402	188	590	**47**
032, 034	255	25	44	**36**	302	141	443	**47**
033	107	34	48	**35**	--	--	--	**--**
035	87	41	67	**48**	171	66	237	**39**
041, 042	--	--	--	**--**	--	--	--	**--**
043 - 046	--	--	--	**--**	243	89	332	**37**
051	221	34	58	**44**	538	224	762	**42**
061,062,064, 066-068	5,133	37	66	**48**	3,383	1,082	4,465	**32**
065	578	39	52	**37**	--	--	--	**--**
071 - 079, 091	--	--	--	**--**	2,035	443	2,478	**22**
081	--	--	--	**--**	--	--	--	**--**
101 - 109	--	--	--	**--**	6,648	1,342	7,990	**20**
111 - 113	--	--	--	**--**	3,061	918	3,979	**30**
114 - 115	--	--	--	**--**	511	166	677	**32**
121	2,591	27	45	**35**	1,500	413	1,913	**28**
131 - 134	--	--	--	**--**	1,449	483	1,932	**33**
141 - 145	--	--	--	**--**	1,406	516	1,922	**37**
151, 152, 154-156	--	--	--	**--**	667	147	814	**22**
161 - 164	--	--	--	**--**	622	195	817	**31**
171 - 173	--	--	--	**--**	856	233	1,089	**27**
181 - 184	--	--	--	**--**	83	33	116	**40**
192	603	13	45	**40**	34	18	52	**53**
194, 196	818	25	45	**36**	553	156	709	**28**
195	--	--	--	**--**	--	--	--	**--**
201 - 206	--	--	--	**--**	400	66	466	**17**
203	--	--	--	**--**	--	--	--	**--**
211, 212	--	--	--	**--**	--	--	--	**--**
221 - 223	1,784	44	58	**41**	1,331	472	1,803	**35**
231	1,198	24	40	**32**	1,010	389	1,399	**39**
241 - 244	577	48	53	**36**	75	46	121	**61**
251 - 253	--	--	--	**--**	--	--	--	**--**
261 - 268	--	--	--	**--**	--	--	--	**--**
271, 272	--	--	--	**--**	--	--	--	**--**
291	--	--	--	**--**	--	--	--	**--**
2015-16 TOTALS	**14,811**	**33**	**54**	**41**	**28,283**	**8,213**	**36,496**	**29**
2014-15 TOTALS	*19,511*	*30*	*53*	*41*	*16,461*	*6,204*	*22,665*	*38*

Spring fawn/100 adults ratios that are higher than its fall ratio are assumed to be biased high.

Units with (--) were not surveyed.

TABLE 20. LATE SUMMER/FALL/WINTER 2015 PRONGHORN SURVEY COMPOSITION

UNIT GROUP	BUCKS	DOES	FAWNS	TOTAL	2015 BUCKS: 100 DOES	2015 FAWNS: 100 DOES	*2014 FAWNS: 100 DOES*
011	82	258	117	457	32	**45**	*36*
012 - 014	112	297	148	557	38	**50**	*38*
015	43	102	43	188	42	**42**	*35*
021 - 022	20	57	19	96	35	**33**	*35*
031	17	63	27	107	27	**43**	*52*
032, 034, 035	15	94	32	141	16	**34**	*42*
033	104	407	178	689	26	**44**	*37*
041, 042	84	265	107	456	32	**40**	*43*
043, 044, 046	40	95	47	182	42	**50**	*42*
051	30	102	41	173	29	**40**	*41*
061 - 064, 071, 073	177	437	203	817	41	**47**	*48*
065, 142, 144	*82*	*186*	*83*	351	44	**45**	*54*
066				--	--	**--**	*51*
067 - 068	238	687	234	1,159	35	**34**	*45*
072, 074, 075	104	275	94	473	38	**34**	*40*
076, 077, 079, 081, 091	70	149	52	271	47	**35**	*36*
078, 105 - 107, 121	104	221	91	416	47	**41**	*31*
101 - 104, 108	223	432	141	796	52	**33**	*44*
111 - 114	300	737	222	1,259	41	**30**	*40*
115, 231, 242	51	155	73	279	33	**47**	*26*
131, 145, 163, 164	150	330	85	565	46	**26**	*28*
132 - 134, 245	62	134	28	224	46	**21**	*31*
141, 143, 151 - 155	413	953	405	1,771	43	**43**	*48*
161, 162				--	--	**--**	*23*
171 - 173				--	--	**--**	*45*
181 - 184	65	265	120	450	25	**45**	*46*
202, 204	20	47	12	79	43	**26**	*28*
203, 291	10	19	5	34	53	**26**	*41*
205, 206	22	53	17	92	42	**32**	*50*
211 - 213				--	--	**--**	*47*
221 - 223, 241	75	240	103	418	31	**43**	*25*
251				--	--	**--**	*54*
2015 TOTALS	**2,713**	**7,060**	**2,727**	**12,500**	**38**	**39**	
2014 TOTALS	*2,841*	*7,522*	*2,971*	*13,334*	*38*	*39*	

Units with (--) were not surveyed.

TABLE 21. LATE SUMMER/FALL 2015 DESERT BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2015 RAMS: 100 EWES	2015 LAMBS: 100 EWES	*2014 LAMBS: 100 EWES*
044, 182	22	53	32	107	42	**60**	*33*
045/153	31	44	22	97	71	**50**	*58*
131, 164	11	40	2	53	28	**5**	*22*
132	11	28	12	51	39	**43**	*14*
133, 245	--	--	--	--	--	**--**	*41*
134	36	60	20	116	60	**33**	*22*
153				--	--	**--**	*20*
161	84	159	65	308	53	**41**	*--*
162	3	7	2	12	43	**29**	*50*
163				--	--	**--**	*14*
173	20	43	14	77	47	**33**	*--*
181	85	148	60	293	57	**41**	*41*
183	57	127	65	249	45	**51**	*39*
184	23	54	20	97	43	**37**	*45*
195	19	24	10	53	79	**42**	*50*
202, 204	16	59	29	104	27	**49**	*37*
205, 207	80	150	71	301	53	**47**	*33*
206, 208	13	63	25	101	21	**40**	*51*
211	66	109	33	208	61	**30**	*37*
212	66	106	34	206	62	**32**	*42*
213	77	146	42	265	53	**29**	*29*
223, 241 (Hikos)	25	48	21	94	52	**44**	*32*
241 (Delamars)	13	26	16	55	50	**62**	*18*
243	38	61	25	124	62	**41**	*31*
244				--	--	**--**	*11*
252	68	161	9	238	42	**6**	*--*
253				--	--	**--**	*54*
254	25	34	10	69	74	**29**	*--*
261				--	--	**--**	*37*
262	33	61	3	97	54	**5**	*--*
263	43	89	5	137	48	**6**	*--*
264				--	--	**--**	*--*
265				--	--	**--**	*--*
266	15	48	2	65	31	**4**	*56*
267	58	133	17	208	44	**13**	*15*
268	246	212	90	548	116	**43**	*60*
269 (River Mtns)	47	87	5	139	54	**6**	*33*
271	78	102	31	211	77	**30**	*22*
272	23	17	1	41	135	**6**	*--*
280	28	49	17	94	57	**35**	*24*
281	30	33	21	84	91	**64**	*46*
282	17	45	8	70	38	**18**	*27*
283, 284	73	128	48	249	57	**38**	*16*
286	21	35	14	70	60	**40**	*31*
2015 TOTALS	**1,601**	**2,789**	**901**	**5,291**	**57**	**32**	
2014 TOTALS	*1,776*	*3,059*	*1,015*	*5,850*	*58*	*33*	

Units with (--) were not surveyed.

TABLE 22. LATE SUMMER/FALL 2015 CALIFORNIA BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2015 RAMS: 100 EWES	2015 LAMBS: 100 EWES	*2014 LAMBS: 100 EWES*
011, 013	8	36	13	57	22	36	*30*
012	31	46	13	90	67	28	*31*
014	7	32	11	50	22	34	*33*
021, 022				--	--	--	*36*
031	15	52	33	100	29	64	36
032	34	79	39	152	43	49	52
033	10	38	14	62	26	37	--
034	16	69	24	109	23	35	42
035	28	27	13	68	104	48	74
041	6	23	11	40	26	48	50
051	25	71	18	114	35	25	23
066	*14*	*25*	*1*	*40*	56	4	*27*
068	54	35	18	107	154	51	*28*
2015 TOTALS	**248**	**533**	**208**	**989**	**47**	**39**	
2014 TOTALS	*252*	*528*	*201*	981	48	38	

TABLE 23. SUMMER/WINTER/EARLY SPRING 2015 - 2016 ROCKY MOUNTAIN BIGHORN SHEEP SURVEY COMPOSITION

UNIT GROUP	RAMS	EWES	LAMBS	TOTAL	2015-16 RAMS: 100 EWES	2015-16 LAMBS: 100 EWES	*2014-15 LAMBS: 100 EWES*
074	7	5	0	12	140	0	*36*
091				--	--	--	*24*
101				--	--	--	*62*
102	*3*	*13*	*10*	26	23	77	--
114	4	25	12	41	16	48	*57*
115	5	2	3	10	250	150	*22*
2015-16 TOTALS	**19**	**45**	**25**	**89**	**42**	**56**	
2014-15 TOTALS	*46*	*82*	*36*	*164*	*56*	*44*	

Units with (--) were not surveyed.

TABLE 24. JANUARY AND FEBRUARY 2016 MOUNTAIN GOAT SURVEY COMPOSITION

UNIT GROUP	ADULTS	KIDS	TOTAL	**2016 KIDS: 100 ADULTS**	*2015 KIDS: 100 ADULTS*
101	56	7	63	13	*6*
102	81	12	**93**	15	--
103	7	3	**10**	43	*25*
2016 TOTALS	**144**	**22**	**166**	**15**	
2015 TOTALS	*93*	*11*	*104*	*12*	

TABLE 25. FALL/WINTER 2015 - 2016 ROCKY MOUNTAIN ELK SURVEY COMPOSITION

UNIT GROUP	BULLS	COWS	CALVES	TOTAL	**2015-2016 BULLS: 100 COWS**	**2015-2016 CALVES: 100 COWS**	*2014-2015 CALVES: 100 COWS*
051	35	19	6	60	184	32	--
061, 071	649	1,860	977	3,486	35	53	*59*
062, 064, 066-068	256	381	173	810	67	45	*49*
065	5	27	11	43	19	41	--
072, 074	390	338	189	917	115	56	*52*
073	40	101	51	192	40	51	*54*
075	46	82	49	177	56	60	*57*
076, 077, 079, 081	143	403	200	746	36	50	*50*
078,104, 105-107	63	97	53	213	65	55	*52*
091				--	--	--	*77*
104,108,121	49	305	112	466	16	37	*43*
108,131 - 132	83	166	63	312	50	38	*31*
111-115, 221, 222, 223	448	1,491	663	2,602	30	45	*33*
161 - 164	83	310	152	545	27	49	*34*
231	54	106	55	215	51	52	*37*
241, 242	0	7	5	12	0	71	*48*
262	4	63	19	86	6	30	*20*
2015-2016 Totals	**2,348**	**5,756**	**2,778**	**10,882**	**41**	**48**	
2014-2015 Totals	*2,633*	*6,983*	*3,331*	12,947	38	48	

Units with (--) were not surveyed.

TABLE 26. 2016 MULE DEER POPULATION ESTIMATES

UNIT GROUP	2016 ESTIMATE*	*2015 ESTIMATE**
011 - 013	1,500	*1,900*
014	1,200	*1,500*
015**	260	*260*
021**	400	*400*
022	750	*800*
031	1,800	*1,850*
032***	1,100	*1,100*
033	500	*800*
034***	280	*290*
035	850	*850*
041, 042***	300	*300*
043 - 046	2,700	*2,700*
051	2,500	*2,500*
061,062,064, 066 - 068	10,200	*9,100*
065	800	*800*
071 - 079, 091	9,700	*10,500*
081	900	*900*
101 - 108	15,000	*18,000*
111 - 113	4,500	*4,600*
114 - 115	1,500	*1,500*
121	2,600	*2,700*
131 - 134	4,000	*4,200*
141 - 145	4,000	*4,000*
151, 152 ,154, 155	2,350	*3,000*
161 - 164	4,650	*4,400*
171 - 173	4,200	*4,200*
181 - 184	1,250	*1,500*
192**	420	*420*
194, 196**	900	*1,000*
195	500	*500*
201, 204**	650	*650*
202, 205 - 208**	500	*500*
203	600	*600*
211, 213	400	*400*
221 - 223	4,150	*4,300*
231	3,400	*3,300*
241 - 245	850	*850*
251 - 254	400	*400*

TABLE 26. 2016 MULE DEER POPULATION ESTIMATES

261 - 268	400	*400*
271, 272	240	*240*
291	600	*600*
TOTAL	**94,000**	***99,000***
Percent Change	**-5%**	

*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 27. 2015 ROCKY MOUNTAIN ELK POPULATION ESTIMATES

UNIT GROUP	**2016 ESTIMATE***	*2015 ESTIMATE**
051	90	*80*
061, 071**	2,500	*4,400*
062, 064, 066 - 068**	850	*1,200*
065	100	*100*
072, 073, 074	2,300	*2,500*
075	190	*310*
076, 077, 079, 081	1,700	*1,900*
078, 105 - 107, 109	370	*380*
091	400	*370*
104, 108, 121	700	*700*
108, 131, 132	380	*310*
111 - 115, 221, 222, 223	4,700	*4,200*
145	40	*50*
161 - 164	900	*950*
171 - 173	140	*110*
231	500	*600*
241, 242	130	*120*
262	180	*180*
TOTAL	**16,000**	*18,500*
Percent Change	**-14%**	

*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%.

**Spatial data analyses of seasonal distribution of GPS-collared cow elk identified a proportion of the herd thought to have been resident elk in Nevada as residing almost entirely in Idaho and on Duck Valley Tribal Lands, and therefore the population estimate was adjusted accordingly based on these analyses.

TABLE 28. 2015 PRONGHORN POPULATION ESTIMATES

UNIT GROUP	2016 ESTIMATE*	*2015 ESTIMATE**
011	1,100	*1,100*
012-014	1,600	*1,800*
015	800	*950*
021, 022	450	*450*
031	1,600	*1,600*
032, 034, 035	2,900	*3,000*
033	1,100	*1,100*
041, 042	1,800	*1,800*
043 - 046	600	*450*
051	800	*750*
061, 062, 064, 071, 073	2,000	*1,700*
065, 142, 144	800	*800*
066	430	*450*
067, 068	1,200	*1,100*
072, 074, 075	1,300	*1,300*
076, 077, 079, 081, 091	550	*500*
078, 105 - 107, 121	1,000	*1,100*
101 - 104, 108, 109, 144	1,100	*950*
111 - 114	1,500	*1,500*
115, 231, 242	450	*450*
131, 145, 163, 164	900	*850*
132 - 134, 245	600	*500*
141, 143, 151 - 156	2,100	*2,000*
161, 162	370	*390*
171 - 173	350	*340*
181 - 184	650	*650*
202, 204	110	*120*
203, 291	70	*80*
205 - 208	310	*290*
211 - 213	80	*90*
221 - 223, 241	380	*330*
251	240	*230*
TOTAL	***29,000***	***28,500***
Percent Change	**2%**	

*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. 2016 DESERT BIGHORN POPULATION ESTIMATES

UNIT GROUP	2016 ESTIMATE*	*2015 ESTIMATE**
044, 182	400	*300*
045	210	*190*
131, 164	120	*140*
132	100	*70*
133, 245	110	*110*
134	210	*200*
153	20	*20*
161	380	*340*
162	50	*50*
163	280	*290*
173	190	*200*
181	380	*360*
183	320	*310*
184	150	*160*
195	100	*90*
202	200	*190*
204	60	*50*
205, 207	650	*600*
206, 208	300	*250*
211	430	*425*
212	390	*450*
213	480	*480*
223, 241	230	*220*
243	150	*160*
244	120	*130*
252	250	*290*
253	220	*250*
254	80	*70*
261	170	*180*
262	150	*210*
263	170	*260*
264	80	*110*
265, 266	130	*150*
267, 268	950	*925*
269 (River Mtns)	200	*220*
271	310	*300*
272	100	120
280	120	110
281	220	190
282	130	130
283, 284	250	160
286	130	120
TOTAL	*9,700*	*9,600*
Percent Change	**1%**	

*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 30. 2016 CALIFORNIA BIGHORN POPULATION ESTIMATES

UNIT GROUP	2016 ESTIMATE*	*2015 ESTIMATE**
011, 013	90	*80*
012	140	*160*
014	140	*150*
021, 022	120	*130*
031	110	*170*
032	300	*280*
033	80	*70*
034	270	*260*
035	190	*170*
041	50	*40*
051	180	*190*
066	40	*50*
068	110	*110*
TOTAL	**1,800**	*1,900*
Percent Change	**-5%**	

TABLE 31. 2016 ROCKY MOUNTAIN BIGHORN POPULATION ESTIMATES

UNIT GROUP	2016 ESTIMATE*	*2015 ESTIMATE**
074	15	*20*
091	25	*30*
101	15	*45*
102	35	*35*
114	90	*70*
115	30	*30*
TOTAL	**210**	*260*
Percent Change	**-19%**	

TABLE 32. 2016 MOUNTAIN GOAT POPULATION ESTIMATES

UNIT GROUP	2016 ESTIMATE*	*2015 ESTIMATE**
101	85	*100*
102	200	*200*
103	45	*45*
TOTAL	**330**	*350*
Percent Change	**-6%**	

*Estimates - Values generated from computer models that reconstruct age and sex classes based on sampled herd composition, harvest data, and population demographic variables. The confidence limits around these estimates may be as high as + or - 20%.

TABLE 33. BIG GAME POPULATION ESTIMATE HISTORY, 1981 - 2016

YEAR	MULE DEER	ANTELOPE	ELK	DESERT BIGHORN	CALIFORNIA BIGHORN	ROCKY MOUNTAIN BIGHORN	MOUNTAIN GOAT
1981	135,500	9,800		3,000			
1982	140,000	10,500		3,100			
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
10-YR AVG	*107,000*	*26,500*	*13,900*	*8,100*	*1,900*	*320*	*360*
% Diff to AVG	**-12%**	**9%**	**15%**	**20%**	**-5%**	**-34%**	**-8%**

TABLE 34. BIG GAME TAG SALES AND HARVEST HISTORY BY SPECIES, 1986 - 2015

	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
1986	42,933	21,845	976	658	103	89	130	100	3	3	4	3	2	2
1987	39,347	21,497	1,039	722	129	105	134	112	3	3	2	0	2	2
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
10-YR AVG	19,343	8,135	3,238	2,069	5,578	2,114	228	203	54	50	7	6	18	18
% Difference	9%	13%	27%	25%	102%	59%	35%	40%	17%	12%	-44%	-84%	-34%	-32%

TABLE 35. NEVADA MOUNTAIN LION TAG SALES, SPORT HARVEST AND HUNTER SUCCESS, 1977 - 2015

	Tag Sales			Sport Harvest			Hunter Success		
Year	Resident	Nonresident	Total	Resident	Nonresident	Total	Resident	Nonresident	Total
1977 - 1978	129	16	145	15	6	21	12%	38%	14%
1978 - 1979	146	38	184	18	8	26	12%	21%	14%
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				113	60	173			
Totals	**49,015**	**5,968**	**54,983**	**2,843**	**1,812**	**4,655**			
Avg. (40 yrs)	**1,290**	**157**	**1,447**	**73**	**46**	**119**			
10-Year Avg	**3,698**	**286**	**3,984**	**91**	**44**	**135**			

TABLE 36. NEVADA MOUNTAIN LION DEPREDATION HARVEST
(Conducted by APHIS and Private Citizens)

Year			Males	Females	Unknown	Total
1975	-	1976	14	5	0	19
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
Total			**623**	**495**	**7**	**1125**
Average			**15**	**12**	**0**	**27**

*includes lions taken for NDOW predator management projects

TABLE 37. HUNT NUMBER DESCRIPTIONS

HUNT NUMBER	HUNT DESCRIPTION
1000	RESIDENT PARTNERSHIP IN WILDLIFE ANTLERED MULE DEER ALL WEAPONS
1100	RESIDENT WILDLIFE HERITAGE ANY MULE DEER ANY LEGAL WEAPON
1101	RESIDENT DEPREDATION ANTLERLESS MULE DEER ANY LEGAL WEAPON
1104	RESIDENT EMERGENCY DEPREDATION ANTLERLESS MULE DEER
1107	RESIDENT JUNIOR ANY MULE DEER ALL WEAPONS
1115	RESIDENT LANDOWNER DAMAGE COMPENSATION ANTLERED MULE DEER ALL WEAPONS
1181	RESIDENT ANTLERLESS MULE DEER ANY LEGAL WEAPON
1300	SILVER STATE ANY MULE DEER ANY LEGAL WEAPON
1331	RESIDENT ANTLERED MULE DEER ANY LEGAL WEAPON
1341	RESIDENT ANTLERED MULE DEER ARCHERY
1371	RESIDENT ANTLERED MULE DEER MUZZLELOADER
1200	NONRESIDENT PARTNERSHIP IN WILDLIFE ANTLERED MULE DEER ALL WEAPONS
1201	NONRESIDENT WILDLIFE HERITAGE ANY MULE DEER ANY LEGAL WEAPON
1215	NONRESIDENT LANDOWNER DAMAGE COMPENSATION ANTLERED MULE DEER ALL WEAPONS
1235	NONRESIDENT GUIDED ANTLERED MULE DEER ANY LEGAL WEAPON
1331	NONRESIDENT ANTLERED MULE DEER ANY LEGAL WEAPON
1341	NONRESIDENT ANTLERED MULE DEER ARCHERY
1371	NONRESIDENT ANTLERED MULE DEER MUZZLELOADER
1400	RESIDENT EMERGENCY ANTLERLESS MULE DEER ANY LEGAL WEAPON
1401	RESIDENT EMERGENCY ANTLERLESS MULE DEER ANY LEGAL WEAPON
1500	NEVADA DREAM ANTLERED MULE DEER ALL WEAPONS
2000	RESIDENT PARTNERSHIP IN WILDLIFE HORNS LONGER THAN EARS ANTELOPE ALL WEAPONS
2100	RESIDENT WILDLIFE HERITAGE ANY ANTELOPE ANY LEGAL WEAPON
2104	RES. EMERGENCY HORNS SHORTER THAN EARS ANTELOPE ANY LEGAL WEAPON
2106	RES. EMERGENCY HORNS LONGER THAN EARS ANTELOPE ANY LEGAL WEAPON
2101	RESIDENT DEPREDATION HORNS SHORTER THAN EARS ANTELOPE
2115	RESIDENT LANDOWNER DAMAGE COMPENSATION HORNS LONGER THAN EARS ANTELOPE ALL WEAPONS
2151	RESIDENT HORNS LONGER THAN EARS ANTELOPE ANY LEGAL WEAPON
2161	RESIDENT HORNS LONGER THAN EARS ANTELOPE ARCHERY
2171	RESIDENT HORNS LONGER THAN EARS ANTELOPE MUZZELOADER
2181	RESIDENT HORNS SHORTER THAN EARS ANTELOPE ANY LEGAL WEAPON
2200	NONRESIDENT WILDLIFE HERITAGE ANY ANTELOPE ANY LEGAL WEAPON
2215	NONRESIDENT LANDOWNER DAMAGE COMPENSATION HORNS LONGER THAN EARS ANTELOPE ALL WEAPONS
2251	NONRESIDENT HORNS LONGER THAN EARS ANTELOPE ANY LEGAL WEAPON
2261	NONRESIDENT HORNS LONGER THAN EARS ANTELOPE ARCHERY
2300	SILVER STATE ANY ANTELOPE ANY LEGAL WEAPON
2500	NEVADA DREAM HORNS LONGER THAN EARS ANTELOPE ALL WEAPONS
3000	RESIDENT PARTNERSHIP IN WILDLIFE ANY RAM NELSON (DESERT) BIGHORN
3100	RESIDENT WILDLIFE HERITAGE ANY RAM NELSON (DESERT) BIGHORN SHEEP
3151	RESIDENT ANY RAM NELSON (DESERT) BIGHORN SHEEP ANY LEGAL WEAPON

TABLE 37. HUNT NUMBER DESCRIPTIONS

HUNT NUMBER	HUNT DESCRIPTION
3181	RESIDENT ANY EWE NELSON (DESERT) BIGHORN SHEEP ANY LEGAL WEAPON
3200	NONRESIDENT WILDLIFE HERITAGE ANY RAM NELSON (DESERT) BIGHORN
3251	NONRESIDENT ANY RAM NELSON (DESERT) BIGHORN ANY LEGAL WEAPON
3281	NONRESIDENT ANY EWE NELSON (DESERT) BIGHORN SHEEP ANY LEGAL WEAPON
3300	SILVER STATE ANY RAM NELSON (DESERT) BIGHORN ANY LEGAL WEAPON
3500	NEVADA DREAM ANY RAM NELSON (DESERT) BIGHORN SHEEP ALL WEAPONS
4000	RESIDENT PARTNERSHIP IN WILDLIFE ANTLERED ELK ALL WEAPONS
4100	RESIDENT WILDLIFE HERITAGE ELK WITH AT LEAST ONE ANTLER
4102	RESIDENT DEPREDATION ANTLERED ELK ANY LEGAL WEAPON
4104	RESIDENT EMERGENCY DEPREDATION ANTLERLESS ELK
4106	RESIDENT EMERGENCY DEPREDATION ANY ELK
4107	RESIDENT DEPREDATION ANTLERLESS ELK ANY LEGAL WEAPON
4111	RESIDENT ANTLERLESS ELK ARCHERY
4131	RESIDENT INCENTIVE ANY ELK ANY LEGAL WEAPON
4132	RESIDENT INCENTIVE ANY ELK ARCHERY
4133	RESIDENT INCENTIVE ANY ELK MUZZLELOADER
4151	RESIDENT ANTLERED ELK ANY LEGAL WEAPON
4156	RESIDENT ANTLERED ELK MUZZLELOADER
4161	RESIDENT ANTLERED ELK ARCHERY
4176	RESIDENT ANTLERLESS ELK MUZZLELOADER
4181	RESIDENT ANTLERLESS ELK ANY LEGAL WEAPON
4200	NONRESIDENT WILDLIFE HERITAGE ELK WITH AT LEAST ONE ANTLER
4211	NONRESIDENT ANTLERLESS ELK ARCHERY
4231	NONRESIDENT INCENTIVE ANY ELK ANY LEGAL WEAPON
4232	NONRESIDENT INCENTIVE ANY ELK ARCHERY
4233	NONRESIDENT INCENTIVE ANY ELK MUZZLELOADER
4251	NONRESIDENT ANTLERED ELK ANY LEGAL WEAPON
4256	NONRESIDENT ANTLERED ELK MUZZLELOADER
4261	NONRESIDENT ANTLERED ELK ARCHERY
4276	NONRESIDENT ANTLERLESS ELK MUZZLELOADER
4281	NONRESIDENT ANTLERLESS ELK ANY LEGAL WEAPON
4300	SILVER STATE ANY ELK ANY LEGAL WEAPON
4411	RESIDENT ANTLERLESS ELK MANAGEMENT ARCHERY
4476	RESIDENT ANTLERLESS ELK MANAGEMENT MUZZLELOADER
4481	RESIDENT ANTLERLESS ELK MANAGEMENT ANY LEGAL WEAPON
4500	NEVADA DREAM ANTLERED ELK ANY LEGAL WEAPON
4641	RESIDENT SPIKE ELK ARCHERY
4651	RESIDENT SPIKE ELK ANY LEGAL WEAPON
5132	RESIDENT EITHER SEX MOUNTAIN LION
5232	NONRESIDENT EITHER SEX MOUNTAIN LION
6151	RESIDENT BLACK BEAR ANY LEGAL WEAPON
6251	NONRESIDENT BLACK BEAR ANY LEGAL WEAPON

TABLE 37. HUNT NUMBER DESCRIPTIONS

HUNT NUMBER	HUNT DESCRIPTION
7000	RESIDENT PARTNERSHIP IN WILDLIFE ANY MOUNTAIN GOAT
7151	RESIDENT ANY MOUNTAIN GOAT ANY LEGAL WEAPON
7251	NONRESIDENT ANY MOUNTAIN GOAT ANY LEGAL WEAPON
8000	RESIDENT PARTNERSHIP IN WILDLIFE ANY RAM CALIFORNIA BIGHORN SHEEP
8100	RESIDENT WILDLIFE HERITAGE ANY RAM CALIFORNIA BIGHORN SHEEP
8151	RESIDENT ANY RAM CALIFORNIA BIGHORN SHEEP ANY LEGAL WEAPON
8181	RESIDENT ANY EWE CALIFORNIA BIGHORN SHEEP ANY LEGAL WEAPON
8200	NONRESIDENT WILDLIFE HERITAGE ANY RAM CALIFORNIA BIGHORN SHEEP
8251	NONRESIDENT ANY RAM CALIFORNIA BIGHORN ANY LEGAL WEAPON
8500	NEVADA DREAM ANY RAM CALIFORNIA BIGHORN SHEEP ALL WEAPONS
9151	RESIDENT ANY RAM ROCKY MOUNTAIN BIGHORN SHEEP ANY LEGAL WEAPON
9251	NONRESIDENT ANY RAM ROCKY MOUNTAIN BIGHORN SHEEP ANY LEGAL WEAPON

NEVADA HUNT UNIT REFERENCE MAP