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Hunter Expenditure in Nevada

A Comprehensive Analysis of Big Game and Upland Game Hunting-Related
Expenditures in 2020

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This publication was produced in partnership with the **Nevada Economic Assessment Project (NEAP)**, which aims to provide county, state and federal agencies, and their partners, with quantitative and qualitative baseline data and analyses to better understand trends in each county's demographic, social, economic, fiscal and environmental characteristics.

More information on project can be found on our webpage: [Extension.unr.edu/NEAP](https://extension.unr.edu/NEAP)

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Executive Summary

This report provides a comprehensive analysis of hunter expenditures for big game and upland game hunting in Nevada in 2020. Big game hunting includes hunts for Rocky Mountain elk, mule deer, mountain goat, pronghorn antelope, bighorn sheep Desert Nelson, Rocky Mountain, California, and black bear. Upland game refers to birds including quail (California, Gambel's, and mountain), pheasant, chukar, Hungarian partridge, sage grouse, dusky grouse, sooty grouse and ruffed grouse. This research was conducted in partnership with the Nevada Department of Wildlife (NDOW), who manages both big game and upland game hunting in Nevada.¹ This report is the first comprehensive study of big-game hunting-related expenditures specifically for Nevada, since 1988, and is the first study ever of upland game hunting-related expenditures in Nevada.

The analysis combines administrative data from NDOW with data from two NDOW-administered email surveys to estimate (i) total big game hunting expenditures in Nevada in 2020, including expenditures on pre-hunting scouting trips, post-hunt expenditures, and expenditures by non-tag holding guests; (ii) total number of upland game hunting days in 2020; (iii) total upland game hunting expenditures in Nevada in 2020; and (iv) total expenditures on large items purchased for hunting in Nevada in 2020 (e.g., firearms, off-highway vehicles). The analysis considers how hunting-related expenditures depend on the target animal's species and class, differ between resident and nonresident hunters, and changes between 2019 and 2020 in big game hunting expenditures due to the impact of the COVID-19 pandemic on hunting in Nevada. This report also includes hunter demographic information.

This report focuses on hunting-related expenditures at the state level; a companion report provides estimates of the total economic and fiscal impact of hunting for Nevada and its counties and explores opportunities to increase the share of total hunting-related expenditures captured by businesses in rural Nevada.

¹ Migratory birds, such as waterfowl and doves, are managed federally and are not included in this study; however, you need a valid Nevada hunting license to hunt them in the state.

Main findings on hunter expenditures in Nevada include:

- An estimated 469,970 big game effort days (includes hunting and scouting days of tag holders and guests) in Nevada in 2020 generated an estimated \$80,700,891 in total expenditures in Nevada.
- An estimated 209,110 upland game hunting days in Nevada in 2020 generated an estimated \$39,119,115 in total expenditures in Nevada.
- Total estimated expenditures on large items purchased for the main purpose of hunting in Nevada in 2020 is \$259,652,223.

Additional significant findings include:

- There are significant differences in total tag-related expenditures among big game species, ranging from \$1,190 per tag for female antelope² to nearly \$6,000 per tag for antlered elk, and over \$8,000 per tag for ram bighorn sheep for Nevada resident hunters, see Section 1.1 for the definition of big game tag.
- While nonresident hunters spend more per tag than resident hunters, resident hunters have higher total spending per tag that takes place in Nevada. Nonresident hunters spend a significant amount before leaving their home state, while resident hunters make almost all their tag-related expenditures in Nevada.
- The COVID-19 pandemic had no significant impact on big game hunting expenditures. The average number of hunting and scouting days stayed close to constant between in 2019 and 2020, while the average group size and expenditures on gear increased slightly in 2020.

Table 1. Summary of Nevada Hunting Statistics, 2020

Statistic	Big Game Hunting	Upland Game Hunting	All
Number of Hunters	67,485	39,982	N/A
Number of Scouting Days	124,913	N/A	124,913
Number of Hunting Days	345,057	209,110	554,167
Number of Effort Days	469,970	209,110	679,080
Total Tag or Trip Expenditures	\$86,555,880	\$42,790,163	\$129,346,043
Total Tag or Trip Expenditures in Nevada	\$80,700,891	\$39,119,115	\$119,820,006
Total Big-Ticket Expenditures in Nevada	N/A	N/A	\$259,652,223
Total Hunting Related Expenditures in Nevada	\$80,700,891	\$39,119,115	\$379,472,229

Note: The number of big game hunters is greater than the number of big game tags as it included tag holders and guests. Hunting days, scouting days and effort days also include tag holders and guests. Total big-ticket expenditures in Nevada are adjusted to avoid double counting (see section 6 for details).

² Tags for antelope with horn shorter than ears are referred to as a female antelope tag; although, young males with horns shorter than ears can be harvested as well.

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1. Introduction

This report estimates total big game and upland game hunting-related expenditures in Nevada in 2020. In doing so, this report constitutes the first comprehensive study of big game hunting-related expenditures in Nevada since 1988, and it is the first study ever of upland game hunting-related expenditures in Nevada (Kay, 1988). Other more recent studies lack the level of detail and particular consideration of hunting in Nevada that this study demonstrates (U.S. Department of the Interior, 2016 and 2011).

This project was conducted by researchers at the University of Nevada, Reno affiliated with the Nevada Economic Assessment Project in partnership with the Nevada Department of Wildlife (NDOW). The primary goal of this study is to document the economic activity generated by big game and upland game hunting in Nevada. This information is necessary to illustrate how further investments in enhancing wildlife habitat can lead to economic benefits for the state. In addition, this report decomposes hunter expenditures by species and class of animal being hunted, type of hunter, and where expenditure occurs over the course of a trip. This information can be used by businesses to adjust their operations to capture more hunting-related spending and by wildlife professionals to manage Nevada's wildlife to maximize related economic activity in conjunction with other important management objectives.

This report makes four innovations over previous studies. First, previous studies focus on expenditures made by the tag holder alone, which misses any expenditures made by guests (U.S. Department of the Interior, 2016 and 2011; Kay, 1988). This study reports expenditures made by the tag holder and their guests. Second, this report is the first to estimate separate expenditures for hunting and scouting trips for big game in Nevada.³ Most publications that report big game hunting expenditures often do not mention scouting expenditures (U.S. Department of the Interior, 2016 and 2011; Southwick, 2017; White, 2017). Third, this study is the first to report an estimate of the number of upland game hunters served by NDOW since the discontinuation of the upland game stamp in 2017, which allowed the agency to track the total number of upland game hunters. Finally, this is the first study that the authors are aware of that estimates separate expenditures for two different types of upland game hunts: primary-purpose and secondary-purpose upland game hunts.

³ Kay estimates a single set of per day expenditure by dividing total expenditure by total effort days (hunting days + scouting days) (Kay, 1988).

The remainder of this report is structured as follows. Section 2 describes the data used in this study. Particular attention is paid to the development of the hunter expenditure survey, which was designed by the authors for the express purpose of capturing hunter expenditures. Section 3 presents the results for total expenditures for big game hunting in Nevada in 2020. The analysis in Section 3 also considers how big game hunting expenditures depend on the species hunted and differ between resident and nonresident hunters.

Section 4 discusses the effects of the COVID-19 pandemic on big game hunting participation and expenditures.

Section 5 presents the results for the total number of upland game hunting days and total upland game hunting expenditures in Nevada in 2020. Section 6 presents expenditures on big-ticket items purchased for hunting in Nevada in 2020. Section 7 presents demographic information for Nevada's resident and nonresident hunters.

1.1 Definitions

Below are the definitions of key terms that are used in this report.

- *Resident* refers to an individual living in Nevada. Residents are identified based on their zip code in their NDOW records. It is assumed the zip code refers to their primary residence and that is where they travel from when hunting in Nevada.
- *Nonresident* refers to an individual living outside of Nevada. Residents are identified based on their zip code or country (when applicable) in their NDOW records. It is assumed the zip code refers to their primary residence and that is where they travel from when hunting in Nevada.
- *Big game* refers to any of the following animals: Rocky Mountain elk, mule deer, mountain goat, pronghorn antelope, bighorn sheep and black bear.
- *Upland game* refers to game birds including quail (California, Gambel's, and Mountain), pheasant; chukar; Hungarian partridge; sage grouse; and dusky, sooty, and ruffed grouse.
- *Primary-purpose hunting trip* refers to an upland game hunting trip with the main purpose being on hunting upland game.
- *Secondary-purpose hunting trip* refers to an upland game hunting trip when the hunter is hunting upland game while on the landscape for another reason, such as hunting or scouting for big game, or fishing.
- *Big game hunt* refers to a particular hunting opportunity. Factors that compose a big game hunt include animal, weapon type, location (hunt unit group; definition below) and season dates.

- *Harvest*: Killing the target animal and taking the minimum required edible meat.
- *Tag* refers to an NDOW-issued permit that allows a hunter to harvest a specific species and class of animal within a designated area, during a designated window of time, and with a particular weapon type. In most cases, multiple tags are issued each year for each big game hunt. There was an average of 26 tags per big game hunt in 2020.
- *Class* differentiates animals based on age, sex, the presence of antlers or the length of horns.
- *Tag draw* is the allocation method for big-game tags. Nevada hunters must apply for big game hunting tags in the tag draw for the chance to hunt a big game animal. Mountain lion hunts are the only big game hunts that are not allocated using a draw-based system.
- *Tag holder* refers to the hunter to whom the tag is issued.
- *Hunt unit / unit group* refers to the geographic area where a hunter can legally pursue the animal they have a tag. A map of the hunt units is available in Appendix 2.
- *Hunting license* refers to a license that is sold by NDOW that is required for hunting big game and upland game. Hunters are not required to have a license when applying for a tag, but they are required to purchase one if they are drawn for a tag and plan on hunting.
- *Guest* is any member of the hunting party who accompanies a tag holder but does not have a tag themselves.
- *Scouting* refers to activities performed before the start of the hunting season with the primary purpose is to locate animals in order to increase the likelihood that the hunter is successful at harvesting the desired animal. Scouting is generally associated with big game hunting. Upland game hunters do not typically scout.
- *Trip* refers to each time a hunter and guest (when applicable) leave their home for the purpose of hunting or scouting. A hunter may make several individual scouting and hunting trips for a single tag.
- *Effort days* are total hunting days and scouting days.
- *Per day expenditures* are expenditures related to a hunting or scouting trip that scale with the number of days spent on the trip.
- *One-time expenditures* are expenditures that occur once per tag and do not scale with the number of days spent scouting or hunting.
- *Big-ticket expenditures* are expenditures on durable items that can be used for more than one hunting season.

2. Data

This section describes the three data sources that were used to estimate total big game and upland game hunting-related expenditures in Nevada in 2020.

2.1 Nevada Division of Wildlife Administrative Data

The first data source used in this study is the NDOW administrative data. This data includes information on tags issued in 2019 and 2020 and details about the participants of the tag draw (both successful and unsuccessful applicants). The administrative data also includes annual hunting license information for individuals served by NDOW. NDOW administrative data was used to obtain the total number of tags issued in Nevada in 2020 for each big game species. Information on the total number of tags and hunting licenses was used to estimate the total number of upland game hunters in Nevada in 2020 (see Section 5), and the total number of hunters in Nevada in 2020 who may have purchased big-ticket items. In addition, NDOW administrative data was used in the implementation of the hunter expenditure survey to ensure that the survey was sent to a range of resident and nonresident hunters, a range of species hunted, and a range of license types (see Section 2.3.2).

2.2 Big Game Survey: Hunt Stats Data Set

The second data source is NDOW's "Big Game Hunt Stats" data set, which summarizes the annual big game survey (NDOW, 2019) (NDOW, 2020). Each hunter who receives a tag is required to fill out the big game survey at the end of each hunting season. Over 95% of hunters return the survey. This data set reports the average number of days spent hunting and scouting per big game hunt. This information is used to estimate the total number of resident and nonresident hunting and scouting days per species in 2020.

2.3 Hunter Expenditure Survey

The authors of this report developed a hunter expenditure survey that was implemented by NDOW via email in March 2021. The expenditure survey allows three quantities to be estimated: (i) expenditures for big game and upland game hunts; (ii) total number of hunting days for upland game; and (iii) total spending on big-ticket items purchased for the primary purpose of hunting. This section describes the development and implementation of the hunter expenditure survey and discusses the characteristics of the survey population.

2.3.1 Survey Development and Implementation

The survey instrument was developed by the authors in consultation with several wildlife professionals at NDOW, and then subjected to three rounds of focus group testing.⁴ Additionally, the instrument was pretested⁵ with several hunters and then sent to 600 hunters the week prior to full implementation for the pilot test.⁶ The pilot test resulted in changes to the language in the recruitment email, but no changes in the content of the survey. For this reason, data from the pilot test is combined with data from the full implementation in the analysis.

All respondents were recruited using the NDOW email list. Each individual received an email with a personalized survey link (see Appendix 3 for recruitment email text). For the full implementation of the survey, the invitation email was sent on March 18, 2021, to 7,800 hunters. A reminder email was sent to those with unopened or incomplete surveys on March 24th, 2021. The sampling strategy resulted in a 21% response rate for the pilot test and a 24% response rate for the full implementation. In total, 2,004 completed responses were collected. A breakdown of the sampling statistics is presented in Table 2 on page 13.

2.3.2 Sampling

The sampling strategy was designed to achieve an adequate number of responses from big game and upland game hunters. The NDOW administrative data containing the tag draw results from 2019 and 2020, hunting license information, and residency status of most of the hunters served by NDOW⁷ was used to construct the sample.

For the big game sample, equal numbers of big game hunters who hunted in 2019 and 2020, equal numbers of residents and nonresidents, and adequate numbers of hunters for each animal type offered were selected. Approximately 10% of Nevada big game hunts are allocated to nonresidents. Nonresident hunters were oversampled in the experimental design so that differences in hunting-related expenditures between resident and nonresident hunters could be compared in the analysis.

⁴ Focus group participants take the survey as a group and provide feedback and discussion of the instrument as a group (Dillman, 2009). Focus group tests took place on December 15 and 17, 2020, and February 3, 2021.

⁵ Pretesting involves participants taking the survey alone and providing feedback via interview or email afterwards. Pretest allow researchers to observe any issues that arise in the survey instrument. (Dillman, 2009)

⁶ A pilot test is a running of a scaled down version of the full implementation strategy to identify any weaknesses in the implementation strategy and survey instrument. (Dillman, 2009)

⁷ Hunters under the age of 18 were omitted from the administrative data and thus were not sampled.

Big game hunters from 2019 were sampled in order to evaluate the possible impacts of the COVID-19 pandemic on hunter expenditures in 2020. For less commonly hunted animals (less than 300 tags available annually), we sampled nearly every tag recipient.

The upland game hunter sample was designed to allow the estimation of the total number of upland game hunters served by NDOW, in addition to the estimation of their expenditures. Section 5 describes in detail how the sample and survey were designed to estimate the total number of hunting license holders who hunted upland game in 2020.

2.3.3 Expenditure Survey Population

The expenditure survey was completed in full by 2,004 hunters. Of the respondents, 63% are residents and the remaining 37% are nonresidents.⁸ Additionally, 92% of the survey respondents are male. 78% of the respondents hunted big game in 2019 or 2020 and 30% hunted upland game in 2020. Table 3 shows key variables from the big game sample side by side with the survey population for 2019 and 2020.

Table 2. Survey Implementation Summary

	Pilot	Full	Total
Study Population	600	8,230	8,830
Delivered Emails	560	7,800	8,360
Surveys Opened	153	2,371	2,524
Surveys Completed	122	1,883	2,004
Open Rate	27%	30%	-
Completion Rate	79%	79%	-
Total Response Rate	21%	24%	-

Table 3. Study Population: Big Game Hunts

	Respondents for 2019 Hunts	Respondents for 2020 Hunts	NDOW Admin Data 2019	NDOW Admin Data 2020
Percent Male	92%	91%	N/A	N/A
Average Age	54	51	46	45
Observations*	470	1,095	18,210	18,708

*Observations for the administrative data do not reflect the total number of hunters per year, as minors are not included in the data and individuals with multiple draws are represented only once.

⁸By design, there is a higher proportion of nonresidents in the survey respondents than there are in the big game hunter population of Nevada each year. This was done in order to achieve a large enough sample size to estimate expenditures for nonresidents.

3. Big Game Hunting Expenditure

This section reports total hunter expenditures for big game animals hunted in Nevada. The analysis starts by estimating the average number of hunting days and scouting days from the NDOW hunt stats data set, and group size from the survey, by species and residency status. The analysis then estimates average per day expenditures for scouting and hunting trips for both the tag holder and their guests, also by animal type and residency status. These quantities are then used to estimate average tag-related expenditures represented by *AvgTagExp* in the following formula:

$$\begin{aligned} AvgTagExp = & AvgDays_{hunting} * (AvgExp_{hunting} + AvgNumberGuests_{hunting} * AvgExp_{guest}) \\ & + AvgDays_{scouting} * (AvgExp_{scouting} + AvgNumberGuests_{scouting} * AvgExp_{guest}) \\ & + AvgOneTimePurchases, \end{aligned}$$

where *AvgDays* is the estimated average number of days hunting and scouting; *AvgExp* is average expenditure per day scouting and hunting for the tag holder and their guests; *AvgNumberGuests* is the average number of nonfamily adult guests in the hunting and scouting party per tag holder (see Section 3.3.3 for a detail description of how guest expenditures are calculated); and *AvgOneTimePurchases* are the average expenditures on items that only have to be purchased once per hunt, such as license fees, guide services, taxidermy and meat processing services. The estimates of average tag-related expenditures are multiplied by the total number of tags to get total big game hunting-related expenditures by species in Nevada in 2020.

3.1 Number of Hunting and Scouting Days

In total, Nevada big game tag holders spent 138,667 days hunting and 54,787 days scouting in the 2020 hunting season. These figures are days spent by tag holders only and do not include days spent by guests; see Section 3.2 for information on guest effort days. Tables 5, 6 and 7 present effort day for residents, nonresidents and both combined, respectively. Antlered elk hunts have the highest average days spent hunting per tag, with residents and nonresidents spending close to a week hunting. On average, hunters spend the least time hunting female antelope (2.28 days). Scouting is a significant portion of the hunting experience for Nevada big game hunters. Over half the expenditure survey respondents reported spending some time scouting before their hunt. Of those who scouted, 66% dedicated one or more trips for the sole purpose of scouting, 36% spent one or more days scouting immediately prior to hunting, and 8% incorporated scouting into their daily routine on one or more occasions. On average, residents spend a half day more scouting than nonresidents, while both groups spend roughly the same amount of time hunting.

3.2 Hunting Party Size

Hunting and scouting trip guests constitute an important part of the hunting experiences and contribute to the total expenditures associated with a big game tag. On average, resident scouting trips have 1.3 guests, and hunting trips have 1.52 guests. On average, nonresident scouting trips have .98 guests, and hunting trips have 1.14 guests. Tables 8, 9 and 10 use the average number of guests on hunting and scouting trips to estimate total person days (tag holder days plus guest days) spent scouting, hunting and combined activities for residents, nonresident and both combined, respectively. One resident effort day results in 1.48 guest effort days, and one nonresident effort day results in 1.10 guest effort days. Resident hunts generated a total of 261,842 guest effort days and a total of 368,611 person effort days. Nonresident hunts generated a total of 18,319 guest effort days and a total of 31,265 person effort days. In total, big game hunting generated an estimated 469,970 person effort days in 2020.

The estimation method of tag-related expenditures described in the start of Section 3 does not apply expenditures for each guest. Rather, the method only applies expenditures to nonfamily adult guests. For completeness, Tables 38 through 40, in Appendix 5, report nonfamily adult guest hunting days, scouting days and efforts days for resident and nonresident hunts. For more on why expenditures were not applied for each guest, see Section 3.3.3.

3.3 Expenditures Per Day

This section reports average expenditures per day for hunting, scouting and guests for each animal type. These per day expenditure results are used to calculate average tag-related expenditures in Section 3.5 using the formula at the start of Section 3. We caution the reader not to over-interpret the per day expenditure results; this is because average per day expenditures go down with trip length. For example, we find that while per day expenditures are higher for female animals compared to male animals, hunters spend more days, on average, hunting male animals, so that total expenditure per tag is higher for male animals.

3.3.1 Expenditures Per Day: Hunting

Table 11 presents the average per day expenditures for resident hunters while hunting. Table 12 reports the average per day expenditures for nonresident hunters while hunting. We report separate per day expenditures for resident and nonresident hunters while hunting because nonresident hunters have significantly higher per day expenditures.

3.3.2 Expenditures Per Day: Scouting

Table 13 presents the average per day expenditures for scouting trips. Residents and nonresidents report similar expenditures for scouting, so they are reported in a single table. The same per day scouting expenditure estimates are used for residents and nonresidents when calculating average tag-related expenditures in Section 3.5.

3.3.3 Expenditures Per Day: Nonfamily Adult Guest

Table 14 presents the average per day expenditures for adult guests outside of the hunter's immediate family. The analysis only considers the expenditures of non-family adult guests because the data reveals respondents of the expenditure survey combine families' guests' (children and spouses) expenditures with their personal expenditures.

We find that for the same length trip, guests spend less than the tag holder on average. Separate per day expenditures for non-family guests for different types of animals are not reported because there are no significant differences in guest expenditures based on animal type. We also do not separate per day expenditures for nonfamily adult guests for resident and nonresident hunters for the same reason.

3.4 One-Time Expenditures

A significant share of total tag-related expenditures is accounted for by one-time expenditures such as those for taxidermy, meat processing, guide services and license fees. Tables 15 through 18 show a summary of these one-time expenditures. One-time expenditures, particularly on taxidermy and guide services, are far greater for hunts for male animals. On average, nonresidents spend approximately 2.6 times more than residents for guide services. Nonresidents are five times more likely to hire a guide service than residents. By design, it is more costly for nonresidents to purchase hunting licenses and apply for tags. License fees are the second highest expenditure category for nonresidents and the sixth highest for residents.

3.5 Average Tag-Related Expenditures

In this section, we present average tag-related expenditures for resident and nonresident tags and average tag-related expenditures for resident and nonresident tags that occur in Nevada. We calculate average tag-related expenditures using the equation at the start of Section 3. This section discusses the factors that influence tag-related expenditures and account for the large differences in spending between types of tags. These factors include species, class of animal, residency status of tag holders, number of days spent hunting and scouting, and spending in separate categories.

Tables 19 and 20 report average tag-related expenditures for each animal for resident and nonresident tags. On average, nonresident tags generate roughly \$1,600 more than resident tags in expenditures. However, when considering expenditures that occur in Nevada, resident tags generate \$500 more of expenditures in Nevada than nonresident tags. Tables 20 and 21 report the portion of average tag-related expenditures that take place in Nevada⁹ for resident and nonresident tags.

Table 19 shows large differences in expenditures among big game species for resident hunters, ranging from \$1,190 per tag for female antelope, to nearly \$6,000 per tag for antlered elk, and over \$8,000 per tag for bighorn sheep. The pattern is similar for nonresidents, with differences ranging from \$3,000 for a male antelope tag, to \$10,000 for an antlered elk tag, and over \$12,000 for a ram bighorn sheep. Differences in tag-related expenditures among animal types are driven primarily by more day's hunting and scouting for certain species, larger hunting parties, and higher one-time expenditures. For example, consider the comparison between resident tags for antlered deer and antlered elk. On average, a resident elk tag generates \$2,589 more than a resident antlered deer tag. Of this difference, 44% is accounted for by differences in one-time expenditures. Differences in spending on guide services alone (a component of one-time expenditures) account for 32% of the total difference in tag-related expenditure. The remaining 55% of the difference between tag-related expenditures is from the trip-related expenditures, which include the daily expenditures of tag holders and guests while hunting and scouting. To provide an idea of the difference in trip-related expenditures, it would take 7.84 additional days of deer hunting (13.46 days of deer hunting total) to match the trip-related expenditure of an elk tag, with the number of scouting days, number of guests and per day expenditures held constant.

The sex of the animal is a significant driver of tag-related expenditures. Consider the average difference of \$3,732 in expenditures generated between a tag for an antlered elk (male) and a tag for an antlerless elk (female) for resident hunters. The story here is similar to the comparison between the antlered deer and antlered elk; a significant portion (in this case 28%) of the difference in total expenditure is due to the difference in one-time expenditures, primarily guide services. The remaining 72% of the difference is due to the differences in trip-related expenditures due to fewer days spent hunting and scouting and fewer guests for female elk tags.

⁹ Nonresident tag-related expenditures that occurred in Nevada are estimated by subtracting expenditures that are made before leaving on a hunting or scouting trip from the total expenditures, and substituting nonresident travel expenditures with resident travel expenditures, assuming nonresident travel expenditures within the state are equal to resident travel expenditures for the same animal type for the same number of days spent hunting and/or scouting. Finally, we account for the portion of taxidermy and meat processing services for residents and nonresidents that occurs out of state.

Throughout this report, particular attention has been paid to the differences in spending between resident and nonresident hunters. Along with animal type, residency is one of the most significant factors explaining the differences in tag-related expenditures. Consider the \$4,124 difference in average tag-related spending between a nonresident and resident antlered elk tag. Nonresidents outspend residents on average trip-related expenditures, which account for 32% of the total difference. The remaining 67% of the difference between resident and nonresident antlered elk tag-related expenditures is the result of very different spending on one-time expenditures. On average, nonresidents spend 2.6 times as much on guide services and 7 times as much on license and fees compared to residents for an antlered elk tag.

Spending by hunters is uneven, with most hunters spending relatively little and others spending significantly. This is illustrated by the fact that half of the tag holders sampled report spending \$750 or less on trip-related expenditures for their last hunting trip, whereas the average was \$1,077. Figure 1 presents a histogram of total reported trip-related expenditures made by tag holders on their most recent hunting trip and does not include guest expenditures.

Figure 2 shows the distribution of tag-holder expenditures by species from the expenditure survey. Figure 2 illustrates the large range in tag-holder expenditures for each species. This large range in tag-holder expenditures suggests that our estimates of average tag holder expenditure per day for species with low numbers of observations may be significantly different from the true means. This is a particular worry for species such as mountain goat, ewe sheep (for nonresidents) and black bear (for nonresidents), where we have fewer than 10 observations. This potential for bias was unavoidable because of the small number of total tags for many species. All tag holders for low-tag species were sent survey invitations. Further, given the small number of total tags for these species, any bias in our estimates of average tag expenditures per day will not have a significant impact on our conclusions about total hunting expenditures in the state.

3.6 Total Big Game Hunting Expenditures in 2020

Tables 23 through 25 report total tag-related expenditures and the portion that occur in Nevada by each type of big game animal for residents, nonresidents and combined. Averages and totals for resident and nonresident tags are presented in Table 26. Tag holders and their guests spent an estimated total of \$86,555,880 on tag-related expenditures in 2020. Of the total tag-related expenditures, an estimated \$80,700,891 were spent in Nevada. Resident tag-related spending constitutes 92% of total tag-related spending within Nevada, which is slightly higher than the proportion of tags allocated to residents each year. For nonresidents, 53% of total tag-related expenditures occur out of state.

Less than \$1 million of resident tag-related expenditures (Less than 1 percent) occur out of state for taxidermy and meat processing services.

Antlered mule deer tags constitute 47% of the tags offered in 2020, and the expenditures related to these tags (\$40,162,753) represent the greatest portion (50%) of total tag-related expenditures in Nevada. The second highest total tag-related expenditure is for antlered elk. Antlered elk tags represent 7.8% of the tags offered, but total tag-related expenditures for antlered elk constitute 15% of the total tag-related expenditures in Nevada. The outsized impact of antlered elk tags is attributed to their higher-than-average tag-related expenditures. Tag-related expenditures for antelope, mule deer and elk represent 96% of total tag-related spending in Nevada. Tags for bighorn sheep, mountain goat and black bear represent 2% of tags, but contribute 4% of total tag-related expenditures in Nevada.

Tag-related expenditures are not evenly distributed throughout the Nevada. Tag-related expenditures are heavily concentrated in the northeast of the state and in the two most populous counties (Clark County and Washoe County). Figure 3 and accompanying Table 4 show the distribution of tag-related expenditures in Nevada's counties. Respondents indicate if they made an expenditure before leaving home, while traveling or near the hunt site. The home zip code and hunt unit from the NDOW administrative data are matched to the respective counties, and a driving route is plotted between them using the routing software package `stplanr` on R (Lovelace and Ellison. 2018). Expenditures made before leaving home are assigned to the hunter's home county. Expenditures made while traveling are apportioned base on mileage to the counties along the hunter's driving route. Expenditures made near the hunt site are assigned to the hunt county.

Figure 1. Histogram of Total Tag-Holder Expenditures on Their Last Trip

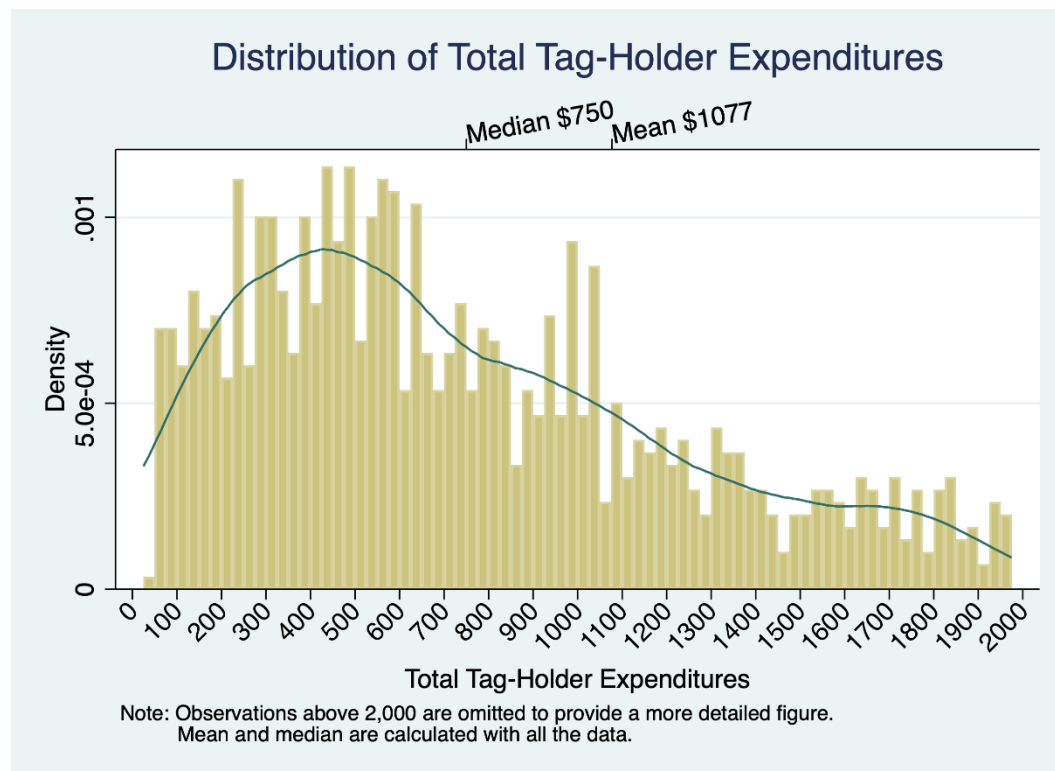


Figure 2: Distribution of Tag Holder Expenditure by Tag

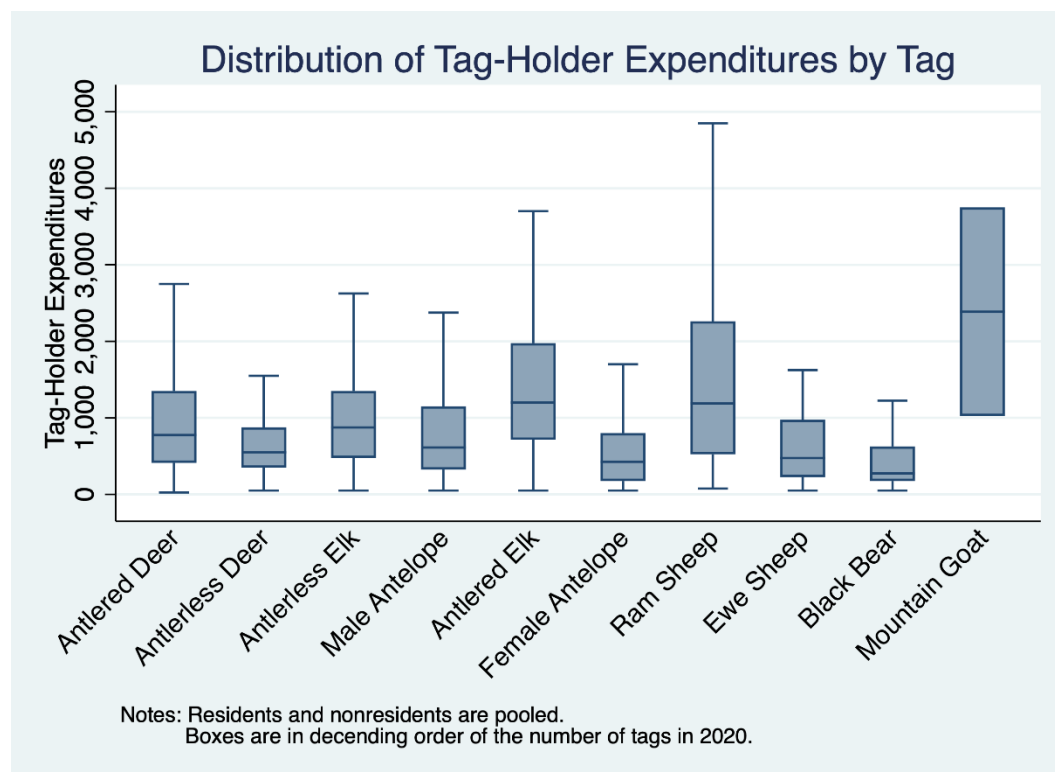


Figure 3. Tag-Related Expenditures by County

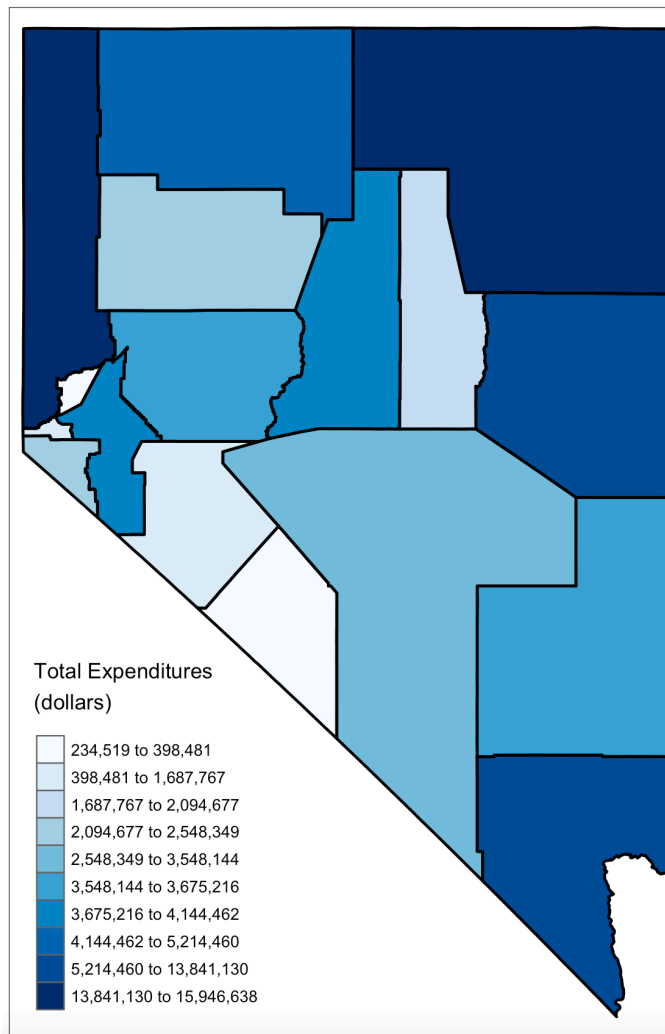


Table 4. Total Tag-Related Expenditures by County

County	Total Expenditures
Storey	\$234,519
Esmeralda	\$234,944
Mineral	\$507,506
Carson City	\$1,660,798
Eureka	\$1,795,647
Pershing	\$2,169,434
Douglas	\$2,441,527
Nye	\$2,708,583
Lincoln	\$3,548,144
Churchill	\$3,662,647
Lyon	\$3,683,595
Lander	\$4,084,295
Humboldt	\$4,385,131
White Pine	\$5,421,793
Clark	\$12,774,262
Elko	\$15,441,431
Washoe	\$15,946,638
Total	\$80,700,891

Table 5. Effort Days by Animal for Tag Holders, Residents

Statistic	Male Antelope	Female	Antlered Deer	Antlerless	Antlered	Antlerless	Ram	Ewe	Mountain	Black	All
Average Hunt	3.38	2.28	5.61	4.75	6.82	5.22	5.73	2.50	4.44	6.12	5.09
Average Scout Days	2.00	0.91	2.20	1.74	3.11	1.60	5.04	1.11	2.00	1.58	2.07
Average Effort	5.38	3.19	7.81	6.49	9.93	6.82	10.77	3.61	6.44	7.70	7.16
Number of Tags	2,666	1,171	11,301	4,353	1,828	2,889	339	95	9	41	24,692
Total Hunt Days	9,011	2,670	63,399	20,677	12,467	15,081	1,942	238	40	251	125,775
Total Scout Days	5,332	1,066	24,862	7,574	5,685	4,622	1,709	105	18	65	51,038
Total Effort Days	14,343	3,735	88,261	28,251	18,152	19,703	3,651	343	58	316	176,813

Source: NDOW big game hunt statistics 2020.

Table 6. Effort Days by Animal for Tag Holders, Nonresidents

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	All
Average Hunt Days	3.24	-	5.80	-	6.47	4.60	3.32	2.39	-	5.39	5.35
Average Scout Days	1.51	-	1.50	-	2.04	1.15	3.78	1.58	-	0.56	1.58
Average Effort Days	4.75	-	7.30	-	8.51	5.75	7.10	3.97	-	5.95	6.92
Number of Tags	357	-	1,512	-	287	185	41	11	-	6	2,399
Total Hunt Days	1,157	-	8,770	-	1,857	851	136	26	-	32	12,829
Total Scout Days	539	-	2,268	-	585	213	155	17	-	3	3,781
Total Effort Days	1,696	-	11,038	-	2,442	1,064	291	44	-	36	16,610

Source: NDOW big game hunt statistics 2020.

Table 7. Effort Days by Animal for Tag Holders, Combined Residents and Nonresidents

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	All
Average Hunt Days	3.36	2.28	5.63	4.75	6.77	5.18	5.47	2.49	4.44	6.03	5.12
Average Scout Days	1.94	0.91	2.12	1.74	2.96	1.57	4.90	1.16	2.00	1.45	2.02
Average Effort Days	5.31	3.19	7.75	6.49	9.74	6.76	10.37	3.65	6.44	7.48	7.14
Number of Tags	3,023	1,171	12,813	4,353	2,115	3,074	380	106	9	47	27,091
Total Hunt Days	10,168	2,670	72,168	20,677	14,324	15,932	2,079	264	40	283	138,604
Total Scout Days	5,871	1,066	27,130	7,574	6,271	4,835	1,864	123	18	68	54,819
Total Effort Days	16,039	3,735	99,298	28,251	20,594	20,767	3,942	387	58	351	193,423

Table 8. Effort Days by Animal for Tag Holders and Guests, Residents

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	All
Average Number of Hunting Guests	1.59	1.24	1.46	1.29	2.36	1.44	3.3	1.44	2.5	2.33	1.52
Total Hunt Days Per Tag Holder and Guests	9,011	2,670	63,399	20,677	12,467	15,081	1,942	238	40	251	125,775
Total Guest Hunt Days	14,328	3,311	92,562	26,673	29,422	21,716	6,410	342	100	585	195,448
Total Person* Hunt Days	23,339	5,981	155,961	47,350	41,889	36,797	8,353	580	140	836	317,572
Average Number of Scouting Guests	1.27	0.89	1.28	1.25	1.75	1.25	2	1.8	1	2.88	1.30
Total Scout Days Per Tag Holder and Guests	5,332	1,066	24,862	7,574	5,685	4,622	1,709	105	18	65	51,038
Total Guest Scout Days	6,772	948	31,824	9,468	9,949	5,778	3,417	190	18	187	66,394
Total Person* Scout Days	12,104	2,014	56,686	17,042	15,634	10,400	5,126	295	36	251	117,432
Total Guest Effort Days	21,099	4,259	124,386	36,141	39,371	27,494	9,827	532	118	771	261,842
Total Person* Effort Days	28,671	7,046	180,823	54,924	47,574	41,419	10,061	685	158	900	368,611
Number of Tags	2,666	1,171	11,301	4,353	1,828	2,889	339	95	9	41	24,692

* Person days include activity days for the tag holder and their guests.

Table 9. Effort Days by Animal for Tag Holders and Guests, Nonresidents

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	All
Average Number of Hunting Guests	1.17	-	0.98	-	1.73	1.29	2.37	0.25	-	1	1.14
Total Hunt Days Per Tag Holder and Guests	1,157	-	8,770	-	1,857	851	136	26	-	32	12,829
Total Guest Hunt Days	1,353	-	8,594	-	3,212	1,098	323	7	-	32	14,619
Total Person* Hunt Days	2,510	-	17,364	-	5,069	1,949	459	33	-	65	27,484
Average Number of Scouting Guests	0.91	-	0.91	-	1.48	0.89	1.4	-	-	0	0.98
Total Scout Days Per Tag Holder and Guests	539	-	2,268	-	585	213	155	17	-	3	3,781
Total Guest Scout Days	491	-	2,064	-	867	189	217	-	-	-	3,700
Total Person* Scout Days	1,030	-	4,332	-	1,452	402	372	17	-	3	7,481
Total Guest Effort Days	1,844	-	10,658	-	4,079	1,287	540	7	-	32	18,319
Total Person* Effort Days	3,049	-	19,632	-	5,655	2,162	614	50	-	68	31,265
Number of Tags	357	-	1,512	-	287	185	41	11	-	6	2,399

* Person days include activity days for the tag holder and their guests.

Table 10. Effort Days by Animal for Tag Holders and Guests, Combined Residents and Nonresidents

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	All
Total Guest Hunt Days	15,681	3,311	101,156	26,673	32,634	22,814	6,733	349	100	617	210,067
Total Person* Hunt Days	25,849	5,981	173,324	47,350	46,958	38,745	8,811	612	140	900	345,057
Total Guest Scout Days	7,262	948	33,887	9,468	10,815	5,967	3,634	190	18	187	70,094
Total Person* Scout Days	13,133	2,014	61,018	17,042	17,086	10,802	5,498	313	36	255	124,913
Total Guest Effort Days	22,943	4,259	135,044	36,141	43,450	28,781	10,367	538	118	804	280,161
Total Person* Effort Days	38,982	7,995	234,342	64,392	64,044	49,548	14,309	925	176	1,155	469,970

* Person days include activity days for the tag holder and their guests.

Table 11. Per Day Average Resident Hunting Expenditures

Expenditure Category	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	Average
Supplies and Gear	\$61	\$91	\$75	\$144	\$127	\$60	\$94	\$62	\$313	\$24	\$89
Fuel	\$67	\$98	\$55	\$78	\$64	\$65	\$77	\$121	\$55	\$37	\$65
Rental Equipment	-	-	\$1	\$2	\$0	-	\$7	-	-	-	\$1
Groceries	\$43	\$44	\$39	\$47	\$36	\$36	\$52	\$49	\$33	\$14	\$41
Hotel; motel; campsite	\$9	\$9	\$10	\$20	\$27	\$12	\$9	\$3	\$11	-	\$13
Restaurants (Full Service)	\$10	\$15	\$9	\$12	\$14	\$9	\$16	\$7	-	\$8	\$10
Fast Food	\$7	\$9	\$6	\$12	\$6	\$6	\$11	\$13	\$12	\$3	\$7
Bars	\$2	\$11	\$3	\$3	\$4	\$1	\$5	\$4	-	\$0	\$3
Other	-	\$0	\$0	-	\$0	\$0	-	-	-	\$3	\$0
Total	\$199	\$278	\$197	\$316	\$278	\$190	\$271	\$258	\$424	\$88	\$228
Observations	144	115	316	131	144	124	56	17	2	19	

Table 12. Per Day Average Nonresident Hunting Expenditures

Expenditure Category	Male Antelope	Antlered Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Black Bear	Average
Supplies and Gear	\$106	\$104	\$241	\$104	\$300	\$366	\$73	\$125
Fuel	\$115	\$69	\$79	\$78	\$155	\$456	\$47	\$81
Rental Equipment	\$0	\$3	\$28	-	\$2	\$63	-	\$6
Groceries	\$67	\$35	\$40	\$43	\$54	\$100	\$26	\$42
Hotel, Motel, Campsite	\$31	\$20	\$89	\$28	\$89	\$213	\$27	\$33
Restaurants (Full Service)	\$27	\$16	\$16	\$21	\$49	\$94	\$15	\$19
Fast Food	\$17	\$9	\$9	\$8	\$28	\$52	\$9	\$11
Bars	\$4	\$4	\$2	\$6	\$13	\$19	\$2	\$4
Other	\$17	\$0	\$0	\$1	\$0	-	-	\$3
Total	\$383	\$261	\$503	\$289	\$690	\$1,361	\$199	\$323
Observations	136	207	111	75	30	6	3	

Table 13. Per Day Average Scouting Expenditures

Expenditure Category	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	Average
Supplies and Gear	\$117	\$60	\$174	\$117	\$157	\$86	\$212	\$42	\$833	\$12	\$142
Fuel	\$99	\$105	\$116	\$99	\$106	\$102	\$111	\$107	\$83	\$55	\$108
Rental Equipment	\$2	-	\$5	-	\$1	-	\$8	-	-	-	\$3
Groceries	\$50	\$20	\$58	\$46	\$58	\$61	\$63	\$44	\$75	\$18	\$54
Hotel, Motel, Campsite	\$19	\$11	\$17	\$12	\$23	\$16	\$38	-	\$50	\$1	\$17
Restaurants (Full Service)	\$19	\$12	\$17	\$23	\$22	\$21	\$26	\$13	-	\$2	\$19
Fast food	\$12	\$3	\$11	\$18	\$8	\$9	\$16	\$21	\$8	\$5	\$11
Bars	\$4	\$1	\$6	\$8	\$4	\$1	\$7	\$5	-	-	\$5
Other	\$1	\$0	\$0	-	\$1	-	-	-	-	\$20	\$0
Total	\$324	\$212	\$403	\$322	\$379	\$295	\$481	\$232	\$1,050	\$111	\$359
Observations	280	116	523	132	255	199	86	23	2	22	

Table 14. Per Day Average Guest Expenditures

Expenditure Category	Average
Supplies and Gear	\$70
Fuel	\$58
Rental Equipment	-
Groceries	\$36
Hotel, Motel, Campsite	\$11
Restaurants (Full Service)	\$13
Fast Food	\$7
Bars	\$2
Other	\$0
Total	\$197
Observations	140

Table 15. One-Time Expenditures, Taxidermy

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	Average
Resident % of Hunters Who Use the Service	38%	3%	10%	2%	28%	1%	75%	50%	100%	33%	13%
Resident Average Expenditure of the Service	\$388	\$200	\$576	\$475	\$851	\$300	\$1,315	\$981	\$2,900	\$1,875	\$522
Resident Average Expenditure Over All Hunters	\$155	\$6	\$57	\$8	\$233	\$3	\$968	\$462	\$2,900	\$662	\$78
Nonresident % of Hunters Who Use the Service	30%	-	16%	-	40%	0%	76%	75%	-	33%	21%
Nonresident Average Expenditure of the Service	\$472	-	\$576	-	\$990	-	\$1,773	\$417	-	\$13,000	\$584
Nonresident Average Expenditure Over All Hunters	\$141	-	\$96	-	\$390	-	\$1,345	\$250	-	\$433	\$152

Table 16. One-Time Expenditures, Meat Processing

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	Average
Resident % of Hunters Who Use the Service	26%	13%	17%	24%	19%	17%	32%	12%	50%	11%	19%
Resident Average Expenditure of the Service	\$145	\$181	\$153	\$116	\$335	\$161	\$215	\$100	\$150	\$225	\$162
Resident Average Expenditure Over All Hunters	\$40	\$23	\$26	\$29	\$62	\$28	\$69	\$12	\$75	\$30	\$31
Nonresident % of Hunters Who Use the Service	24%	-	16%	-	38%	16%	41%	0%	-	33%	20%
Nonresident Average Expenditure of the Service	\$179	-	\$185	-	\$262	\$236	\$154	-	-	\$300	\$196
Nonresident Average Expenditure Over All Hunters	\$42	-	\$31	-	\$98	\$37	\$64	-	-	\$100	\$41

Table 17. One-Time Expenditures, Guide Service

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	Average
Resident % of Hunters That Use the Service	2%	0%	2%	0%	16%	3%	11%	0%	0%	22%	3%
Resident Average Expenditure of the Service	\$1,583	-	\$2,333	-	\$5,974	\$3,833	\$6,500	-	-	\$5,250	\$2,229
Resident Average Expenditure Over All Hunters	\$37	-	\$50	-	\$894	\$106	\$625	-	-	\$1,167	\$117
Nonresident % of Hunters That Use the Service	14%	-	13%	-	39%	6%	53%	0%	-	66%	16%
Nonresident Average Expenditure of the Service	\$2,625	-	\$4,948	-	\$5,970	\$3,750	\$5,953	-	-	\$5,500	\$4,614
Nonresident Average Expenditure Over all Hunters	\$341	-	\$609	-	\$2,309	\$214	\$3,175	-	-	\$3,666	\$782

Table 18. One-Time Expenditures, License Fees

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	Average
Resident Average Expenditure	\$128	\$128	\$98	\$98	\$193	\$193	\$188	\$188	\$188	\$168	\$123
Nonresident Average Expenditure	\$465	-	\$405	-	\$1,370	\$670	\$1,365	\$1,365	-	\$465	\$570

Table 19. Resident Tag-Related Expenditures

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	Average
Supplies and Gear	\$759	\$323	\$1,387	\$1,007	\$1,808	\$611	\$2,751	\$462	\$4,365	\$1,194	\$1,158
Fuel	\$521	\$417	\$830	\$618	\$1,221	\$600	\$1,696	\$506	\$1,327	\$1,089	\$753
Rental Equipment	\$5	\$-	\$8	\$8	\$6	\$-	\$40	\$-	\$-	\$-	\$7
Groceries	\$311	\$141	\$497	\$333	\$717	\$355	\$1,065	\$209	\$842	\$569	\$438
Hotel, Motel, Campsite	\$78	\$34	\$101	\$107	\$315	\$95	\$254	\$22	\$316	\$149	\$113
Restaurants (Full Service)	\$86	\$49	\$125	\$96	\$253	\$94	\$321	\$39	\$193	\$220	\$120
Fast food	\$51	\$29	\$63	\$88	\$118	\$53	\$181	\$54	\$174	\$116	\$69
Bars	\$21	\$42	\$48	\$26	\$60	\$14	\$74	\$15	\$37	\$32	\$38
Other	\$1	\$1	\$5	\$0	\$4	\$1	\$4	\$1	\$4	\$54	\$3
Taxidermy	\$155	\$6	\$57	\$8	\$233	\$3	\$968	\$462	\$2,900	\$662	\$79
Meat Processing	\$40	\$23	\$26	\$29	\$62	\$28	\$69	\$12	\$75	\$30	\$31
Guide Service	\$37	\$-	\$50	\$-	\$894	\$106	\$625	\$-	\$-	\$1,167	\$116
License and Fees	\$128	\$128	\$98	\$98	\$193	\$193	\$188	\$188	\$188	\$168	\$123
Total	\$2,193	\$1,192	\$3,296	\$2,419	\$5,885	\$2,153	\$8,235	\$1,970	\$10,421	\$5,450	\$3,049

Table 20. Nonresident Tag-Related Expenditures

Statistic	Male Antelope	Antlered Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Black Bear	Average
Supplies and Gear	\$660	\$1,107	\$2,661	\$911	\$2,503	\$1,014	\$575	\$1,233
Fuel	\$687	\$774	\$1,224	\$731	\$1,720	\$1,383	\$419	\$830
Rental Equipment	\$0	\$32	\$180	\$-	\$89	\$150	\$-	\$44
Groceries	\$375	\$399	\$637	\$412	\$823	\$343	\$230	\$432
Hotel, Motel, Campsite	\$152	\$200	\$718	\$196	\$823	\$517	\$176	\$266
Restaurants (Full Service)	\$154	\$167	\$250	\$179	\$520	\$255	\$113	\$182
Fast food	\$90	\$100	\$127	\$75	\$310	\$169	\$70	\$104
Bars	\$25	\$36	\$38	\$37	\$123	\$55	\$20	\$36
Other	\$61	\$3	\$6	\$4	\$3	\$0	\$11	\$12
Taxidermy	\$141	\$96	\$390	\$-	\$1,345	\$250	\$433	\$153
Meat Processing	\$42	\$31	\$98	\$37	\$64	\$-	\$100	\$42
Guide Service	\$341	\$609	\$2,309	\$214	\$3,175	\$-	\$3,667	\$791
License and Fees	\$465	\$405	\$1,370	\$670	\$1,365	\$1,365	\$465	\$571
Total	\$3,194	\$3,960	\$10,008	\$3,467	\$12,861	\$5,501	\$6,279	\$4,696

Table 21. Resident Tag-Related Expenditures in Nevada

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	Average
Supplies and Gear	\$759	\$323	\$1,387	\$1,007	\$1,808	\$611	\$2,751	\$462	\$4,365	\$1,194	\$1,158
Fuel	\$521	\$417	\$830	\$618	\$1,221	\$600	\$1,696	\$506	\$1,327	\$1,089	\$753
Rental Equipment	\$5	\$-	\$8	\$8	\$6	\$-	\$40	\$-	\$-	\$-	\$7
Groceries	\$311	\$141	\$497	\$333	\$717	\$355	\$1,065	\$209	\$842	\$569	\$438
Hotel, Motel, Campsite	\$78	\$34	\$101	\$107	\$315	\$95	\$254	\$22	\$316	\$149	\$113
Restaurants (Full Service)	\$86	\$49	\$125	\$96	\$253	\$94	\$321	\$39	\$193	\$220	\$120
Fast food	\$51	\$29	\$63	\$88	\$118	\$53	\$181	\$54	\$174	\$116	\$69
Bars	\$21	\$42	\$48	\$26	\$60	\$14	\$74	\$15	\$37	\$32	\$38
Other	\$1	\$1	\$5	\$0	\$4	\$1	\$4	\$1	\$4	\$54	\$3
Taxidermy	\$121	\$5	\$44	\$7	\$182	\$2	\$755	\$360	\$2,262	\$516	\$62
Meat Processing	\$29	\$17	\$19	\$21	\$45	\$20	\$50	\$8	\$54	\$22	\$23
Guide Service	\$37	\$-	\$50	\$-	\$894	\$106	\$625	\$-	\$-	\$1,167	\$116
License and Fees	\$128	\$128	\$98	\$98	\$193	\$193	\$188	\$188	\$188	\$168	\$123
Total	\$2,148	\$1,184	\$3,276	\$2,409	\$5,816	\$2,144	\$8,003	\$1,865	\$9,762	\$5,296	\$3,023

Table 22. Nonresident Tag-Related Expenditures in Nevada

Statistic	Male Antelope	Antlered Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Black Bear	Average
Supplies and Gear	\$66	\$86	\$115	\$68	\$133	\$30	\$33	\$85
Fuel	\$391	\$369	\$463	\$364	\$572	\$556	\$245	\$387
Rental Equipment	\$0	\$9	\$0	\$0	\$2	\$150	\$0	\$7
Groceries	\$160	\$148	\$216	\$157	\$236	\$163	\$89	\$160
Hotel, Motel, Campsite	\$150	\$159	\$432	\$170	\$426	\$519	\$56	\$197
Restaurants (Full Service)	\$139	\$145	\$186	\$160	\$325	\$231	\$153	\$154
Fast food	\$79	\$83	\$91	\$70	\$183	\$120	\$94	\$84
Bars	\$25	\$33	\$37	\$31	\$84	\$63	\$27	\$33
Other	\$53	\$1	\$2	\$4	\$1	\$0	\$0	\$9
Taxidermy	\$37	\$25	\$102	\$-	\$350	\$65	\$113	\$40
Meat Processing	\$8	\$6	\$19	\$7	\$12	\$-	\$19	\$8
Guide Service	\$341	\$609	\$2,309	\$214	\$3,175	\$-	\$3,667	\$791
License and Fees	\$465	\$405	\$1,370	\$670	\$1,365	\$1,365	\$465	\$571
Total	\$1,914	\$2,079	\$5,341	\$1,915	\$6,864	\$3,262	\$4,961	\$2,526

Table 23. Total Tag-Related Expenditures by Animal, Resident

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear
Number of Tags	2,666	1,171	11,301	4,353	1,828	2,889	339	95	9	41
Average Tag-Related Expenditures	\$2,193	\$1,192	\$3,296	\$2,419	\$5,885	\$2,153	\$8,235	\$1,970	\$10,421	\$5,450
Total Tag-Related Expenditure	\$5,846,991	\$1,396,090	\$37,245,158	\$10,528,209	\$10,757,195	\$6,219,468	\$2,791,807	\$187,164	\$93,788	\$223,443
Average Tag-Related Expenditures in Nevada	\$2,148	\$1,184	\$3,276	\$2,409	\$5,816	\$2,144	\$8,003	\$1,865	\$9,762	\$5,296
Total Tag-Related Expenditure in Nevada	\$5,726,025	\$1,387,005	\$37,019,879	\$10,485,406	\$10,631,629	\$6,195,295	\$2,713,083	\$177,201	\$87,857	\$217,129

Table 24. Total Tag-Related Expenditures by Animal, Nonresidents

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear
Number of Tags	357		1,512		287	185	41	11		6
Average Tag-Related Expenditures	\$3,194		\$3,960		\$10,008	\$3,467	\$12,861	\$5,501		\$6,279
Total Tag-Related Expenditure	\$1,140,383		\$5,986,961		\$2,872,391	\$641,328	\$527,320	\$60,513		\$37,671
Average Tag-Related Expenditures in Nevada	\$1,914		\$2,079		\$5,341	\$1,915	\$6,864	\$3,262		\$4,961
Total Tag-Related Expenditure in Nevada	\$683,316		\$3,142,873		\$1,532,864	\$354,268	\$281,408	\$35,884		\$29,767

Table 25. Total Tag-Related Expenditures by Animal, Combined Residents and Nonresidents

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear
Number of Tags	3,023	1,171	12,813	4,353	2,115	3,074	380	106	9	47
Average Tag-Related Expenditures	\$2,311	\$1,192	\$3,374	\$2,419	\$6,444	\$2,232	\$8,735	\$2,337	\$10,421	\$5,556
Total Tag-Related Expenditure	\$6,987,374	\$1,396,090	\$43,232,118	\$10,528,209	\$13,629,586	\$6,860,796	\$3,319,127	\$247,678	\$93,788	\$261,114
Average Tag-Related Expenditures in Nevada	\$2,120	\$1,184	\$3,135	\$2,409	\$5,752	\$2,131	\$7,880	\$2,010	\$9,762	\$5,253
Total Tag-Related Expenditure in Nevada	\$6,409,341	\$1,387,005	\$40,162,753	\$10,485,406	\$12,164,493	\$6,549,563	\$2,994,491	\$213,085	\$87,857	\$246,896

Table 26. Summary Total Tag-Related Expenditures

Residency	Number of Tags	Average Tag-Related Expenditures	Total Tag-Related Expenditure	Average Tag-Related Expenditures in Nevada	Total Tag-Related Expenditure in Nevada
Resident	24,692	\$3,049	\$75,289,313	\$3,023	\$74,640,510
Nonresident	2,399	\$4,696	\$11,266,567	\$2,526	\$6,060,381
Combined	27,091	\$3,195	\$86,555,880	\$2,979	\$80,700,891

4. Hunting in Nevada and COVID-19

The COVID-19 pandemic impacted many sectors of the Nevada economy. To test whether big game hunting was affected, we analyzed differences in average hunting-related expenditures, average hunting party size, and average number of days spent hunting and scouting reported in 2019 (before the pandemic) versus in 2020 (during the pandemic). Table 27 presents a difference of means tests for the above-mentioned variables. Significant reductions in one or several of the statistics presented in Table 27 may suggest big game hunting was indeed affected by the COVID-19 pandemic.

From the administrative data, the number of tags offered by NDOW decreased by roughly 500 tags from 2019 to 2020, but not as a result of COVID-19. The process for setting tag quotas is driven mainly by animal population dynamics, and there was no public health reason to limit the number of tags. It is possible, although there is no obvious evidence, some hunters may have opted out of hunting if they were drawn for a tag due to concerns over COVID-19. However, the demand for tags is so great that a returned tag can be reissued easily, given adequate notice. Like most years, 2020 saw few tags go unused. Table 27 shows hunters who hunted big game in 2020 spent roughly the same number of days hunting and scouting as those who hunted big game in 2019 and the proportion of hunters who scouted remained unchanged.

Results in Table 27 show no evidence of a significant difference in average tag-related expenditures in 2019 compared to 2020, for both residents and nonresidents. There is no evidence of significant differences in hunting trip-related expenditures in most categories between 2019 and 2020, except for supplies and gear, which increased. Further, Table 27 shows the average group size increased by 0.4 people from 2019 to 2020.

The absence of significant reductions in one or more of the variables in Table 27, and the fact that average group size and trip-related expenditures on supplies and gear increased, suggest that big game hunting-related expenditures in Nevada were not significantly affected by the COVID-19 pandemic. The analysis is limited to measuring differences between years, which may include other changes that affect hunting. The net effect of the changes during the COVID-19 pandemic were no effect. If there was a negative effect from the COVID-19 pandemic, it is not larger enough to measurably affect spending and participation.

Table 27. *Difference of Means Test, 2019 versus 2020*

Variable	Year 2019 Mean	Year 2020 Mean	Pr(T > t)
Group Size**	2.85	3.25	0.001
Days Hunted	5.02	5.32	0.162
Percent Scouted	58%	57%	0.606
Days Scouted	2.86	2.68	0.313
Supplies and Gear**	\$353	\$468	0.034
Fuel	\$298	\$276	0.199
Rental Equipment	\$5	\$12	0.373
Groceries	\$160	\$171	0.311
Hotel, Motel, Campsite	\$101	\$72	0.059
Restaurants (Full Service)	\$57	\$56	0.771
Fast Food	\$31	\$31	0.872
Bars	\$13	\$13	0.847
Other	\$4	\$4	0.886
Average Resident Tag-Related Expenditure*	\$3,996	\$4,429	0.412
Average Nonresident Tag-Related Expenditure*	\$5,816	\$5,421	0.509
Observations	452	1053	

*Average tag-related expenditures are unweighted and therefore do not reflect averages in Tables 3.8 and 3.9.

**Variables with statistically significant differences between 2019 and 2020.

5. Upland Game

In this section, we present information on upland game hunts, which includes hunts for quail (California, Gambel's, and Mountain), pheasant, chukar, Hungarian partridge, sage grouse, dusky grouse, sooty grouse and ruffed grouse. This section has three parts. The first presents estimates of the total number of upland game hunters and hunting days statewide by the type of hunting trip (primary versus secondary). The second estimates per day expenditures while hunting upland game and the per day expenditures that occur within Nevada. The third estimates total expenditures generated by upland game hunting in Nevada. The estimates in this section do not include individuals under 18, as they were not sampled.

5.1 Upland Game Hunting Participation

NDOW offers a handful of different licenses, including annual and day nonresident combination hunting and fishing licenses, annual resident combination hunting and fishing licenses, annual resident hunting licenses, and several other annual hunting-only and hunting and fishing combination licenses offered to select groups of residents. We were unable to sample from every license type due to sampling constraints. However, the sampling strategy and estimation methods described in this section allow the estimation of upland hunting participation for each group of license holders. We divided the population of potential upland game hunters into five segments to estimate the total number of upland game hunters. Table 28 presents the estimates of the proportion of upland game hunting participation and the total number of hunters who hunt upland game by residency for the five segments.

First, we estimated the number of big game hunters in 2020 who also hunted upland game using information on the total number of tag recipients from the NDOW administrative data and the portion of tag recipients who hunt upland game from the hunter expenditure survey.

Second, we estimated the number of unsuccessful tag draw participants who hunt upland game using the total number of unsuccessful applicants and the proportion of them who hunted upland game from the hunter expenditure survey.

Third, we determined the proportion of combination hunting and fishing license holders who did not participate in the big game tag draw who hunted upland game using data from the hunter expenditure survey and applied it to the number of individuals in the segment.

Fourth, we determined the proportion of hunting-only license holders who did not participate in the tag draw who hunted upland game.

For this we use the proportion of resident hunting and fishing combination license holders who hunted upland game versus waterfowl (the only two possible activities for those in the segment being estimated) from the hunter expenditure survey and applied that to the number of hunters who fall within the segment.

Fifth, we estimated the number of upland game hunting days spent by nonresidents who purchased a hunting and fishing day license and/or an additional day. For this we used the proportion of nonresident combination license holders who did not apply for big game and hunted upland game, waterfowl, or fished to estimate the participation rates of each activity for nonresidents that purchased day licenses. Based on the relative participation rates, we estimate the proportion of nonresident combination hunting and fishing day licenses and additional days that were purchased to hunt upland game.

The number of upland game hunting days was estimated by multiplying the average number of primary- and secondary-purpose hunting days in 2020, from the expenditure survey, by the total number of estimated upland game hunters in the state, and then adding the estimated number of days attributed to nonresident day hunting licenses and additional license days purchased. Table 29 presents estimates for the number of upland game hunters, the number days spent on primary and secondary purpose hunts, and total number of days spent hunting by license type.

In 2020, an estimated 39,982 upland game hunters spent a combined 209,110 days hunting upland game in Nevada. Total days spent hunting upland game is more than the estimated 193,423 big game tag-holder effort days in 2020. However, total upland game hunting days is less than estimated total big game person effort days (469,970 days). Big game person effort days include days spent by non-tag holder guests who accompany the tag holder on their hunting and scouting trips. For upland game, it is less common to have non-hunting guests and less common to scout therefore total person effort days and scouting days are not estimated.

5.2 Upland Game Hunting Expenditures

This section presents average per day expenditures for primary- and secondary-purpose upland game hunting trips. Feedback from the focus groups indicate that it is uncommon for a non-hunting guest to participate in an upland game hunting trip. Additionally, focus group feedback indicates that scouting and spending on guide services, taxidermy and meat processing are less common for upland game hunts and were therefore omitted from the survey.

Table 30 presents the average per day expenditures for primary- and secondary-purpose upland game hunting trips. The average total per day expenditure is \$221 for primary purpose hunts and \$153 for secondary purpose hunts. Expenditures for supplies and gear, as well as fuel, are the highest per day expenditures for both types of upland game hunting trips. The average per day expenditure for primary-purpose upland game hunts is very close to the average \$228 spent by resident tag holders per day hunting big game.

As with big game hunting, a portion of upland game hunting-related spending for nonresidents takes place before leaving home, and a portion of their travel expenditures takes place out of state. Table 31 reports the estimated per day expenditures that take place in Nevada for primary- and secondary-purpose upland game hunts.¹⁰ Less than 10% of total upland game hunting expenditures take place out of state.

5.3 Total Upland Game Hunting Expenditures in 2020

The combined 209,110 upland game hunting days generated an estimated \$42,790,163 in total expenditures in 2020. Of these expenditures, \$39,119,115 occurred in Nevada. Tables 32 through 34 present total upland game hunting expenditures for residents, nonresidents, and combined by hunt type. Unlike big game hunting, upland game hunting is not constrained by a limited supply of tags. Therefore, upland game has the potential for growth in participation, whereas big game hunting participation is limited by the number of tags available each year. State and county governments, outdoor recreation organizations and local business groups can promote upland game hunting in their region as a way to increase economic activity in the region.

¹⁰ Information regarding the location of expenditures for secondary-purpose upland game hunts was not collected, as it was for primary-purpose upland game hunts. The proportion of per day expenditures that take place within Nevada for secondary-purpose upland hunting days is estimated by applying the same percentage reduction between total and in-state expenditure for primary-purpose hunting days.

Table 28. Estimation of Upland Game Hunters, 2020

Statistic	Hunted Big Game	Applied for Big Game but Unsuccessful	Combo License Do Not Apply for Big Game	Hunting Only License Do Not Apply for Big Game	Combo Hunting and Fishing Day License and Added Days
Resident Upland Game Participation	0.57	0.50	0.66	0.93	N/A
Resident Observations	888	112	166	*	N/A
Resident Hunters in 2020	17,266	29,093	5,209	5,839	N/A
Resident Upland Hunters	9,842	14,547	3,438	5,431	N/A
Nonresident Upland Game Participation	0.17	0.13	0.15	N/A	0.43
Nonresident Observations	426	72	151	*	*
Nonresident Hunters in 2020	1,762	18,247	7,109	N/A	1,702
Nonresident Upland Hunters	300	2,372	1,066	N/A	732

N/A represents statistics that are not applicable for the segment.

*indicates the proportion was estimated using the proportion from a similar segment as described in the text.

Table 29. Upland Game Hunting Participation

License Type	Statistic	Primary Purpose	Secondary Purpose	Total
Resident Annual	Average Hunt Days in 2020	4.05	1.30	5.35
Resident Annual	Total Days	143,823	46,166	189,989
Nonresident Annual	Average Hunt Days in 2020	3.65	1.02	4.67
Nonresident Annual	Total Days	13,644	3,813	17,456
Nonresident Day	Average Hunt Days in 2020	1.78	0.50	2.27
Nonresident Day	Total Days	1,301	364	1,665
Combined	Total Days	158,769	50,342	209,110

Table 30. Per Day Average Upland Game Hunting Expenditures

Expenditure Category	Primary Purpose	Secondary Purpose
Supplies and Gear	\$63	\$43
Fuel	\$92	\$67
Rental Equipment	\$0	-
Groceries	\$31	\$22
Hotel, Motel, Campsite	\$9	\$3
Restaurants (Full Service)	\$11	\$6
Fast Food	\$9	\$8
Bars	\$4	\$4
Other	\$2	\$1
Total	\$221	\$153
Observations	364	103

Table 31. Per Day Average Upland Game Hunting Expenditures in Nevada

Expenditure Category	Primary Purpose	Secondary Purpose
Supplies and Gear	\$55	\$38
Fuel	\$85	\$62
Rental Equipment	\$0	-
Groceries	\$27	\$19
Hotel, Motel, campsite	\$8	\$1
Restaurants (Full Service)	\$11	\$3
Fast food	\$9	\$6
Bars	\$4	\$8
Other	\$2	\$4
Total	\$202	\$140
Observations	364	103

Table 32. Total Upland Game Hunting Expenditures, Residents

Statistic	Primary Purpose	Secondary Purpose	All
Number of Days	143,823	46,166	189,989
Average Per Day Expenditures	\$221	\$153	\$204
Total Expenditure	\$31,784,986	\$7,063,330	\$38,848,317
Average Per Day Expenditures in Nevada	\$202	\$140	\$187
Total Expenditure in Nevada	\$29,052,340	\$6,463,178	\$35,515,519

Table 33. Total Upland Game Hunting Expenditures, Nonresidents

Statistic	Primary Purpose	Secondary Purpose	All
Number of Days	14,945	4,176	19,121
Average Per Day Expenditures	\$221	\$153	\$206
Total Expenditure	\$3,302,853	\$638,993	\$3,941,846
Average Per Day Expenditures in Nevada	\$202	\$140	\$188
Total Expenditure in Nevada	\$3,018,898	\$584,699	\$3,603,597

Table 34. Total Upland Game Hunting Expenditures, Combined Residents and Nonresidents

Statistic	Primary Purpose	Secondary Purpose	All
Number of Days	158,769	50,342	209,110
Total Expenditure	\$35,087,840	\$7,702,323	\$42,790,163
Total Expenditure in Nevada	\$32,071,238	\$7,047,877	\$39,119,115

6. Big-Ticket Purchases

So far, this publication has reported expenditures associated with a big game tag or an upland game hunt. However, hunters often purchase items that are not associated with a single hunt. This group of expenditures includes items such as clothing, weapons, optics, GPS, vehicles and camping equipment, and is referred to further as big-ticket expenditures. Table 35 shows the proportion of respondents who purchase the item at all, those who purchased the item in Nevada, and the average expenditure on the item if it was purchased in Nevada. Hunting clothing and ammunition were purchased most by hunters with 57% of hunters purchasing hunting clothing and ammunition in 2020. On average, respondents report the highest level of expenditure on off-highway vehicles (\$13,809) and RV/campers (\$22,851), for purchases made in Nevada.

Table 36 shows the average big-ticket expenditures made in Nevada for residents and nonresidents. Residents spend far more on these items in Nevada than nonresidents. Most respondents did not make these purchases, but those who did spent significantly on them. Resident respondents spent an average of \$4,429 on big-ticket items in Nevada in 2020. Nonresident respondents spent an average of \$695 on big-ticket items in Nevada in 2020.

Residency status is the most important predictor of expenditure on big-ticket items. Factors such as the license type purchased or if the hunter hunts any combination of big game, upland game, or waterfowl do not have a significant impact on the average expenditure for big ticket items. Considering that residency is the most important factor, total big-ticket expenditures made in Nevada is estimated by multiplying the average expenditure for each item by the total number of resident and nonresident adult annual hunting licenses sold in 2020. Table 37 presents the total big-ticket expenditures made in Nevada in 2020 by resident and nonresident hunters. In total, \$299,071,948 was spent on big-ticket items.

Language in the survey allows for trip-related expenditures for supplies and gear to be accounted for twice, once when reporting trip-related expenditures and again when reporting spending on some big-ticket items. After reviewing the data, it appears respondents are including some portion of the big-ticket items in their trip-related expenditures. To ensure there is no double counting, total trip-related expenditures for supplies and gear that occur in Nevada for big game and upland game hunts is subtracted from total big-ticket expenditures in Nevada. This is a conservative adjustment, as not all possible included in the supplies and gear category are included in the big-ticket items listed.

The adjusted total big-ticket expenditure in Nevada is \$259,652,223, which eclipses the \$129,346,043 of combined total of the big game tag-related expenditures and upland game hunting trip-related expenditures.

Table 35. Big-Ticket Expenditures

Items	Percent that Bought the Item	Percent that Bought the Item in Nevada	Avg Amount Spent on the Item if Bought in Nevada
Clothing	0.57	0.34	\$315
Ammunition	0.57	0.48	\$350
Firearms Equipment	0.33	0.24	\$787
Archery Equipment	0.15	0.1	\$593
Optics	0.33	0.17	\$887
GPS (Plus Location Services)	0.19	0.06	\$319
Off-Highway Vehicles	0.07	0.07	\$13,809
Trailer for Towing	0.06	0.05	\$5,685
RV/Camper	0.05	0.04	\$22,851
Camping Equipment	0.38	0.28	\$343
Other	0.01	0.01	\$263
Observations	2,004	2,004	1,244

Note: Based on expenditures in 2020.

Table 36. Big-Ticket Expenditures in Nevada

Items	Resident	Nonresident
Clothing	\$133	\$66
Ammunition	\$237	\$57
Firearms Equipment	\$274	\$57
Archery Equipment	\$85	\$20
Optics	\$211	\$56
GPS (Plus Location Services)	\$28	\$5
Off Highway Vehicles	\$1,391	\$189
Trailer for Towing	\$470	\$39
RV/Camper	\$1,472	\$125
Camping Equipment	\$128	\$43
Other	\$1	\$2
Observations	1,237	767

Table 37. Total Big-Ticket Expenditures in Nevada in 2020

Items	Resident Total	Nonresident Total	Combined Total
Clothing	\$8,426,999	\$1,796,025	\$10,223,024
Ammunition	\$15,043,406	\$1,534,336	\$16,577,742
Firearms Equipment	\$17,382,828	\$1,539,760	\$18,922,588
Archery Equipment	\$5,383,528	\$555,105	\$5,938,633
Optics	\$13,386,447	\$1,506,134	\$14,892,581
GPS (Plus Location Services)	\$1,771,866	\$126,370	\$1,898,236
Off-Highway Vehicles	\$88,324,776	\$5,126,658	\$93,451,434
Trailer for Towing	\$29,817,635	\$1,060,585	\$30,878,220
RV/Camper	\$93,456,903	\$3,394,089	\$96,850,992
Camping Equipment	\$8,116,557	\$1,172,854	\$9,289,411
Other	\$90,784	\$58,304	\$149,087
Total	\$281,201,729	\$17,870,220	\$299,071,948
Total Spent on Supplies and Gear	\$38,244,062	\$1,175,663	\$39,419,725
Adjusted Total	\$242,957,667	\$16,694,557	\$259,652,223

7. Demographics

This section describes the demographic characteristics of the expenditure survey respondents and of the broader hunter population served by NDOW.

Figure 4 shows the fraction of respondents who fall within the self-described hunting experience level. Of the respondents, 73% report being advanced or expert hunters, while the remaining 27% report being beginner to intermediate hunters. Figure 5 shows the proportion of respondents who use each weapon type while hunting big game and or upland game. Note: respondents could select more than one weapon type, so the proportions do not need to add up to one.

Figure 6 shows the age distribution of the survey respondents. The survey sample only included hunters 18 years and older. The average age of our sample is 52 years, which is older than the hunter population. We find differences in age do not significantly affect overall spending within the sample. Figure 7 shows the self-reported education levels of the respondents. Of the nonresident hunters in the sample, 96% are male compared to 88% of resident hunters.

The majority of respondent's report having at least an associate degree, while nearly all respondents have finished high school. Figure 8 shows the self-reported annual household income before taxes of respondents. The average annual household income of the respondents is \$122,000 before taxes, with a significant portion of hunters earning more than \$200,000 per year. On average, resident hunters have lower incomes than nonresident hunters.

Figure 4. Respondent Hunting Experience Level

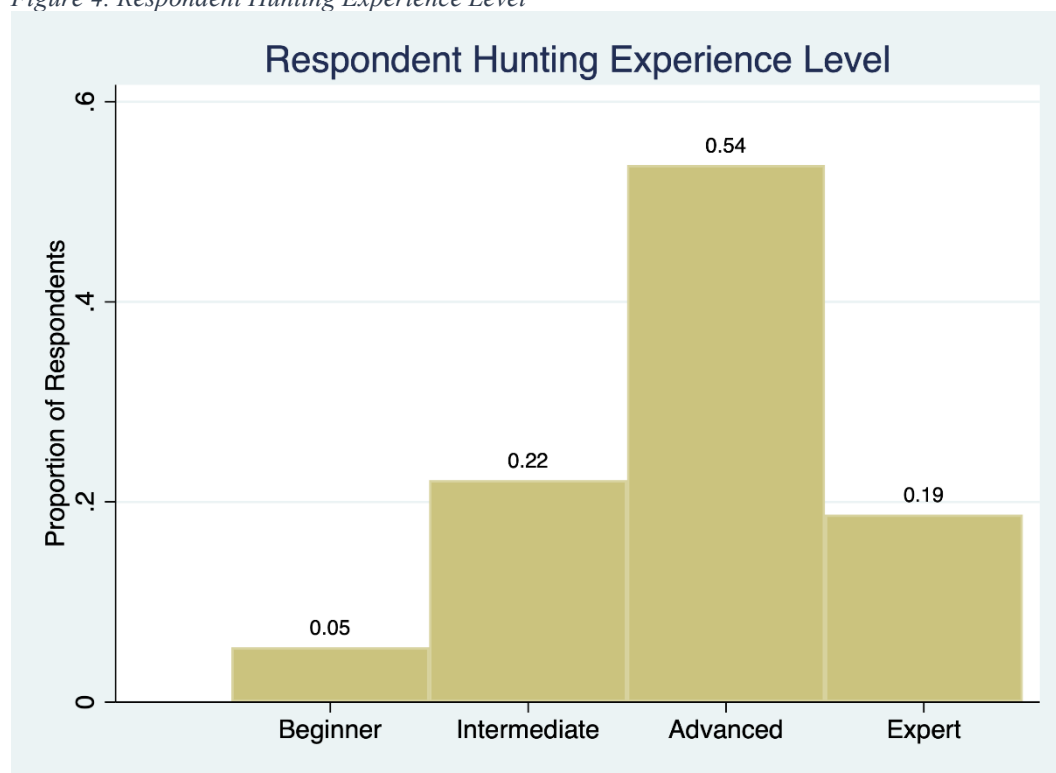


Figure 5. Weapons of Choice for Respondents

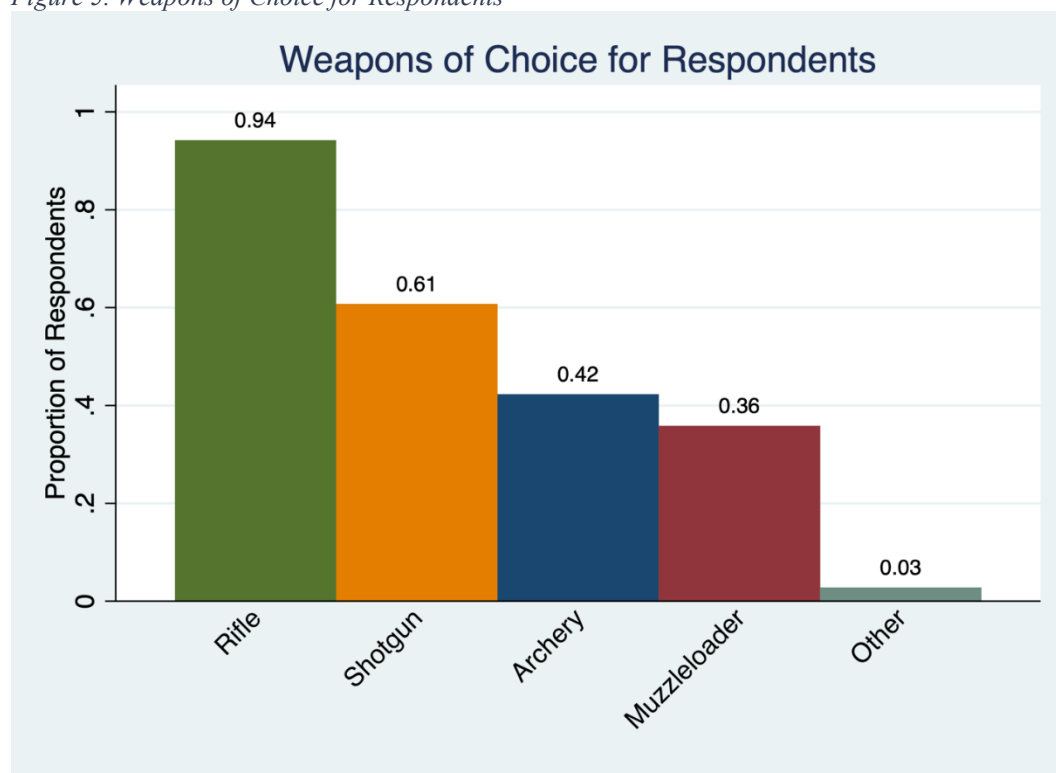


Figure 6. Respondent Age Distribution

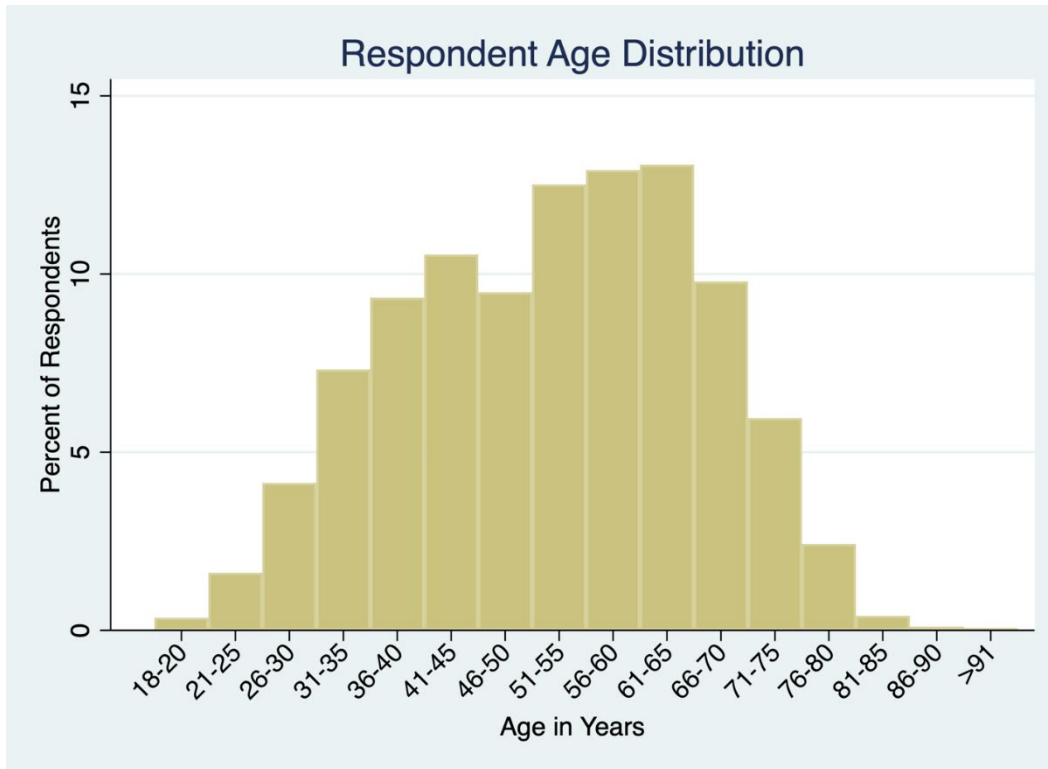


Figure 7. Respondent Education Level

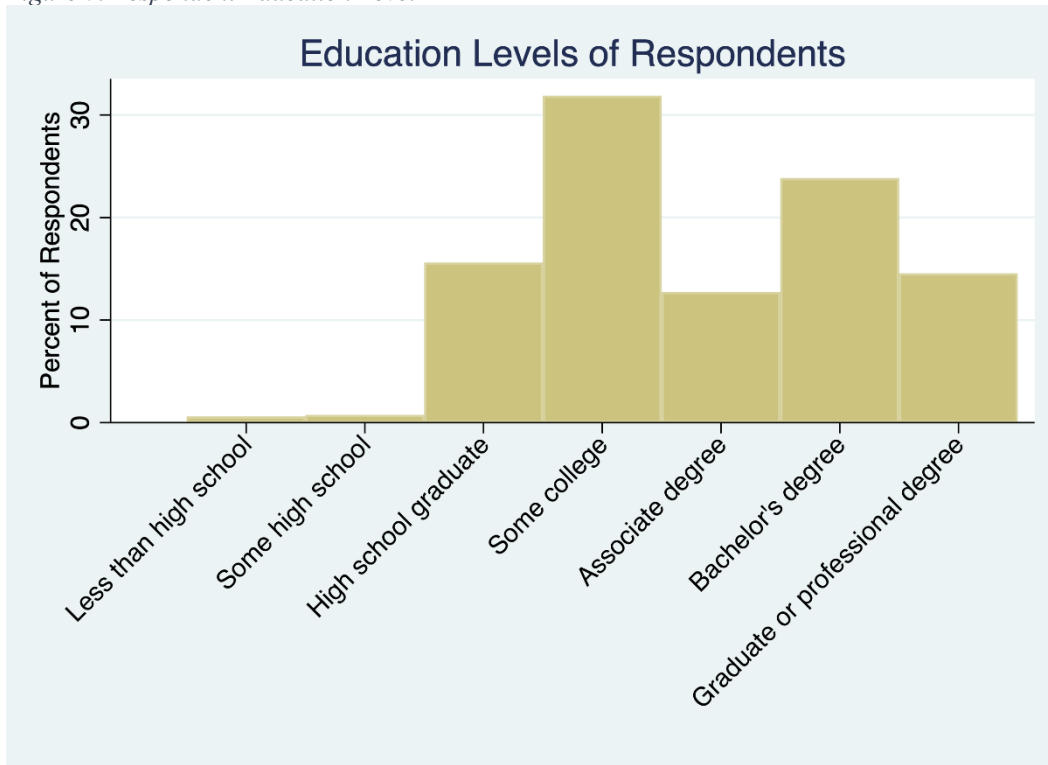
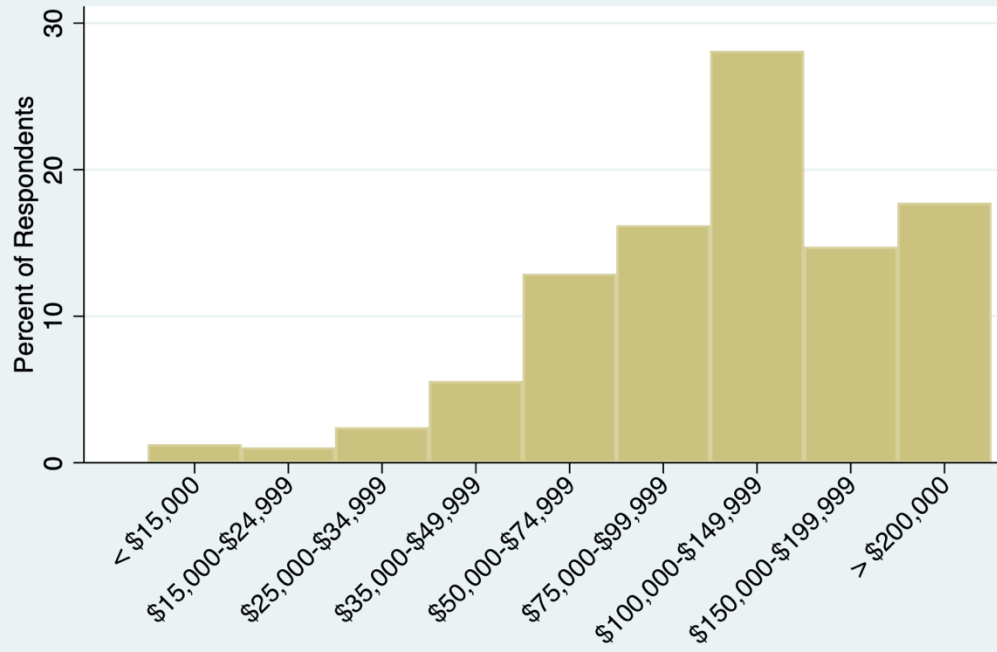


Figure 8. Annual Household Income Before Taxes

Annual Household Income Before Taxes



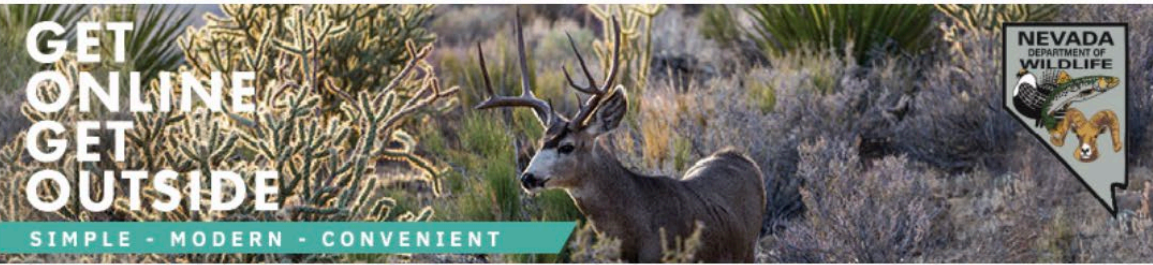
8. References

- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). Internet, mail, and mixed-mode surveys: The tailored design method (3rd ed.). *John Wiley & Sons Inc.*
- Kay, R., Fenton. (1988). Nevada Survey of the Economic Value of Trophy Big Game and Deer Harvest. *Nevada Department of Wildlife, Biological Bulletin No. 9.*
- Lovelace, R., & Ellison, R. (2018). stplanr: A Package for Transport Planning. *R J.*, 10, 7.
- NDOW. (2019). 2019 Big Game Hunt Stats. *Nevada Department of Wildlife*. Published on Web Page.
- NDOW. (2020). 2020 Big Game Hunt Stats. *Nevada Department of Wildlife*. Published on Web Page: http://www.ndow.org/Hunt/Resources/Statistics_and_Draw_Odds/
- Southwick Associates. (2017). Economic Contributions of Big Game Hunting in Wyoming. Published on Web Page: <https://wyoga.org/wp-content/uploads/pdf/studies/southwick-study/Wyoming-Big-Game-Hunting-Economics-Southwick-Associates-Final.pdf>
- U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. (2011). 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.
- U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. (2016). 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.
- White, Eric M. (2017). Spending patterns of outdoor recreation visitors to national forests. Gen. Tech. Rep. PNW-GTR-961. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 70 p.

9. Appendix

1. Preview Survey Link: _____
2. Hunt Unit Map
[http://www.ndow.org/uploadedFiles/ndoworg/Content/Hunt/Resources/2018_Hunt_Unit_Map\(2\).pdf](http://www.ndow.org/uploadedFiles/ndoworg/Content/Hunt/Resources/2018_Hunt_Unit_Map(2).pdf)

3. Invitation email



A Survey for Hunters

Please complete our survey about hunting in Nevada. The goal of this study is to learn what motivates hunters like you and to better understand the economic impact of hunting in Nevada. We are only able to survey a small percentage of the hunters who bought a Nevada hunting license. Your response is important because you represent other hunters with views and experiences similar to yours. This study will show how hunters like you support our economy at the local, state, and national scale.


This survey is being conducted by the University of Nevada, Reno in partnership with the Nevada Department of Wildlife.

Please take the survey by clicking the button below. The survey typically takes 15-25 minutes to complete.


[Take Survey](#)

For any questions, please email Alec Bowman at alecbowman@unr.edu or Bobby Jones at bsjones@ndow.org

Thank you for supporting Nevada's wildlife!



4. Reminder Email:



Reminder: Please fill out your survey

Dear Hunter,

Last week we asked you to tell us about your Nevada hunting experiences. The goal of this study is to learn what motivates hunters like you and to better understand the economic impact of hunting in Nevada. We are only able to survey a small percentage of the hunters who bought a Nevada hunting license. Your response will represent other hunters with views and experiences similar to yours who do not have the chance to take this survey. This study will show how hunters like you support our economy at the local, state, and national scale.

This is the last email you will get about this survey.


If you already started the survey but haven't finished, your progress was saved. Click the button below to finish the survey


If you haven't started the survey yet, please take the survey by clicking the button below. It typically takes 15-25 minutes to complete.

Take Survey

This survey is being conducted by the University of Nevada, Reno in partnership with the Nevada Department of Wildlife. For any questions, please email Alec Bowman at alecbowman@unr.edu or Bobby Jones at bsjones@ndow.org

Thank you for your support!





5. *Effort Days by Animal and Residency for Big Game Hunters and Nonfamily Adult Guests*

Table 38. *Effort Days by Animal for Big Game Hunters and Nonfamily Adult Guests, Residents*

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	All
Average Number of Hunting *NFA Guests	0.59	0.3	0.44	0.28	1.02	0.38	1.87	0.59	2.5	1.5	0.48
Total Hunt Days Per Person	9,011	2,670	63,399	20,677	12,467	15,081	1,942	238	40	251	125,775
Total NFA Guests Hunt Days	5,317	801	27,895	5,789	12,716	5,731	3,632	140	100	376	60,370
Average Number of Scouting NFA Guests	0.6	0.21	0.52	0.18	0.82	0.5	1.1	1	1	1.88	0.49
Total Scout Days Per Person	5,332	1,066	24,862	7,574	5,685	4,622	1,709	105	18	65	51,038
Total NFA Guests Scout Days	3,199	224	12,928	1,363	4,662	2,311	1,879	105	18	122	24,810
Total NFA Guests Effort Days	10,649	1,867	52,758	13,364	18,401	10,353	5,341	246	118	441	111,409
Number of Tags	2,666	1,171	11,301	4,353	1,828	2,889	339	95	9	41	24,692

*NFA Guests=Non-family adult guests

Table 39. Effort Days by Animal for Big Game Hunters and Nonfamily Adult Guests, Nonresidents

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	All
Average Number of Hunting *NFA Guests	0.49	-	0.44	-	0.81	0.64	1.37	0	-	0.33	0.52
Total Hunt Days Per Person	1,157	-	8,770	-	1,857	851	136	26	-	32	12,829
Total NFA Guests Hunt Days	567	-	3,859	-	1,504	545	186	-	-	11	19,509
Average Number of Scouting NFA Guests	0.43	-	0.5	-	0.78	0.47	0.8	-	-	0	0.52
Total Scout Days Per Person	539	-	2,268	-	585	213	155	17	-	3	3,781
Total NFA Guests Scout Days	232	-	1,134	-	457	100	124	-	-	-	5,756
Total NFA Guests Effort Days	1,106	-	6,127	-	2,090	757	341	17	-	14	23,290
Number of Tags	357	-	1,512	-	287	185	41	11	-	6	2,399

*NFA Guests=Non-family adult guests

Table 40. Effort Days by Animal for Big Game Hunters and Nonfamily Adult Guests, Combined Residents and Nonresidents

Statistic	Male Antelope	Female Antelope	Antlered Deer	Antlerless Deer	Antlered Elk	Antlerless Elk	Ram Sheep	Ewe Sheep	Mountain Goat	Black Bear	All
Total NFA Guests Hunt Days	5,883	801	31,754	5,789	14,220	6,275	3,819	140	100	387	79,880
Total NFA Guests Scout Days	3,431	224	14,062	1,363	5,118	2,411	2,003	105	18	122	30,566
Total NFA Guests Effort Days	9,314	1,025	45,816	7,153	19,339	8,686	5,822	246	118	509	110,446

*NFA Guests=Nonfamily adult guests



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