SACRIFICES AND REWARDS OF MAINTAINING QUALITY DEER AND ELK HUNTING IN NEVADA

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Abstract: Nevada has issued all hunting tags for Rocky Mountain elk (Cervus elaphus nelsoni) through a limited tag quota system since the first elk hunt in 1945. All hunting tags for mule deer (Odocoileus hemionus) have been limited by quotas since 1976. Because mule deer and elk populations in Nevada are too small to accommodate resident hunter demand, unlike other western states, the general harvest management philosophy has been to provide a quality hunting experience for all tag holders through limited tag sales statewide. Animal populations, harvest rates, buck and bull ratios, antler quality, demand for big game tags, and hunter expectations and perceptions were evaluated to describe the sacrifices and rewards of limiting big game hunting opportunities in Nevada. A strategy is discussed that may provide opportunities to accommodate a greater number of deer and elk hunters whose expectations are to harvest an animal, while still maintaining “quality” big game hunting in portions of Nevada. Implications of accommodating continued demands for trophy hunting at the expense of recreational hunting are considered.

WESTERN STATES AND PROVINCES DEER AND ELK WORKSHOP 5:114-122

Key words: elk, harvest management, mule deer, Nevada, quality hunting, rewards, sacrifices

Through 1974 Nevada residents had unlimited opportunity to hunt antlered mule deer by purchasing tags over-the-counter (Hess 1997). Nonresident and antlerless tags were subjected to quotas. Due to a major deer population decline and years of unlimited harvest by an increasing number of hunters, the Nevada Department of Wildlife (NDOW), formerly Nevada Department of Fish and Game, recommended a limited deer tag quota system statewide for all hunters (Hess 1997). The quota system was partially instituted in 1975 and by 1976 all deer tags statewide were issued through the quota system. NDOW sold 50,608 tags in 1974 with unlimited resident and limited nonresident and antlerless quotas. This number declined to 23,466 tags in 1976 when quotas were established for all deer tags statewide. Likewise, all elk tags, starting with the first Nevada elk hunt in 1945, have been issued through a limited tag quota system.

Since the 1970s, Nevada’s deer and elk populations have not been large enough to accommodate the majority of resident hunters every year, even under liberal tag quotas. Other western states have larger herds and more liberal tag quotas for residents (Heath et al. 2003). In contrast, Nevada’s general philosophy of harvest management was to set conservative quotas that provide quality hunting opportunities few if any other state could equal. I define quality hunting as an abundance of mature bucks or bulls, limited hunting pressure, and ample season length. Through the early 1990s, Nevada residents accepted this philosophy because on average, they could draw a Nevada deer tag every other year. Hunting bull elk in Nevada was widely understood to be an once-in-a-lifetime hunt.

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Big game quotas are approved by the Nevada Wildlife Commission based on input from less than 200 sportsmen, through County Advisory Boards. NDOW big game biologists and managers have questioned the objectivity and basis for the current and likely static trend of setting conservative mule deer and elk tag quotas statewide. Though NDOW managers agree there is a place for high quality or “trophy” hunting opportunities in Nevada, they also see many opportunities to increase hunter participation. Based on changes in human demographics, economics, and recreational pursuits, they are concerned many hunters will leave the sport if not given ample opportunity to participate in big game hunting.

Is Nevada’s current system of limited tag quotas appropriate and realistic given what the resources can sustain, and considering hunter demand and expectations? Nevada’s current mule deer and elk harvest management programs were evaluated and the philosophy pertaining to mule deer and elk hunting opportunities was reviewed. A strategy is proposed to accommodate a greater number of deer and elk hunters whose expectations are to harvest an animal, while still maintaining “quality” big game hunting in portions of Nevada.

METHODS

Post-season ratios of mule deer bucks to does, population estimates of both mule deer and elk, and hunter numbers were obtained from several western states for comparative purposes to evaluate the relative scarcity of animals in Nevada and conservatism of NDOW’s harvest program (Heath et al. 2003). Several parameters describe the rewards to hunters from maintaining relatively good quality deer and elk hunting opportunities. Hunter success and antler point data from NDOW’s big game hunter return card data were evaluated (return card rate annually exceeds 98%). Matson’s Laboratory, Milltown Montana, determined ages of harvested bull elk through cementum annuli analysis for 65% and 39% of the bulls harvested in 2001 and 2002, respectively. A multiple regression model was developed based on a sample of known Boone and Crockett (B&C) scores of bull elk, antler point data, and known ages from harvested elk. The model was applied to predict B&C scores for all bulls harvested in 2001 and 2002. Mule deer and elk trophy antler entries to the Nevada Wildlife Record Book Committee were evaluated (Nevada Wildlife Record Book Committee 2000). The demand for mule deer and elk hunting tags was determined from the 2002 NDOW big game application database. Mule deer hunters’ preferences and expectations regarding the sacrifices and rewards of limiting hunting opportunities were assessed from a 2000 Nevada mule deer hunter survey. No comparable elk hunter survey has been conducted in Nevada. A professional human dimension survey firm, Research and Polling, Inc., Albuquerque, New Mexico, conducted the survey. The survey involved a telephone interview of 1,028 resident hunters who had applied for a deer tag in either 1998 or 1999. A sample of hunters was randomly selected and stratified based upon rural and urban addresses. The sample size generated a 95% confidence interval with a 3% margin of error.

RESULTS

Nevada has one of the smallest mule deer populations (Fig. 1) and the smallest total deer [mule deer and white-tailed deer (Odocoileus virginianus)] population in the West.
Nevada licenses a conservative number of mule deer hunters by comparison to other states (Arizona and New Mexico) with comparable deer populations (Fig. 2). In 2000, Nevada issued 26,420 mule deer hunting tags. Arizona and New Mexico, issued 42,811 and 53,840 mule deer tags, respectively.

Fig. 1. Western states 2000 mule deer population estimates from data presented at the 2001 Deer and Elk Workshop.

Fig. 2. Number of mule deer hunters in 2000 as a percent of the total mule deer population estimate for each state. Data from 2001 Deer and Elk Workshop.
Quality of the hunt can be measured in terms of hunter success, availability of mature bucks, and proportion of harvest comprised of mature bucks. The average success rate of mule deer hunters (all weapon classes) was 43% over the previous 5-years in Nevada. Based on aerial survey data, the long-term, post-season sex ratio has averaged 25 bucks per 100 does in Nevada, and has been 28 bucks/100 does since 2000. Ratios from other western states ranged from 17 to 25 bucks per 100 does in 2000. The proportion of mule deer bucks, 4 points or better, averaged 34% of the harvest of mule deer bucks from 1993–2002. From 2000–2002, the average proportion of 4-point or better bucks was 37%, statewide. Out of 5,900 mule deer bucks harvested in 2002, 20 entries in the Nevada Wildlife Record Book scored ≥160 B&C. The highest score was 190 B&C.

Nevada’s elk population (7,200 in 2003) is extremely small by comparison to elk populations of other western states (Fig. 3). Nevada issues a conservative number of elk tags as do both New Mexico and South Dakota (Fig. 4). Based on estimates derived from aerial surveys and harvest data, the average sex ratio of elk exceeds 50 bulls per 100 cows, statewide. In 1999, 225 bulls were harvested statewide, including 66% that were 6 points or better. Ten that scored in excess of 360 B&C were entered into the 2000 Nevada Wildlife Record Book. The largest, scoring 425 typical B&C, was a new state record. Fig. 5 illustrates the large proportion of mature and old-aged bulls in the 2001 and 2002 bull elk harvest. The multiple regression model predicted 36% of the 2001 bull harvest ($r^2 = 0.64$) and 31% of the 2002 bull harvest ($r^2 = 0.65$) scored 325 B&C or higher. In addition to the new, 1999 record for a typical B&C score, another bull harvested in 2002 became the new non-typical state record at the same score of 425 B&C.

Fig. 3. Western states 2000 Rocky Mountain elk population estimates from data presented at the 2001 Deer and Elk Workshop.
Fig. 4. Number of Rocky Mountain elk hunters in 2000 as a percent of the total Rocky Mountain elk population estimate for each state. Data from 2001 Deer and Elk Workshop.

Fig. 5. Age distribution of harvested bull elk in Nevada in 2001 (n = 214 of 325 harvested) and 2002 (n = 157 of 400 harvested). Ages based on cementum annuli analysis were consistent, both years, with age classes of all harvested elk, based on numbers of spikes and two-points in harvest data.
Hunting season length also contributes to a quality hunt. The majority of Nevada’s 2003 mule deer rifle hunting seasons is 30 – 37 days long (Fig. 6). No seasons are shorter than 16 days. Yet, mule deer rifle hunters, on average, spent only 4.9 days in the field annually since 1994. Thirteen of 16 bull elk rifle hunting seasons in Nevada were 16 days or longer in 2003.

The sacrifices of maintaining quality mule deer and elk hunting were measured in terms of hunters’ abilities to draw a tag. In 2002, 66% of the 51,000 mule deer hunter applicants did not draw a tag. That same year, 96% of the 17,000 bull elk hunter applicants did not draw a tag.

Fig. 6. Lengths of mule deer seasons (days) open to rifle hunting in Nevada for 2003.

Results from the 2000 Survey of Nevada Mule Deer Hunters

Responses are reported from survey questions that were most pertinent for evaluating hunter preferences and expectations for quality hunting versus opportunity.

Question: “What is the primary reason why you go deer hunting?”

- 30% said harvesting an animal for the meat;
- 26% to enjoy the outdoors;
- 14% said for the sport;
- 2% said to harvest a trophy deer.
Question: “Do you prefer hunting for a mature/trophy deer, willing to pass up smaller bucks” versus “Do you prefer successfully harvesting a deer each season”?

- 51% preferred trophy hunting;
- 45% simply wanted to harvest a deer each season.

Question: “Do you support managing areas for different purposes (trophy hunting vs. maximizing tag draw opportunities)”?

- 43% were supportive;
- 33% were unsupportive;
- 23% were neutral.

Question: “Are you satisfied with the number of deer tags”?

- 57% said yes;
- 17% want more;
- 12% want fewer tags;
- 14% did not know.

Question: “Would you support shortening seasons from 30 to 15 days and increasing tags”?

- 15% supported the idea;
- 75% opposed the idea.

DISCUSSION

Nevada is assuring a high quality hunting experience continues statewide by restricting the numbers of hunters, and by maintaining relatively high hunter success with a high percent of mature bucks and bulls in the harvest. Because the State’s mule deer herd has declined since the late 1980s due to a myriad of habitat-based factors, the sacrifices made by hunters to maintain quality hunting experiences are increasing. Fig. 7 depicts the declining trend in mule deer hunting tags. Though applicants for mule deer tags seem to be stable, managers are concerned eventually applicants may stop applying if they continue to be unsuccessful in drawing a tag. A strategy was developed to accommodate a greater number of deer and elk hunters while maintaining “quality” deer and elk hunting in portions of Nevada.
The strategy involves a treatment/control pilot project that would modify mule deer harvest management in select management areas for 3 years. The following modifications would be made in the treated management areas: 1) Institute 2 9-day split rifle seasons where there is currently a 30-day season; and 2) manage the post-season sex ratio at 20 bucks per 100 does. Although most respondents to the 2000 survey of Nevada mule deer hunters said they couldn't live without a 30-day deer rifle season, the average hunter spends no more than 5 days hunting. The assumption is, reducing hunter success during 2 shorter seasons, and managing for a lower buck ratio, will enable us to issue more tags without appreciably increasing harvest. Since sportsmen may not receive difficult changes easily, the project would involve just 3 pairs of treatment/control management areas. Regional stratification of areas would allow participation by hunters from different urban and rural communities, representing a broader cross section of hunter expectations and opinions. Paired areas would be selected in northeastern, central, and western Nevada.

At the same time hunting opportunities for mule deer are decreasing, NDOW is severely limiting growth of most Nevada elk herds in response to political pressure. This action further reduces bull elk hunting opportunities. Approximately 5,000 resident elk applicants have never drawn a Nevada bull elk tag. Many have applied for over 20 years. Some hunters who apply for hunt units that are very difficult to draw will never draw a Nevada bull elk tag. In an elk herd of 400 animals, at the current tag quotas, approximately 30 bull tags are issued each season. Hunter success is approximately 65%. Based on a population and harvest simulation that would lower the average age of harvested bulls to 3.0 years, and by reducing the hunter success rate to 50%, conservatively, the number of bull tags issued each year could be doubled. By
implementing 9-day split seasons over a 10-year period, 300 more tags could be issued for the herd. Given 13 elk herds are designated in Nevada, 5 herds of varying size and geographic location could be selected for this type of harvest strategy. The remaining 8 would be managed under the current, conservative quota system. After 5 years, 5 different herds could be managed for more liberal opportunity and the original 5 herds would be returned to a more conservative harvest strategy and harvest of older age bulls.

Results from the 2000 survey of Nevada mule deer hunters illustrate the challenges of accommodating diverse hunter preferences and expectations. They also demonstrate hunters have an incomplete appreciation for the tradeoffs and sacrifices associated with managing for quality hunting experiences. Extensive customer outreach will be an important component of any program to implement more liberal hunting opportunities. Every attempt would be made through media, publications, and gatherings to help sportsmen understand the proposed changes; but more importantly, educate them about the current and future challenges facing mule deer and elk management. Certainly, the key to sustaining deer and elk hunters and Nevada’s hunting heritage is to sustain big game populations and healthy, productive habitats. At the same time, NDOW must find ways to optimize hunter opportunity and quality hunting given the varied hunter preferences and expectations that exist.

LITERATURE CITED


Reviewer: J.C. deVos