D-26 HERD MANAGEMENT PLAN
SAGUACHE DEER HERD

Game Management Units: 68, 681 and 682

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Draft

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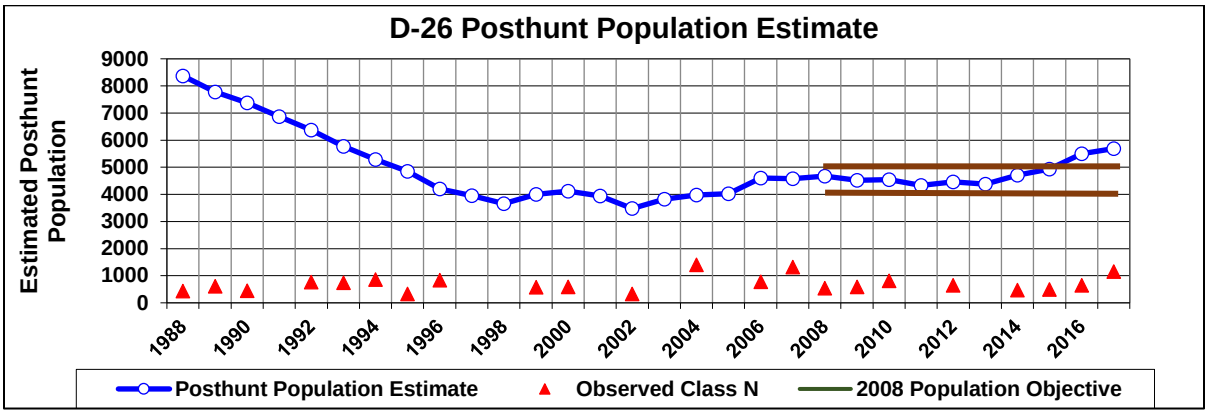
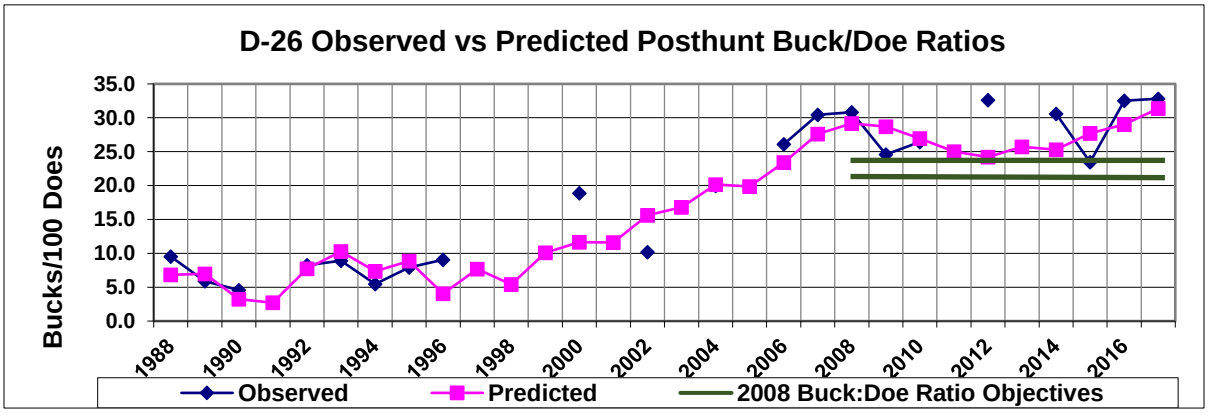
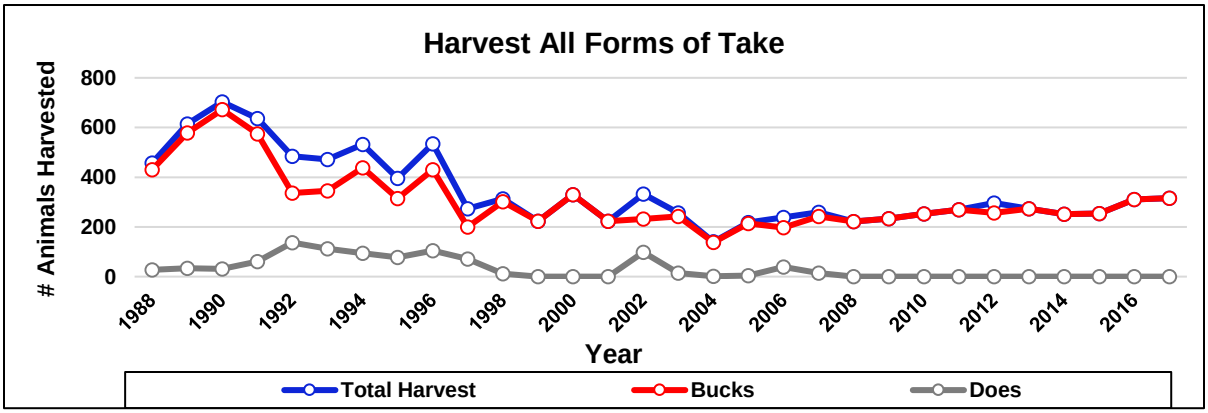
D-26 Saguache Deer HMP Draft Executive Summary.

GMU's: 68, 681 and 682	**Landownership:** 47% USFS, 20% BLM, 6% CO State, 26% Private
Post-hunt Population (2017): 5,680	**Post-hunt Sex Ratio (Bucks to 100 Does):** 30 (Observed 3 yr. average)
2008 (Previous Herd Plan Objectives):	4,000 to 5,000 deer; 21-24 Bucks to 100 Does
2019 Herd Plan Objectives (New Preferred):	5,500 to 6,500 deer; 26-29 Bucks to 100 Does







The Saguache Deer Herd consists of Game Management Units 68, 681 and 682. It is located in the northwest portion of the San Luis Valley in Colorado. The GMU's have been managed with limited antlered deer licenses since the statewide implementation in 1999. Since that time, very few antlerless deer licenses have been made available, with the harvest mainly occurring through game-damage or dispersal efforts. Antlerless deer harvest has not occurred since 2008 in any of these units.

The D-26 population began to decrease steadily in the late 1980's. To address this decrease doe licenses were eliminated and buck licenses, which had been unlimited, became limited in 1999. The herd dropped to less than 3,500 in 2002, and has been gaining traction since then, with a slight increase in numbers to within the boundaries of the 2008 objectives. The population had remained within the 2008 objectives of 4,000 to 5,000 animals until 2015. From that time, the population estimate has been increasing above the upper end of the 2008 population objectives.

Post-hunt sex ratios have shown an increase since limiting antlered licenses. Before the implementation of limited licenses in 1999, the observed sex ratio averaged less 10 bucks per 100 does. From 1999 to 2008, the average observed sex ratio had risen to 22 bucks per 100 does and since 2008, it has risen to 29 bucks per 100 does.

Buck harvest has averaged 263 since 2008 with a low of 222 bucks harvested in 2008 and a high of 316 bucks in 2017. Since limiting buck licenses in 1999 the average buck harvest has been 247 animals. There has been no antlerless harvest since 2008 and the majority of doe harvest between 1999 and 2008 has been through game damage and dispersal efforts, with the exception of doe licenses available in 2002.

The main limiting factor on this herd is the quantity and quality of winter range available. Overpopulation of herbivores on the winter range can damage the habitat and can force animals into lower elevations where agricultural fields are located. This in turn could lead to game damage issues which Colorado Parks and Wildlife (CPW) could be held responsible for.

Management Alternatives

Three alternatives for Data Analysis Unit D-26 were considered for **post-hunt population size** and **sex ratio** objectives:

Population Objective Alternatives:			**Sex Ratio Objectives**	
3,500 to 4,500	**Approximately 20% decrease in population**		**21 to 24 Bucks to 100 Does**	
4,500 to 5,500	**Approximately 10% decrease in population**		**24 to 26 Bucks to 100 Does**	
5,500 to 6,500	**Present estimate allowing for a slight increase**	**Preferred**	**26 to 29 Bucks to 100 Does**	**Preferred**

Preferred Alternatives:

Population

The responses received during all public involvement processes, including feedback from partner agencies, suggest that the majority support maintaining the deer population in GMU's 68, 681 and 682 to encompass the present population estimate. The preferred alternative is a **population objective of 5,500 to 6,500** deer, which would maintain the present estimated population within this objective range, allowing for a slight increase. It would also maintain current opportunity for hunting.

Sex Ratio

The responses received during all the public involvement processes, including feedback from partner agencies, suggest that the majority would like to see an increase in the buck to doe ratio objective to encompass what is being presently observed and estimated, according to the models. Based on this, the preferred alternative is a **sex ratio objective of 26-29 bucks per 100 does**, which would maintain the buck to doe sex ratio at its present observed and modeled status, however still maintaining the current desired hunting opportunities.

Strategies for Achieving the Preferred Objectives:

Population – To manage towards the preferred deer population objective, harvest will remain the same. If the population should rise toward the upper end of the objective or if habitat impacts are observed, doe harvest opportunities will be considered. However, game damage licenses may be offered, if necessary, to reduce agricultural depredation issues.

Herd Composition – Keeping the buck harvest the same or slightly higher will allow for buck hunting opportunities to remain near present levels. In turn, it should maintain the desired mature buck level at present levels and maintain stakeholder satisfaction.

Strategies to Address Management Concerns:

Deer Population Levels and Demographics – All efforts will be implemented to maintain the herd population numbers and demographic composition presently available. Continued analysis of fawn recruitment will be maintained. CPW will work cooperatively with partnership agencies towards habitat enhancement and improved viability, to encourage successful fawn recruitment. CPW will also attempt to work with as many hunters as possible to encourage different areas to be hunted.

Damage to Agriculture – This would be addressed by game damage claims through game damage and dispersal licenses and the HPP Committee, should this become an increased issue. CPW will work cooperatively with the Rio Grande National Forest and BLM on habitat improvement projects, particularly on winter range that should help in attracting deer away from agricultural lands. Any localized issues will be addressed by CPW with the use of improved and additional depredation tools available.

Development –Habitat enhancement project efforts on public land should help to keep deer away from developed areas.

Increasing Year-round Recreational Disturbance – CPW is working with partnership federal agencies to address increasing OHV usage, particularly during spring, summer and fall periods, as well as increasing winter snow-machine usage on winter range.

Motor vehicle collisions – CPW will work with CDOT to address roadkill deer in an attempt to reduce the collisions as much as possible, by increasing signage and other traffic warning mechanisms. Particularly in significant crossing areas along Hwy 285 and Hwy 114.

Diseases – There is continued surveillance for CWD as well as any other diseases.

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Herd Management Plans and Wildlife Management by Objectives.

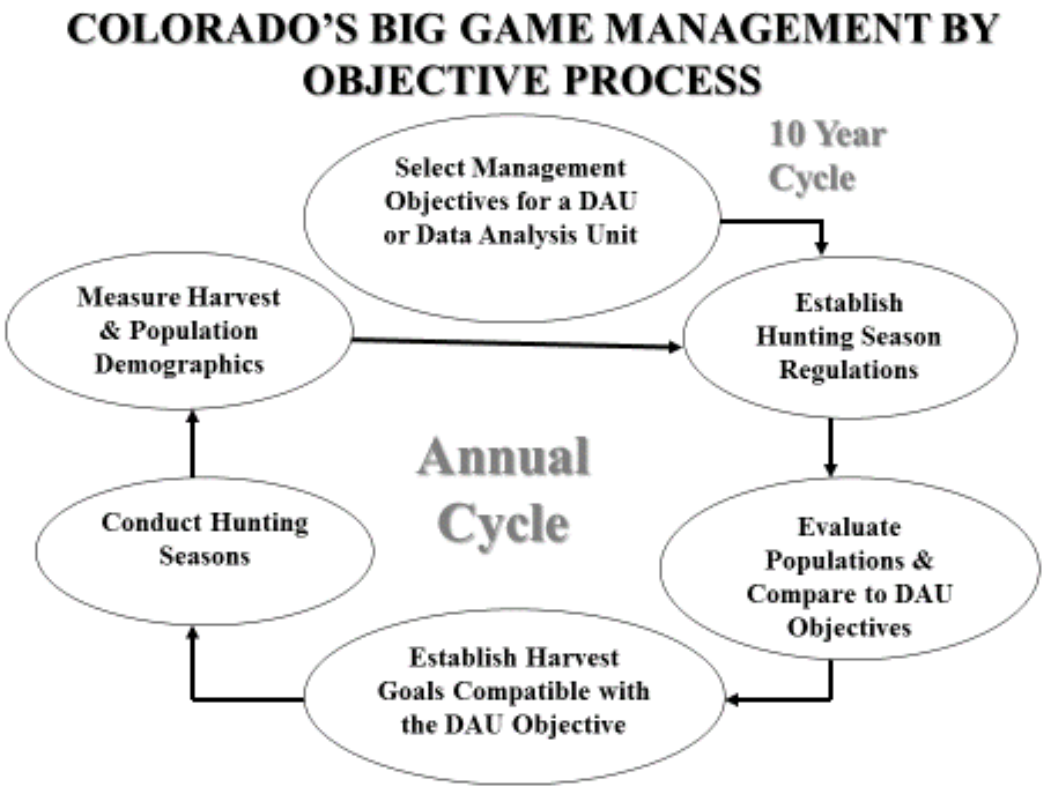


Figure 1. Management by objectives process used by Colorado Parks and Wildlife to manage big game populations on a DAU basis.

Herd Management Plans (HMP's) are written for big game populations represented as Data Analysis Units (DAU's), which are an aggregation of one or more Game Management Units (GMU's) that represents a more or less discrete herd. The HMP's are designed to support and accomplish the objective of the Long Range Plan and attempt to meet the public's desires for big game management. The HMP establishes the short and long-term herd objectives. The objective approach is the guiding direction to a long-term cycle of information collection, information analysis, and decision-making (Figure 1). One of the products of this process is hunting seasons for big game.

The HMP process is designed to incorporate the public desires, habitat capabilities, and herd capabilities into a management scheme for the big game herds. The public, sportsmen, federal land management agencies, landowners, and agricultural interests are involved in the determination of the plan objectives through public meetings, comments on draft plans, and the Colorado Parks and Wildlife Commission approval.

Individual herds are managed with the goal of meeting the specific objectives. This is done by gathering data and then inputting it into population models to derive a population estimate. The parameters used in the model include harvest data, which is tabulated from hunter surveys, sex and age composition of the herd acquired by aerial inventories and mortality factors such as wounding loss and winter severity, which are generally acquired from field observations. Once these variables are entered into the population models, a population estimate is obtained. The resultant computer population projection is compared to the herd objective, and a harvest calculated to align the population with the herd objective.

Description of the Data Analysis Unit (DAU) D-26.

Location.

The Saguache deer herd D-26 is located in south central Colorado, on the northwest side of the San Luis Valley. It consists of Game Management Units (GMU's) 68, 681 and 682 (Figure 2). The DAU is bounded by the continental divide on the north and west side, state highway 17 on the east side, and County Road G on the south side. D-26 is approximately 833,000 acres in size and is entirely within Saguache County. Its primary drainages are Saguache Creek, Carnero Creek and Kerber Creek.

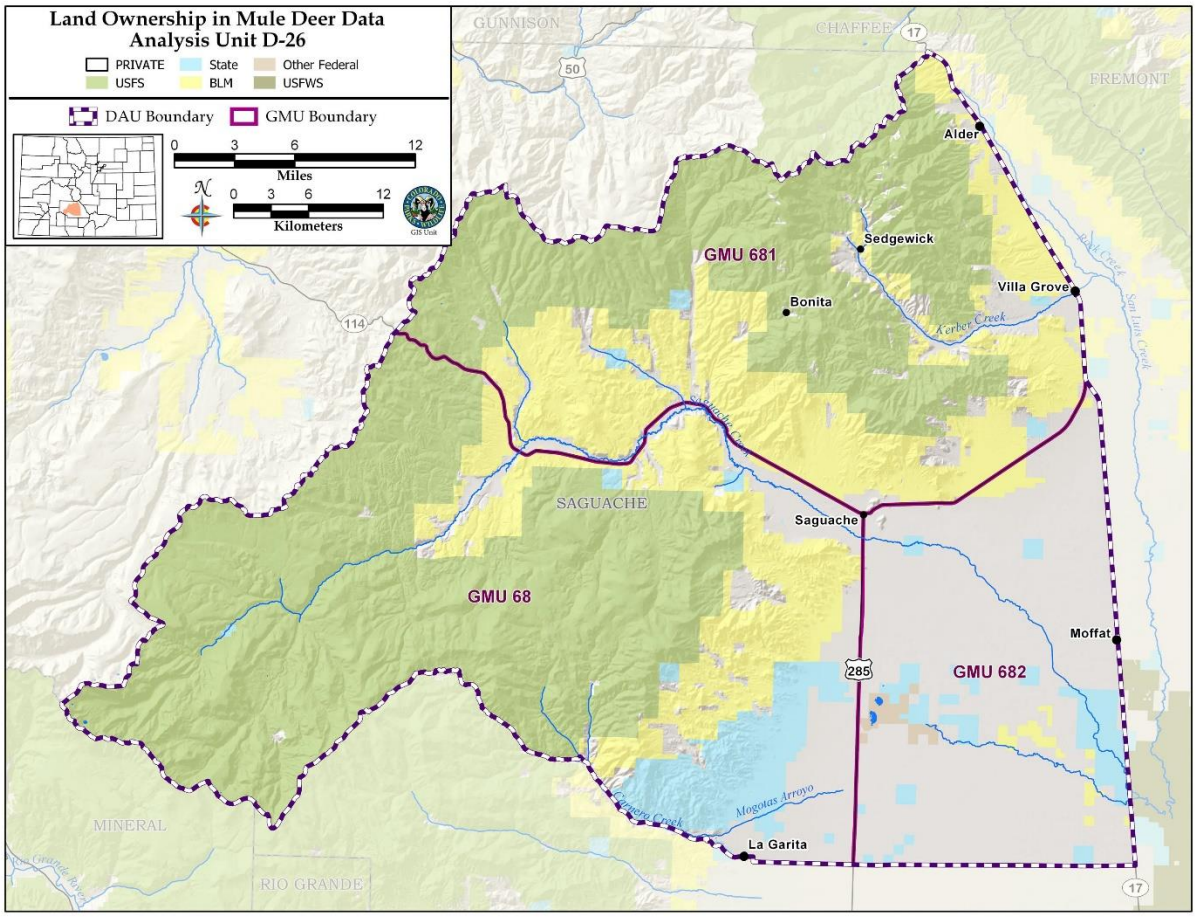


Figure 2. Geographical boundaries with landownership for DAU D-26, GMU's 68, 681 and 682 in southwestern Colorado.

Land Use.

Landownership, Climate and Vegetation.

This unit has an elevation that ranges from approximately 7500 ft. on the valley floor, to almost 14,000 ft. in the La Garita Mountains. The main geographic features are the La Garita Mountains in the west, along the continental divide to the Cochetopa Pass, through to Poncha Pass on the north side. Public land makes up approximately 74% of the entirety of the DAU. Of the Public land in D-26, approximately 20% belongs to the Bureau of Land Management, approximately 47% to the Rio Grande National Forest, and approximately 6% is state land. Approximately 26% of the area within the DAU is privately owned land. (Figure 2).

The climate within D-26 is a highland or mountain climate with cool summers and very cold winters with heavy snowfall at higher elevations. The DAU is in the rain shadows of the San Juan Mountains and is drier than the western and southern portions of the San Luis Valley. The higher elevations of the La Garita Mountains receive 30 inches of precipitation annually, mostly in the form of winter snow and to lesser extent frequent afternoon showers during the summer months. The foothills receive 10 to 12 inches while the valley floor gets approximately 7 to 8 inches annually, and is considered a high desert environment.

At lower elevations grassland/shrub and agricultural lands are predominant but as elevation and precipitation increases the vegetation changes to pinion-juniper, ponderosa pine, then Douglas fir and White fir combined with extensive stands of aspen. Lodgepole pine is found in the northern part of the DAU, the majority of which is on summer range, which is believed to not offer high forage availability for deer. Between 9,500 and 12,500 feet stands of Engelmann spruce and subalpine fir are predominant. Extensive areas of alpine tundra occur above 12,000 feet.

Habitat Resources

The major limiting factor for the deer herd in this Data Analysis Unit is quantity and quality of winter range (Figure 3).

Deer Range and Movement

Deer generally occupy the DAU from the grassland/shrub and pinion/juniper areas of the foothills on the winter range, through all vegetative zones up to the alpine tundra during the summer and early fall. Many deer are found scattered throughout the agricultural lands of the DAU year round, especially along Saguache Creek. In the last few decades, it appears that deer numbers have been increasing on agricultural lands while possibly decreasing in what has been considered traditional forest habitats.
Deer migratory movement to winter range is dictated by weather with snowfall and availability of quality forage. This fall/winter migratory movement usually occurs during October and continues until January. The majority of the deer return to summer range during spring migration from March through to May. The migration of deer is usually elevational in most of the DAU. Many animals on agricultural lands tend to be more sedentary or are inclined to remain resident year -round.

Herd Management History.

The Saguache Data Analysis Unit D-26 has never been considered a highly productive deer unit. It has a high elevation winter range lacking in abundant browse and hard winters that lower the quality of the habitat in the DAU, particularly for deer. Field observations and modeling efforts indicate that the herd has declined from the late 1980's to current levels. Management of the deer herd in the DAU has been mainly limited to buck only seasons since the 60's with the exception of archery and muzzleloading seasons. A private land only doe deer season for a limited number of does was started in 1992. Little, in terms of active management, has been done to adjust the total herd size. Doe licenses were issued in 2006 and 2007 as it was believed that the models were under-estimating the population size. Modifications in statewide season structure, eliminating doe harvest except on private land, limiting buck-hunting licenses in 1999 and the doe seasons in 2006 and 2007 have been the only significant management changes implemented in this DAU.

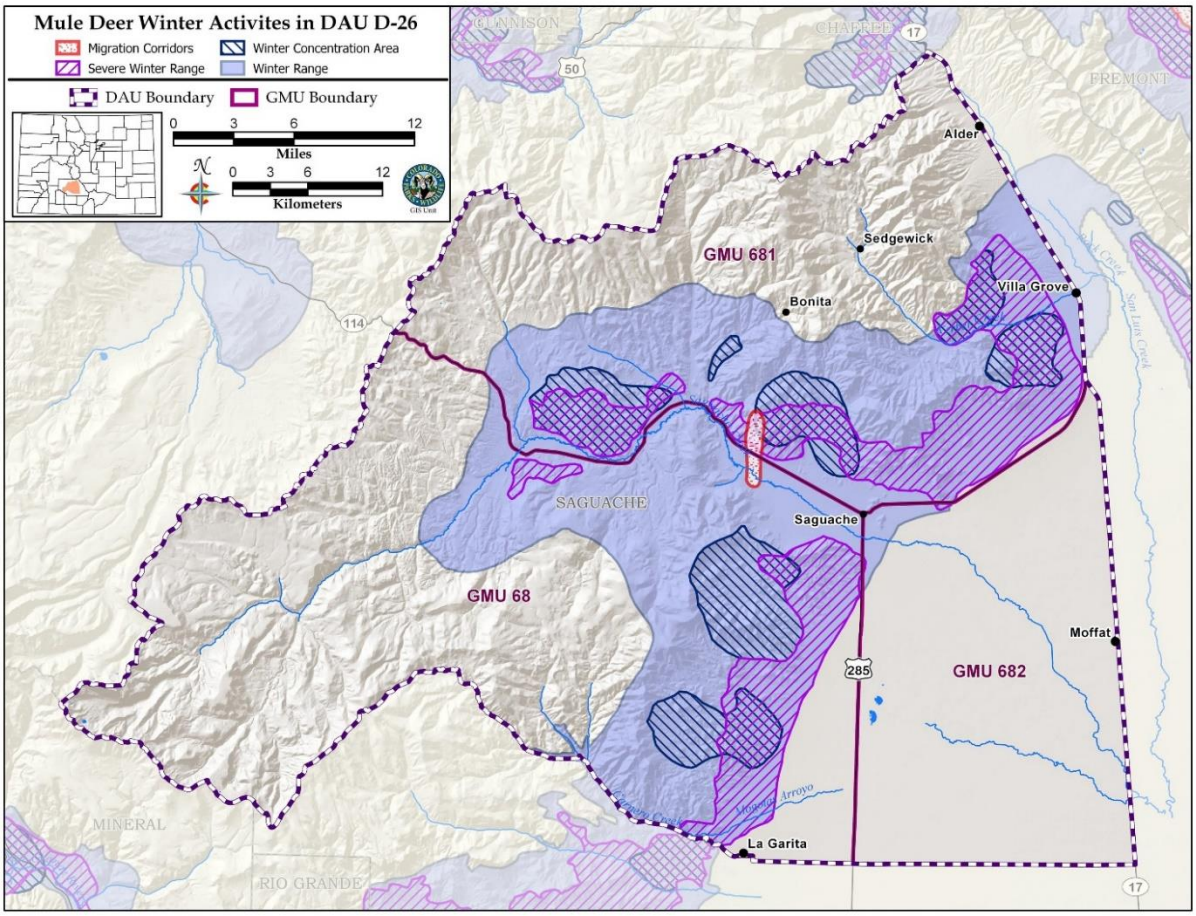


Figure 3. Winter range, severe winter range, and winter concentration areas for D-26. Winter range is "that part of the overall range where 90% of the deer are located during the average five winters out of ten from the first heavy snowfall to spring green-up period." Severe winter range is "that part of the overall range where 90% of the individuals are located when the annual snow pack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten". Winter concentration area is "that part of the winter range where deer densities are at least 200% greater than the surrounding winter range density".

	Winter Range	Winter Concentration Areas	Severe Winter Range	Summer Range	DAU D-26
Overall	309,000 37%	65,000 8%	90,000 11%	616,000 74%	833,000 100%
BLM	153,000 18%	44,000 5%	58,000 5%	141,000 17%	170,000 20%
RGNF	73,000 9%	7,500 1%	4,000 1%	388,000 47%	388,000 47%
Colorado State	29,000 3%	5,000 1%	15,000 2%	21,000 3%	49,000 6%
Private	54,000 7%	8,000 1%	13,000 2%	66,000 8%	219,000 26%

Table 1. Land ownership and mule deer winter, winter concentration, and severe winter range areas. All figures are in acers and percentages have been rounded off.

Post-hunt Population Size

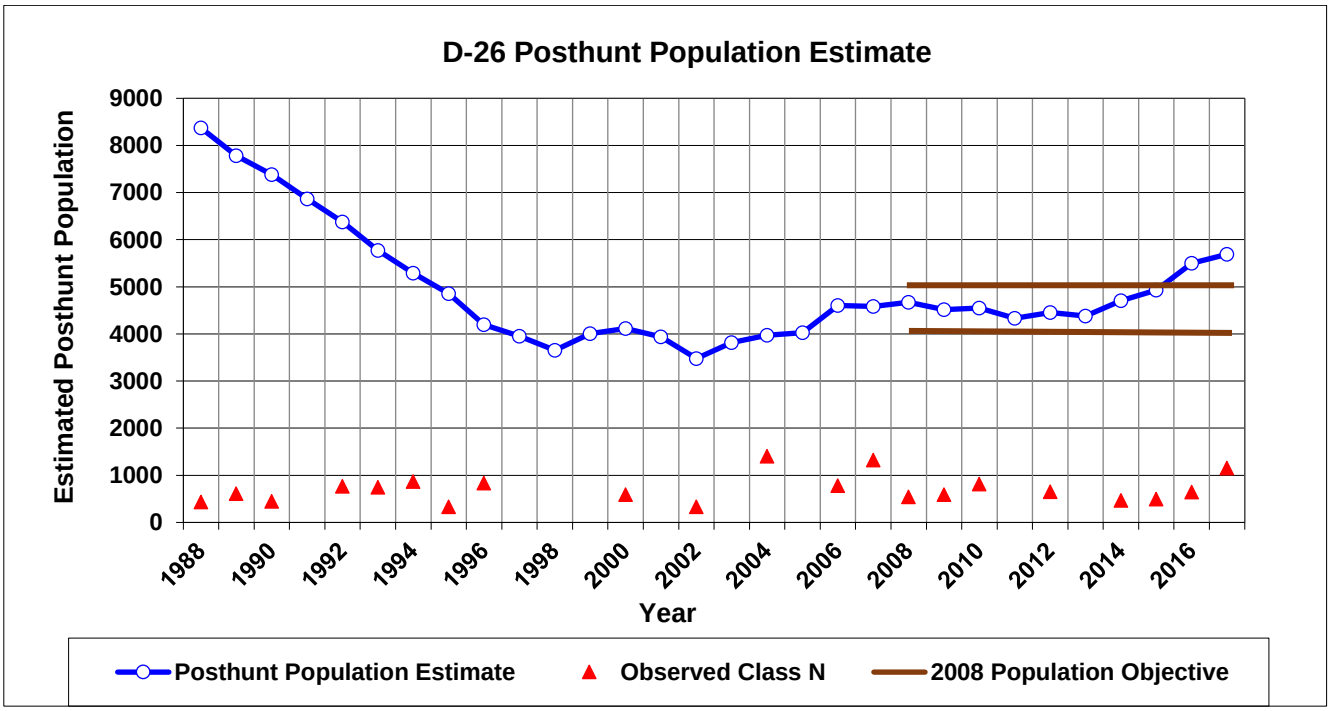


Figure 4. D-26 Post-hunt population estimate from 1988 to 2017.

CPW uses a computer modeling process to estimate the size of deer populations in each Data Analysis Unit. The computer modeling programs used by CPW biologists have changed significantly since the early 1970's. The most recent change in modeling programs occurred in 1999, when CPW switched from a program called POP II to a computer spreadsheet model. Since switching to the spreadsheet model, continual efforts are being made to further refine these models. These refinements often result in changes to the population estimates for a DAU. All of the modeling programs have worked in the same basic manner, using an initial population size, sex ratio at birth, survival rates, wounding loss rate, harvest success, winter severity, and sex/age data to estimate a population. Modeled post-hunt population estimates are generated by solving for the best fit between measured (observed) vs. predicted post-hunt sex ratio data for D-26. Observed post-hunt sex ratio samples often vary annually, due to weather conditions, animal distribution, limitations on flight time, and potential observer bias. This variation makes alignment between observed and predicted values difficult because the models work to align the sex ratios. Obtaining representative sex ratio data on a regular basis is important for improving model fit over time.

The long-term population objective established in 2008 was set at 4,000-5,000 animals (Figure 4). This yields a density of approximately 4.8 – 6.0 deer per 1,000 acres, which would be considered low. Since then, the estimated population has averaged approximately 4,700 deer, which is towards the upper end of the 2008 objective range. Over the last two years, the estimated population has run above the higher objective level. The 2017 post-hunt population estimate for the Saguache Data Analysis Unit (D-26) was 5,680 animals.

Post-hunt Herd Composition.

Post hunt herd composition is determined by using helicopter aerial survey flights usually done in late December through January following the big game hunting seasons. These surveys are targeted at elk and deer populations simultaneously. The classification flights do not result in a population census, but rather an observed sample large enough (10-25%) to estimate the age and sex ratios throughout the entire DAU. The average fawn doe ratio observed from 2008 to 2017 was 45 fawns per 100 does, with the low of 26 fawns per 100 does in 2010 and the high of 67 fawns per 100 does in 2016. Classification flight data from this deer herd was not collected in 1991, 1997-1999, 2001, 2003, 2005, 2011 and 2013.

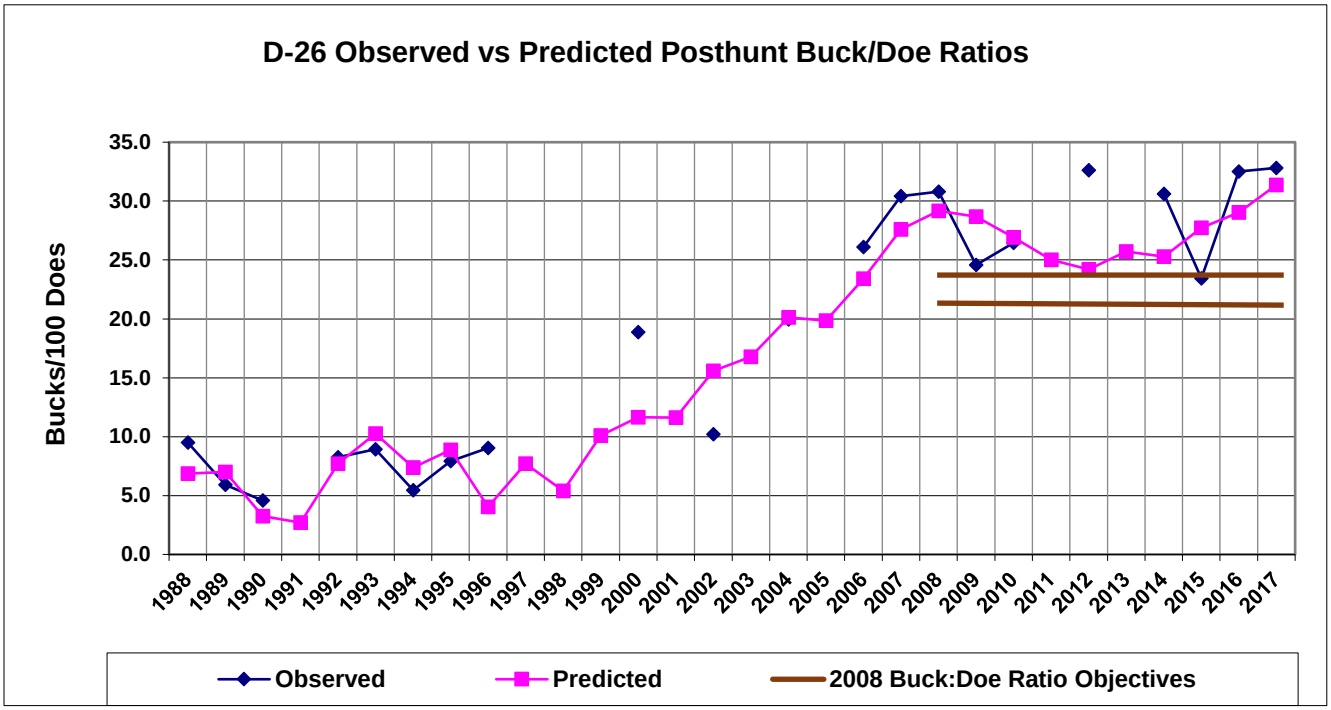


Figure 5. D-26 Observed and modeled post-hunt sex ratios from 1988 to 2017.

Sex ratios are at their highest level experienced by this herd mainly due to the limitation of buck licenses in 1999. From 1988 to 1998, prior to limited licenses, the average observed sex ratio was 7 bucks to100 does (Figure 5). The average observed sex ratio since implementing limited licenses has risen to 26 bucks to100 does annually, from a low of approximately 10 in 2002 to a high of approximately 33 in 2017. In 1999, buck licenses were reduced by 25% and remained relatively constant until 2006, after which gradual increases were made until 2009. From 2009 until 2016, the buck licenses remained relatively stable, with an increasing buck to doe ratio being observed. The number of buck licenses has averaged approximately 534 licenses over the last 10 years.

Harvest

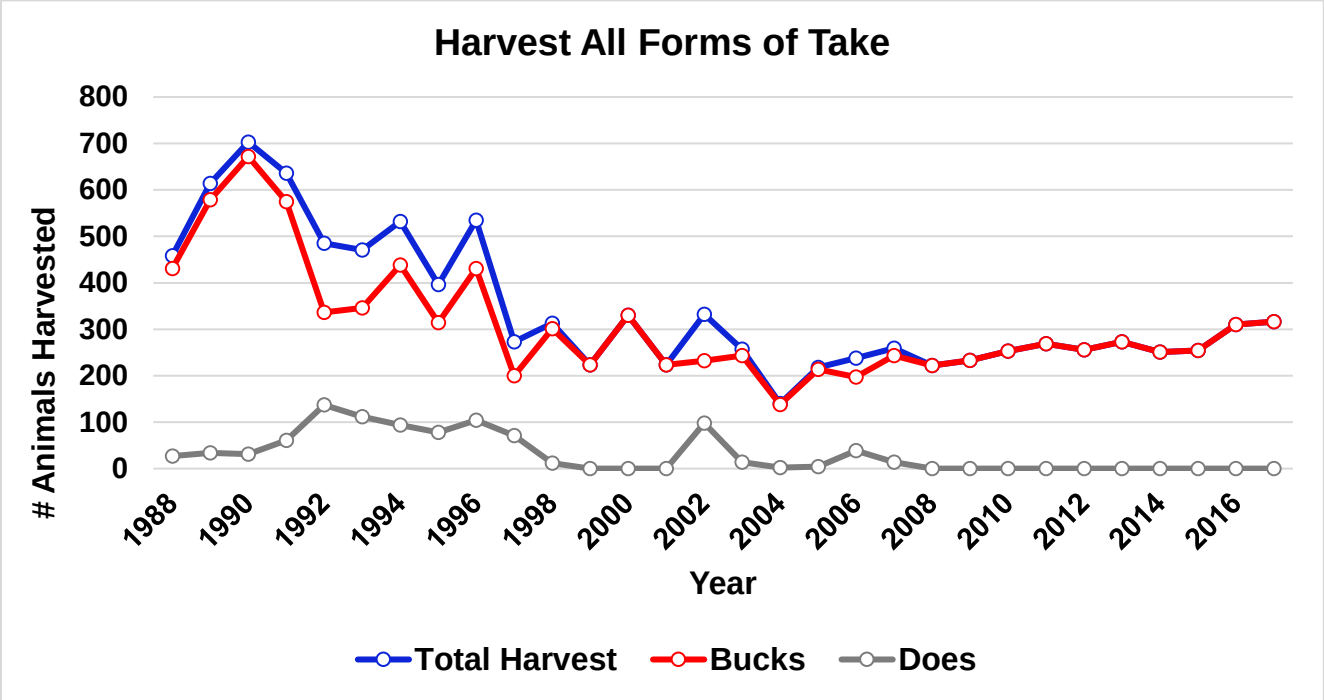


Figure 6. D-26 Buck harvest, antlerless harvest and hunter numbers from 1988 to 2017.

Harvest is largely affected by the number of permits issued, but also by season structure, weather, and population size. Buck licenses became limited in 1999 and after that buck harvest ranged from 138 in 2004 to 316 in 2017 (Figure 6). On average 247 bucks have been harvested per year since the implementation of limited licenses. In 2001, there were 805 buck licenses available, which was decreased to 365 in 2006, with the intent of increasing the sex ratio. With the gradual increase in licenses from 2006 to 2009, this allowed for continued conservative growth in the buck to doe ratios. The number of licenses held relatively stable from 2009 until 2016, allowing for stable harvest, but with a slightly increasing sex ratio. Over the last 10 years buck harvest has averaged approximately 263 animals per year. Success rates over the last 10 years has also remained stable at approximately 50%, from a low of 46% in 2009 to a high of 54% in 2008.

Harvest of the female component of the herd is usually a management tool used in attempts to decrease the population, or to address game damage issues. There has been no doe harvest in this herd from 1999, except for small numbers annually from 2002 and 2007. Prior to 1999, doe harvest averaged approximately 69 animals per year mainly from private land doe hunts. From 2002 to 2007, doe harvest had fluctuated with an average of approximately 14 animals per year.

Hunting Pressure

Before limiting buck licenses, the number of total hunters from 1984 to 1998 ranged from a low of 1,687 in 1998 to a high of 3,565 in 1987 with an average of about 2,600 hunters annually. During this same period, the yearly success rate for the DAU averaged approximately 19%. After limiting the licenses in 1999, the number of hunters has dropped considerably. Since 2003, the average number of hunters for all seasons combined has been approximately 494, with an average success rate of 50.7%. Over the last 10 years, the number of hunters has averaged approximately 522 hunters annually, with an average success rate of 50.6%.

Current Herd Management Status.

Summary of Current Conditions.

The 2017 estimated population size is above objective and appears to have been for the last two years. Before that, the estimated population has been within the 2008 objective range since 2005. The sex ratios are at their highest levels since they began to be recorded in 1988. Many recreationists and landowners in the field have commented positively on this and hunters in general are receptive of seeing more mature bucks in the field, at the cost of limiting licenses. Although age ratios (fawn recruitment) has been low, except for the last two years, it is generally accepted that little can be done to control this through management. Variables, such as weather conditions, forage quality and availability, predation and disease may have a higher impact on reproduction than management actions.

Current Management Concerns.

The previous population and herd structure objectives were set in 2008. Since that time, the population estimate has been within the objective range of 4,000 to 5,000 animals. Attempts to maintain the size of this herd will be a continued effort most likely throughout this HMP's lifespan, which is the next 10 years.

Deer numbers decreased beginning in the mid 1990's. The cause of the decline is unknown but could be attributed to one or more of the following: 1) interspecies competition with an increasing elk herd, 2) habitat succession limiting the amount of quality habitat and forage available, 3) record drought from 1999 through 2004. This population appears to be remaining relatively stable with a slight increase following improved recruitment.

Before 2005, the proportion of bucks in this population is believed to have been below the 1996 and 2008 objectives. However, since 2006 the observed and the modeled buck to doe ratios have been above the most recent objective range that was set in 2008. Limiting the buck licenses in 1999 has helped with the increase in the sex ratios. The average sex ratio observed over the last 10 years has been approximately 29 bucks per 100 does. To maintain this ratio, buck, license numbers will need to be adjusted if hunter success rates and recruitment in the population change.

In the winters of 2002, 2004, and 2010, fawn ratios in the D-26 using aerial surveys, were extremely low, at 20 - 27 fawns per 100 does. However, since that time (since 2010), the observed fawn ratio appears to have been increasing, with an average of 53 fawns to 100 does. The recruitment of fawns will need to continue to allow this population to increase.

Game damage is a possible concern in lower elevations where alfalfa and small grain fields are located. Several small populations of deer are found scattered throughout the agricultural land at lower elevations. Game damage complaints have been minimal in past years but can potentially become a problem as the population begins to increase. This situation could be addressed by the addition of Private Land Only antlerless licenses, but this would be contrary to the goal of increasing the population, or even maintaining the population. Game damage is usually confined to deer grazing agricultural crops such as alfalfa in the early spring months. Limited access to private land by the general hunter has been a major factor in decreasing the ability to harvest deer that remain on private land These are localized problems which are a function of distribution of deer and do not affect the entire DAU. Addressing these problems individually, with the use of various management tools, appears to be acceptable to most farmers and ranchers that do experience game damage issues.

Given the agricultural based economy in the San Luis Valley, development tends to occur slowly, which is often focused around current municipalities. However, development of private land that occurs within winter range has the potential of being a problem in the DAU. The threat from low-density residential development depends on the amount and distribution of private land, and the areas used for more traditional activities, such as agriculture and ranching. Impacts to the deer population from this development includes loss of important limited habitat and quality forage availability as well as the redistribution of animals from historic winter habitat. Johnson et al. (2016) analyzed a long-term data set looking at land use changes from 1970 to 2010 and the impacts on deer populations. From this analysis, for GMU's 68 and 681 alone, the proportion of "undeveloped" (0 houses/acre) has decreased from 19% to 1%. The majority of this development occurred since 2000. Development on rural private land (0.012 houses/acre) has more than quadrupled since 1970, again the vast majority occurring since 2000 (approximately 104,000 acres), almost doubling to 2010 (188,000 acres). Throughout the area, an increase in exurban development (0.012-0.24 houses/acre) from 1970 to 2010 has more than tripled, from approximately 786 acres to 2,723 acres. Summer range has also been affected with regard to developmental sprawl, with exurban development having more than tripled through that time, from approximately 412 acres (1970) to 1,433 acres (2010).

Summer recreation continues to increase in this area. Many people from different backgrounds and different locations nationally and internationally make their way to higher elevations within this DAU to escape the summer heat and enjoy the mountain environment. Activities include camping, hiking, horseback riding, mountain biking, fishing, and the use of off highway vehicles (OHVs). The Rio Grande National Forest lands receive the majority of the use from these recreationalists. Although OHV's are designed to travel in all but the most rugged terrain, the Rio Grande National Forest laws prohibit the use of OHV's off designated maintained roads and marked trails. Unfortunately, these laws are sometimes ignored and users go where they please, often damaging the resource and creating new roads. These same lands also happen to be where most of the deer summer range, within the DAU, is located. The impacts by these various forms of recreation are unknown but are believed to disturb deer to some degree. This is especially important to fawning or lactating does and newborn fawns, with the possibility of affecting distribution, fawn survival, fecundity and/or conception later during the rutting period. During the hunting season, illegal OHV use often displaces deer, potentially making them more difficult for hunters to locate, which may decrease harvest resulting in hunter dissatisfaction. Winter recreation is also believed to be increasing by means of a continued increase in snowmobile usage on winter range. In addition, an increasing number of shed antler hunters visit GMU's 68 and 681 during the spring months that could disturb the animals, possibly creating differences in distributional movement, affecting important nutritional needs for spring fawning, and potentially slowing migration patterns.

Deer are killed by motor vehicles throughout the year in DAU-26, most often during the fall, winter and spring months. This usually coincides with times of the year that deer are at lower elevations due to snow conditions. Most of the collisions occur along Hwy 285, within four miles south of the town of Saguache. Another area of concern for deer collisions with motor vehicles is along Hwy 114 west of Saguache.

Disease.

Currently, all area in the San Luis Valley (SLV), including D-26, are believed to be free of chronic wasting disease. This information is based on an average of only one animal being tested per year in the DAU. However, CWD has been located deer in Montrose, CO. CPW has observed animals from the Gunnison Basin that have mixed with those from Montrose, as well as animals from Saguache County at the upper end of the SLV that have done so with the Gunnison Basin animals. Careful surveillance and monitoring for CWD and any other diseases will continue into the future, by means of opportunistically testing roadkill deer and game damage harvested animals as well as any regular season voluntary harvest submissions.

Natural Resource Development.

Although oil and gas exploration and development has become an issue in wildlife habitat throughout Colorado, until this time this DAU has had minimal impacts caused by oil and gas exploration. To date, a small degree of exploration has taken place. However, no actual development has occurred. If energy resources are located in the DAU and can be economically extracted then the deer population could be negatively impacted due to disturbances on the limited winter range.

Public Involvement.

In the summer of 2018, a public meeting was held in Saguache. The public meeting was well attended by 60 local constituents, all of whom came from different stakeholder groups of the community. During the meeting a question/answering session was conducted after the main presentation and digital polling was used to get immediate feedback from the attendees. The overall view from the attendees was that they were somewhat pleased with the current deer management. The majority of participants were supportive of attempting to keep the deer population at its current level, which would entail managing towards a 10-20% increased deer population objective (the 5,500 to 6,500 animal range).

During the public meeting, there was also strong support shown for maintaining the higher buck : doe sex ratio at current levels. The 2017 observed and estimated sex ratio was greater than 30 bucks : 100 does, with an average estimate of 27 bucks to 100 does over the last 10 years. This had general acceptance from the majority of attendees at the meeting, also supporting the addition of a little extra waiting time (a slight increase in preference points) for a better quality mature buck, but still keeping opportunity within reach. However, a provision for a restricted doe harvest opportunity for the hunter community was appealing, in an attempt to curb the growing population more towards the objective goals, especially in a late season or for youth hunting opportunities.

A public survey for the deer herd and elk herds was made available on-line for a 30-day period. This survey was to allow any constituents that were not able to attend the meeting in Saguache, including non-consumptive recreationists, hunters, landowners, and local store or business owners, to have the ability to participate in the public process. Most of the respondents did not live within the boundaries of GMU's 68, 681 and 682. The vast majority participated in outdoor recreational activities, in addition to hunting. From this surveythe most significant concerns were: i) too many hunters, ii) hunters being able to access deer on private land, iii) the ability of private landowners to select those who could harvest animals within the boundaries of the private land, iii) increasing predators, iv) disease risk (primarily CWD).

An initial draft document was made available online to the public for 26 days, and was sent to the Rio Grande National Forest, the BLM and the local HPP Committee for commentary and feedback.

Development of Alternatives and Management Strategies.

The primary purpose of this Herd Management Plan is to determine the long-term post-hunt population objective and herd composition objectives. Sex ratios (buck to doe ratios) can be manipulated by management actions, whereas age ratios (fawn to doe ratios) are usually a product of environmental factors For each alternative proposed for the newly revised plan, a number range is given for the objectives. This is to allow more flexibility in management based on uncontrolled impacts to the population such as extreme weather events, droughts, severe winters, disease outbreaks, forest fires, etc.

Each alternative includes a brief discussion of general results of managing at that level. Generally, the lower the population the lower the investment needed for habitat improvements. As the population increases, the larger the investment would need to be. Habitat management practices vary in labor intensity, costs and life expectancy of the project. Individual practices that could be considered include prescribed fires, fertilization, seeding, water developments, fencing, timber management, travel management and range management. Game damage problems would probably decrease managing under the lower population alternatives, and would more likely increase as the population increases. Higher population levels would likely support a higher potential harvest by hunters, helping satisfy hunter demand and increase the fiscal benefits to state and local economies.

Management Strategies

Game damage is usually correlated with winter severity and deer distribution. Additional deer can occupy healthy landscapes when their distribution minimizes conflict. Managing towards the present population estimate of deer could maintain hunter satisfaction, increase hunter opportunity, and could sustain the fiscal benefits to the local economy. An increasing population has the potential of increasing highway collisions CPW will work with CDOT to address roadkill deer in an attempt to reduce the collisions as much as possible, by increasing signage and other traffic warning mechanisms. .

Population Objective **2008 Objective – 4,000-5,000** **2017 Population ~ 5,600**

ALTERNATIVE 1 3,500 to 4,500 (approximately 20% decrease from the present population estimate). The 2017 population is estimated to be at approximately 5,600 animals. This alternative is below the existing population. The last time that this population was in this range was in 2004. Currently game damage by deer in the DAU has been minimal and this alternative would most likely keep problems at a minimum. Doe hunting opportunities could become a possibility to reduce the present estimated population towards the upper end of this objective range, creating greater hunting opportunity in the short-term but significantly reducing opportunity in the long-term.

ALTERNATIVE 2 4,500 to 5,500 (approximately 10% decrease from the present population estimate). According to the present models, this alternative had successfully been achieved in 2006, and from that time until 2015, the population estimate remained within the range of this alternative. As the population decreases so would hunter opportunity, but also the potential for decreased game damage. Demands on the resources would remain relatively stable and would not be at a level that could negatively impact the habitat. Minimal doe hunting opportunities could become a possibility to reduce the present estimated population towards the upper end of this objective range, creating slightly increased hunting opportunity in the short-term. Enhanced habitat manipulation, particularly on winter range, would continue to be encouraged; however, intense habitat management would not be necessary.

ALTERNATIVE 3 5,500 to 6,500 (approximately the same as the present population estimate, with a slight increase potential) – **Preferred**.
This alternative would exceed the higher end of the 2008 population objective but encompasses the current estimate. It would offer the ability for a slight increase in population growth. The ability of this herd to be maintained at this size during the next 10 years is feasible, as long as fawn recruitment remains strong This alternative could stress habitat conditions and may require greater efforts to improve public land habitats. This population would maintain the desired buck-hunting opportunity. Game damage conflicts would remain relatively low unless severe winters pushed animals onto agricultural lands. Additional tools are available to address game damage issues that were not available in the past.

Herd Composition (Buck to Doe Ratio). The 2008 Objective: 21-24 bucks to 100 does.

ALTERNATIVE 1 21 to 24 bucks per 100 does.
This is the 2008 objective range; however, the observed sex ratio has been greater than the upper level of this objective range since 2006. This alternative would allow harvest of bucks while maintaining the 2008 sex ratio objective. It would also allow for increased hunter opportunity throughout the DAU in order to reduce the current buck to doe ratio.

ALTERNATIVE 2 24 to 26 bucks per 100 does.
To achieve this ratio, buck harvest opportunity would need to increase, based on the observed and estimated sex ratios. This alternative would more likely result in a slight decrease in the maturity of the buck population component, however still allowing for respectable and acceptable harvest opportunity.

ALTERNATIVE 3 26 to 29 bucks per 100 does. – Preferred.
This alternative would maintain buck harvest at the present levels, limiting hunting opportunity the most. In return, the maturity level of the buck population would be maintained at the existing level. Any higher sex ratio than this could restrict licenses and increase preference point requirements as demand increases. In addition, the increased maturity of the buck proportion of the population could increase the risk of disease, particularly CWD.

Public Input and Preferred Alternative Selection.

These preferred alternatives were selected after gathering input from a public meeting held in Saguache, an open public survey made available online for 30 days, as well as additional feedback from the public, the Rio Grande National Forest, the BLM and the local HPP Committee after the draft document was made available online for 26 days. In addition, professional input from Colorado Parks and Wildlife personnel has also been considered. Biological herd capabilities and other factors mentioned previously have also been considered.

We attempted to solicit as much public feedback/desires as possible with the resources available. From the combination of the public meeting, the online survey, and feedback on the draft document, the overwhelming consensus was to maintain the deer population at its present estimate, and allowing for a slight increase. This was in agreement with the preferred alternative # 3 (5,500 to 6,500 deer).

CPW is extremely grateful to the Rio Grande National Forest (RGNF), who manages the majority of the DAU, for offering feedback from the initial draft document. They have indicated that they do support the present estimated population number with a slight increase in the deer population (Population Alternative # 3). They have acknowledged that there has been a significant increase in forage quantity and quality on summer range, due a decrease in tree crown canopy cover from the effects of spruce beetles. The RGNF recognizes that winter range conditions should be a focus for habitat improvement management actions, since this is the major limiting factor for deer in the DAU. Habitat carrying capacity should continue to increase as these projects are implemented and accomplished. The RGNF also agrees with increasing the sex ratio objective by selecting sex ratio alternative # 3 (26 to 29 buck per 100 does). This would be consistent with what has been observed, providing a balanced opportunity between the recreational experience and harvesting a mature buck. For these alternatives to be implemented the RGNF has recognized that habitat improvements and cattle grazing impacts, particularly on winter range, will need to be addressed in collaboration with CPW.

CPW is also extremely grateful to the Bureau of Land Management (BLM), who manage the majority of the land within deer winter range. After the draft document review period, the BLM has indicated that the winter range is in relatively good condition, but browse conditions varies widely. They have suggested that maintaining the herd at the current population estimate levels with a slight potential for growth would be acceptable. Thus, they have cautiously agreed with the population alternative # 3 (5,500 to 6,500 deer). However, joint habitat improvement management actions between CPW and the BLM would be extremely beneficial to improve the availability of quality forage and limit land health impacts. These management actions would help to alleviate any adverse effects, if they were to occur, with a slight increase in the deer population. Working together with the BLM to address vegetation monitoring and deer foraging impacts will help considerably in determining more accurate carrying capacity levels in the future.

The San Luis Valley Habitat Partnership Program (HPP) addressed the draft document on November 13, 2018. This HPP committee gave their support for the population alternative # 3 (5,500 to 6,500 deer). The HPP committee suggested that keeping the deer population at its present level and allowing for a slight growth would not create increased conflicts on private land and that CPW has resources in place, if conflicts should arise. However, an increased population objective would ultimately lead to maintaining hunting opportunity and satisfaction in the future. The HPP also addressed the sex ratio objectives and are in agreement with alternative # 3 (26 to 29 buck per 100 does). The HPP realizes that this could potentially provide greater satisfaction in the long term.

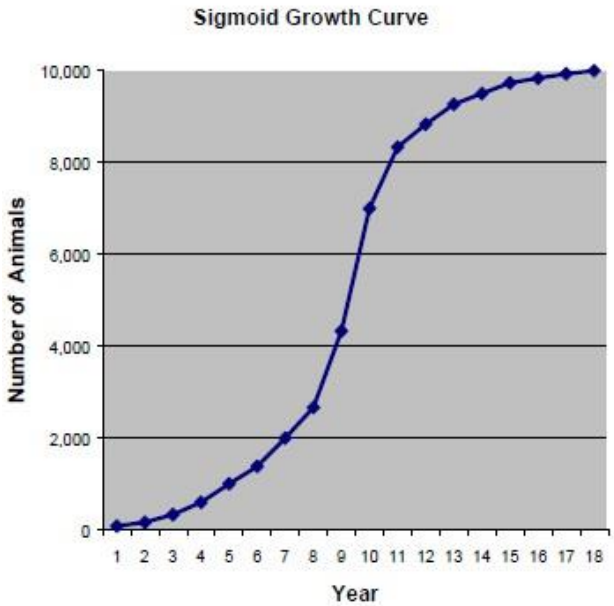
All public responses to the draft document were in agreement with maintaining the present estimated population, while allowing for a slight growth, thus alternative # 3 (5,500 to 6,500 deer). All respondents were also in agreement with increasing the sex ratio objectives to alternative # 3 (26 to 29 buck per 100 does). This would maintain opportunity and satisfaction at its present level.

Thus, for D-26, the **Preferred Population objective is 5,500 to 6,500** (Alternative # 3), and the **Preferred Sex Ratio objective is 26 to 29 bucks per 100 does** (Alternative # 3). CPW staff will re-evaluate management towards the accepted objectives on an annual basis. However, management towards these objectives will take place for the next 10 years under current conditions, unless they becomes socially or biologically unacceptable, in an earlier timeframe, at which time alternative objectives could be re-addressed.

Literature Cited.

Johnson, H.E., J. R. Sushinsky, A. Holland, E. J. Bergman, T. Balzer, J. Garner, and S. H. Reed. 2016. Increases in residential and energy development are associated with reductions in recruitment for a large ungulate. *Global Change Biology* 23 (2): 578-591. *http://onlinelibrary.wiley.com/doi/10.1111/gcb.13385/full.*

Appendix A: Population Dynamics and Managing for Maximum Sustained Yield.



Numerous studies of animal populations, including species such as mice, rabbits and white-tailed deer, have shown that the populations grow in a mathematical relationship referred to as the "sigmoid growth curve" or "S" curve (right). There are three distinct phases to this cycle. The first phase occurs while the population level is still very low and is characterized by a slow growth rate and a high mortality rate. This occurs because the populations may have too few animals and the loss of even a few of them to predation or accidents can significantly affect the population.

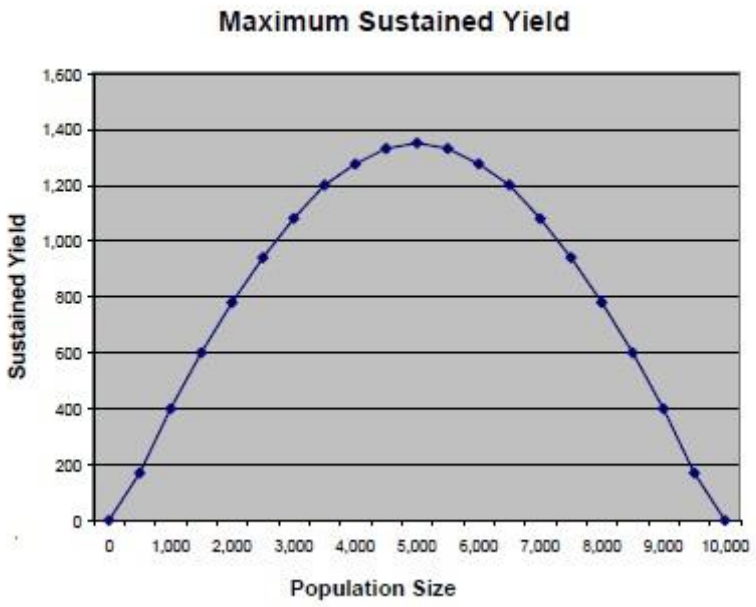
The second phase occurs when the population number is at a moderate level. This phase is characterized by a very high reproductive and survival rate. During this phase, food, cover, water and space (habitat) is not a limiting factor. In addition, during this phase, animals such as white-tailed deer have been known to successfully breed at six months of age and produce a live fawn on their first birthday and older does have been known to produce 3-4 fawns that are very robust and healthy. Survival rates of all the deer (bucks, does and fawns) are at maximum rates during this phase.

The final or third phase occurs when the habitat becomes too crowded or habitat conditions become less favorable. During this phase the quantity and quality of food, water, cover and space become scarce due to the competition with other members of the population. This phase is characterized by a decrease in reproduction and survival. In addition, during this phase white-tailed deer fawns can no longer find enough food to grow to achieve a critical minimum weight that allows them to reproduce; adult does will usually only produce 1-3 fawns; and survival of all deer (bucks, does and fawns) will decrease. During severe winters, large die-offs can occur due to the crowding and lack of food. The first to die during these situations are fawns, then bucks followed by the adult do. The severe winters thus affects the future buck to doe ratios by favoring more does and fewer bucks in the population. Also, since the quality of a buck's antlers is somewhat dependent upon the quantity and quality of his diet, the antlers are stunted during this phase. If the population continues to grow, it will eventually reach a point called "K" or the maximum carrying capacity. At this point, the population reaches an "equilibrium" with the habitat. The number of births each year equals the number of deaths, therefore, to maintain the population at this level would not allow for any "huntable surplus." The animals in the population would be in relatively poor condition and when a severe winter or other catastrophic event occurs, a large die-off is inevitable. A recent example of such a population die-off occurred in the relatively un-hunted Northern Yellowstone elk herd during the severe winter of 1988-89. This winter followed the forest fires of the summer of 1988 that raged in the National Park.

What does all this mean to the management of Colorado's big game herds? It means that if we attempt to manage for healthy big game herds, we should attempt to hold the populations at about the middle of the

"sigmoid growth curve." Biologists call this "MSY" or "maximum sustained yield." At this level, which is exactly half the maximum population size or "K", in this example it would be 5,000 animals, the population should provide the maximum production, survival and available surplus animals for hunter harvest. In addition, at this level, range condition should be good to excellent and range trend should be stable. Game damage problems should not be significant and economic return to the local and state economy should be at the maximum. This population level should produce a "win - win" situation to balance sportsmen and private landowner concerns.

A graph of a hypothetical deer population showing sustained yield (harvest) potential vs. population size is shown (right). Notice that as the population increases from 0 to 5,000 deer, the harvest also increases. However, when thepopulation reaches 5,000 or "MSY", food, water and cover becomes scarce and the harvest potential decreases. Finally, when the population reaches the maximum carrying capacity or "K" (10,000 deer in this example), the harvest potential will be reduced to zero. Also, notice that it is possible to harvest exactly the same number of deer each year with 3,000 or 7,000 deer in the population. This phenomenon occurs since the population of 3,000 deer has a much higher survival and reproductive rate compared to the population of 7,000 deer. However, at the 3,000 deer level, there will be less game damage and resource degradation.



Actually managing deer and elk populations for MSY on a HMP basis is difficult if not impossible due to the amount of detailed information required because of the complex and dynamic nature of the environment. In most cases, we would not desire true MSY management even if possible because the number and quality of bulls and bucks is minimized. However, the concept of MSY is useful for understanding how reducing densities and pushing asymptomatic populations towards the inflection point can stimulate productivity and increase harvest yields. Knowing the exact point of MSY is not necessary if the goal is to conservatively reduce population size to increase yield. Long-term harvest data can be used to gauge the effectiveness of reduced population size on harvest yield.

Appendix B: Rio Grande National Forest Response Letter
Appendix C: BLM Response Letter
Appendix D: HPP Response Letter
Appendix E: Saguache Public Meeting Survey Results
Appendix F: D-26 and E-26 Open Public Online Survey Results

United States Department of Agriculture
Forest Service
Rio Grande National Forest
1803 West Highway 160
Monte Vista, CO 81144
(719) 852-5941
(719) 852-6271 TTY
http://www.fs.fed.us/r2/riogrande

File Code: 2670
Date: November 28, 2018

Brent Frankland
Terrestrial Biologist
Colorado Parks & Wildlife
0722 South Co Rd 1E
Monte Vista, CO 81144

Dear Mr. Frankland:

Please accept this revised letter that serves to clarify our previous comments submitted on November 15, 2018.

Thank you for the opportunity to comment on Colorado Parks and Wildlife's draft DAU Plans for Elk DAU E-26 and Deer DAU D-26. These DAUs encompass GMUs 68, 681, and 682 and involve basically all the Saguache Ranger District outside of the Sangre de Cristo Mountains. My staff biologists have reviewed the draft plans for these DAUs and provided information for me to offer the following comments for consideration and use as you finalize the plans. Based on previous requests, I also attached supporting information that assesses potential changes to the vegetative conditions within these DAUs due to the current spruce beetle outbreak. A narrative summary of these analyses is included.

The Rio Grande National Forest contains over 1.8 million acres of National Forest System land that are managed for multiple-uses in the San Luis Valley area of south-central Colorado. The DAU Plans are an important aspect of our management because of high public interest in big game species and because I am responsible for managing much of the habitat to support the desired population levels. However, it is also important that populations are maintained within the carrying capacities of the habitat, and that deer and elk population objectives are managed in a manner that minimizes potential conflicts with other program areas. My comments reflect these mutual goals.

As you likely know, both mule deer and Rocky Mountain elk have been managed as Management Indicator Species (MIS) under our 1996 Land and Resource Management Plan (Forest Plan). As such, both population and habitat trends were tracked at the Forest-level in association with Forest Plan direction, including providing the quantity and quality of habitat capable of supporting the population objectives for these species. In the draft Forest Plan Revision under the 2012 Planning Rule, the MIS concept no longer exists. However, deer and elk habitat and population trend considerations remain a key part of the plan components as focal species and both population and habitat trend considerations are included in the draft Monitoring Plan. As such, management of big game habitat will continue to involve evaluations of habitat conditions during project level evaluations and Forest Plan monitoring, but also through other project partnerships such as HPP, Mule Deer Foundation, Rocky Mountain Elk Foundation, and others. I therefore expect to continue to work closely with Colorado Parks and Wildlife to achieve mutually desired habitat conditions for all big game species.

Hunting and other wildlife-related recreation is one of the biggest uses experienced on the Rio Grande National Forest. Although most of this occurs during the rifle season(s) for deer and elk, hunters utilize our public lands from the opening of pronghorn season in mid-August through the late season elk cow

hunts of December. As your draft DAU plan displays, archery hunters are also increasing significantly. This large influx of visitors brings a huge economic boost to the Valley but also comes with challenges such as a large increase in off-road vehicle use, high density of hunter camps, and an increase in law enforcement presence and front office staffing needs. Therefore, management of hunter numbers is also an important issue to me because of its relationship to land and resource management issues associated with increased use of the Forest.

The following are my comments regarding the draft DAU Plans for both deer and elk. As requested, I am also providing an overview and summary of the ecological conditions of the forest vegetation in these DAUs. These conditions are based on queries of our GIS system conducted in early November 2018 and include the following queries: 1) amount of tree mortality based on Insect and Disease flights (2010 to 2017 data); 2) forest canopy closure based on tree cover percent by size class (2018 data); and 3) percent aspen in the forest understory based on 2018 NAIP aerial imagery data.

The spreadsheets for these queries are included with our comments as attachments for your records and so that you can sort and utilize the data as desired. Our comments on the draft DAU Plans follow the vegetative overview provided below.

Overview of Ecological Condition of Forest Vegetation in the DAUs

As of 2017, a majority of the spruce-fir cover type on the Rio Grande National Forest (617,000 acres) has been heavily influenced by the spruce bark beetle. The DAUs involved in this planning effort are no exception. The spruce beetle primarily affects the mature (Size Class 4) Engelmann spruce component although in many cases pole-sized spruce (Size Class 3) are also being affected. The outcome is often extensive mortality of the larger tree component and a decrease in tree crown canopy closure which in turn allows more light to penetrate the forest floor. This can stimulate a considerable increase in understory growth such as shrubs, seedlings, and grasses and forbs utilized as forage for deer and elk.

The information on Spreadsheet 1 tracks insect and disease (I&D) agents from 2010 through 2017. Although affects from some other I&D agents in lower-elevation forest types have also changed in spatial extent during this timeframe, the primary influence has occurred in the upper montane forest zone in association with the spruce beetle outbreak. According to this data, the spatial extent of spruce beetle impacts has impacted over 200,000 acres of the 400,000 acres total in both DAUs since 2010. Through 2018, the data associated with changes in habitat structural stage (Spreadsheet 2) indicate that this has resulted in a 72% decrease in closed canopy conditions in the late successional spruce component (HSS 4C, 70-100 canopy closure) while a 5% decrease in mid-closed canopy closed conditions of the mature spruce tree component (HSS 4B, 40-69% canopy closure). This decrease in canopy closure has resulted in a 78% increase in shrub/seedling habitat classes (HSS 2) as overstory mortality occurs. Habitat Structural Class 2 has a considerable component of small understory trees but also likely contains a significant increase in grass/forb components that will remain available until such time the forest understory grows into closed canopy conditions again.

Likewise, the data also indicates that there has been a 225% increase in mature, open stand conditions (HSS 4A, 0-39% canopy closure) which suggests that the remaining large green tree component has shifted into a more open canopy condition that also is likely to promote more understory release and growth. The reduction in canopy closure is also resulting in a significant release and conversion to aspen with an 84% increase in the understory containing aspen cover of various percentages (Spreadsheet 3, Beetle Aspen Size Cover). Analyses associated with our current Forest Plan revision effort suggest that it may take four to five decades to attain closed canopy conditions again in our spruce-fir cover type.

The various analyses conducted for these DAUs suggest that there will be a significant increase in forage resources for deer and elk. However, the greatest change will occur on summer range in the spruce-fir cover type and likely favor elk due to the stimulation of grasses and forbs.
Expected changes in the lower elevational types associated with winter range and browse plants are likely to be insignificant.

DAU D-26
Mule Deer

Current Conditions: The Rio Grande National Forest has a high degree of responsibility for providing habitat to support the desired mule deer numbers in this DAU with approximately 46% of the land base managed by the Rio Grande National Forest. The majority of this can be considered summer and/or transitional range that is likely in more open canopy condition as described in the vegetative overview above. However, approximately 73,000 acres of deer winter range also occurs on National Forest System (NFS) lands (9% of the total). This lower elevation range has likely not been significantly influenced by changes in ecological condition due to bark beetles or other insect or disease agents. Based on the draft DAU plan, approximately 1% (4,000 acres) of the severe winter range designation also occurs on NFS lands. I recognize that both winter and severe winter range should be a focus for management actions as needed to maintain or improve habitat conditions for mule deer in this DAU and look forward to working cooperatively with CPW and other partners to attain these goals.

I agree that the 2019 population objective of 5,500-6,500 mule deer is realistic for this DAU. As your data display, these numbers appear to be sustainable as they have held over objective the last two years and there are several habitat improvement projects in process. Average fawn to doe ratios appear to have increased to healthy herd levels, and buck to doe ratios have improved. Based on the information provided, it appears that there may be more benefits to this deer herd by managing for numbers at the current population objective.

Recommendations: Based on existing habitat information and other factors, I concur with CPW that Alternative 3 (current population estimate) be implemented as the population objective for DAU D-26. This objective would be set at 5,500 to 6,500 mule deer. I would also recommend that limited entry continue, as this helps to control and better manage potential resource damage from recreational hunter numbers that utilize public lands. I also concur that Alternative 3 (26 to 29 bucks per 100 does) be pursued as a sex ratio objective to provide a balanced opportunity between a higher quality recreational experience to the public and the opportunity to harvest a larger mule deer.

Other General Comments: The draft Plan mentions on-going resource damage from off- highway vehicles (OHVs) as a primary concern in this DAU. OHVs are also mentioned as a potential factor in displacing deer from preferred habitat thereby reducing hunter satisfaction. These types of disturbances are also a concern for the Forest and it is important for us to know about them if they occur on public lands. I am also particularly interested in assessing our Game Retrieval Policy to determine if some of this resource damage might be attributed to this activity. I request the CPW's assistance in monitoring and enforcing our existing authorities to eliminate or minimize resource damage and disturbance from OHVs if we are to be successfully managing this activity for the benefit of the D-26 herd.

DAU E-26
Rocky Mountain Elk

Current Conditions: DAU E-26 overlaps the roughly same area described for DAU D-26. As such, the Rio Grande National Forest has a considerable responsibility for providing habitat to support elk numbers in this DAU of which 87% occurs on public land. This especially pertains to elk summer range 387,000

acres (58%) occur on Forest alone. Based on the draft DAU plan, approximately 15,500 acres (23 % of the total) of winter range and 1% (4,000 acres) of severe winter range designation also occurs on NFS lands. The conditions of summer, winter, and severe winter range on NFS lands is like that mentioned for deer. As such, winter and severe winter range remain a management focus for the Forest. I share CPWs concern that past elk numbers in this DAU were likely too high for the available habitat at that time. I therefore recommend careful consideration in trying to balance an increase in elk numbers with the condition of available habitat. The ecological condition assessment provided for this DAU may assist with these decisions, particularly since the draft Plan suggests that winter range condition and forage availability are limiting factors for elk. This may not be the case on summer range as aspen are succeeding much of the beetle killed stands.

The current population estimate of 3,400 elk is just below 2008 objectives (3,500-4,500) and it is believed that the Forest will host more favorable cover to forage ratios in the near future, thus an increased elk herd maybe more socially and biologically sustainable than in past years, such as the 1990's. The ecological condition assessment associated with our analyses suggests that forage availability on summer range will likely not be a key limiting factor in the future as a significant increase in forage quantity and quality has likely occurred and will continue to occur for at least the life of this DAU Plan. Rather, winter and severe winter range will likely remain key limiting factors regarding elk population objectives.

Recommendations: Based on the information provided in the draft plan, in association with the ecological condition update conducted for this DAU, I recommend Alternative 2 be selected which is more readily attainable population objective for DAU E-26 at this time. This objective would manage the population at 3,600 to 4,200 elk. The Forest Service District Wildlife Biologist associated with this DAU indicated that he supports this increase as he believes habitat carrying capacity will continue to increase as projects are implemented. Several timber sales were recently sold, which will expand summer range forage capacity once implemented. There are other thinning and burning projects that will restore or enhance winter range forage capacity that are expected to be implemented during the life of this DAU plan. Due to the increase in summer forage and ongoing habitat improvement projects, I therefore recommend maintaining the population within the lower end of the Alternative 2 thresholds of the objective until such time that potential effects on winter range can be assessed.

From a recreational opportunity perspective, I concur that the expected bull ratios (18 to 21 bulls per 100 cows) represents a balanced opportunity between achieving the desired elk numbers and a better opportunity to harvest a bull elk. I support the current objective.

Other General Comments: I have heard of more mountain lion hunting public interest and permitted guide activity on the Saguache Ranger District than in recent years. The draft plan for DAU E-26 notes that OHV use is a growing concern during the summer and the elk hunting seasons. The draft plan also notes that OHVs are likely responsible for displacing elk during the hunting season, thereby reducing hunter success rates and satisfaction. The OHV Game Retrieval policy is mentioned as a potential contributing factor to elk displacement. I agree that this is a potential issue and look forward to collaborating with CPW on this policy during our upcoming travel management analysis that will occur after the Forest Plan revision is complete. I would like to offer one correction to the draft DAU Plan for E-26 where it states "domestic … sheep … are grazed on public land allotments in E-26". This is inaccurate as there are no public land allotments permitted for domestic sheep within E-26 geographic area. Finally, the Rio Grande National Forest has substantially invested in several ongoing projects that will restore or enhance habitats to encourage better elk distribution across winter and summer ranges.

Again, I thank Colorado Parks and Wildlife for the opportunity to comment on the Draft DAU Plans for D-26 and E-26. The plans are well-written and informative, and I commend the author and CPW for the time and effort put into these plans. I also thank Colorado Parks and Wildlife for adding economic

information for big game species to the DAU plans (Table 1, pg. 23). Big game populations and wildlife-related recreation are an important use on the Forest and the economic information helps to inform readers about these values. I look forward to continuing our work with Colorado Parks and Wildlife as I cooperatively manage for healthy wildlife habitats and populations in the future.

If you have any questions, please contact Jason Remshardt, Point of Contact for Wildlife and Fisheries Program at 719-852-6243

Sincerely,

DAN S. DALLAS
Forest Supervisor

Enclosures

cc: Rick Basagoitia, Tom Malecek, Tristram Post, Jason Remshardt, Jesse McCarty

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
San Luis Valley Field Office
1313 East Highway 160
Monte Vista, Colorado 81144

In Reply Refer To:
6521 (COF03000, JRL)

30 November, 2018

Rick Basagoitia, Area Wildlife Manager
0722 South Road 1East
Monte Vista, CO 81144

Dear Mr. Basagoitia,

Thank you for the opportunity to comment on the proposed D-26 and E-26 DAU Plans. As the agency providing the majority of critical winter range for big game in the San Luis Valley, we thought it important to provide comments on any changes Colorado Parks and Wildlife may implement. The San Luis Valley Field Office (SLVFO) has a strong commitment to providing quality wildlife habitat as one of our important "multiple uses".

After reviewing the draft D-26 and E-26 plans, we agree with the many current and emerging ecological constraints identified by CPW when considering elk and deer herd objectives for this area, including increasing fragmentation from development, increasing recreation pressure, limited winter range and forage availability, prolonged drought, game damage issues, competition with livestock, and competition with other wild ungulates that are currently not at herd objectives. It appears that increasing herd objectives to any degree would conflict with these ecological constraints. We also believe these constraints will pose additional challenges in managing public lands to meet Land Health Standards under any scenario that increases herd objectives.

In particular, the proposed alternative within the E-26 DAU plan that includes a 20-40% increase is concerning given the ongoing drought and the potential, but undocumented, impacts of reduced quality and availability of winter forage on public lands. We recommend a more moderate approach as identified in either of the other two alternatives until studies are initiated that quantify current condition of the crucial winter range and the carrying capacity of those areas. We are aware that if increases in numbers create land health impacts, CPW can moderate herd sizes with game management tools, but land health impacts area harder to reverse and can take many years to see improvement, especially in times of drought.

Specific to the D-26 plan, we understand the herd objective reflects the current estimated population size, and our observations are that browse condition varies widely depending on the area. While the current population size may prove to be less viable following a harsh winter, the proposed increase of 10-20% appears to be more moderate and would provide an opportunity for monitoring and adjustments to ensure maintenance of healthy lands. Continued habitat

partnership projects between CPW and the BLM will be critical to improve availability of browse to ensure limited land health impacts during severe winters under the new objective.

Lastly, the BLM does not have the capacity to implement a monitoring program specific to wild ungulates. Because of the uncertainties regarding ecological constraints, we believe a program to monitor habitat conditions is critical, particularly if herd objectives are increased. Additionally, the draft DAU Plans list winter range forage availability and quality as the limiting factors to herd size, so we recommend CPW and the BLM work together to address targeted vegetation monitoring on winter range in conjunction with pellet counts to determine impacts from the changing herd objectives and to assist in quantifying carrying capacity.

If you have any questions regarding this matter, please contact me at (719) 239-0494.

Sincerely,

Melissa S Garcia

Melissa S. Garcia
Field Manager
San Luis Valley Field Office

CC Brent Frankland, Wildlife Biologist
Clayton Bondurant, District Wildlife Manager

November 16, 2018

Brent Frankland
Colorado Parks and Wildlife
0722 S. CO Rd 1 East
Monte Vista, CO 81144

RE: San Luis Valley Habitat Partnership Program Comments - DAU D26

Dear Brent:

One of the initial reasons for creating the Habitat Partnership Program was to provide local landowners and other interests an opportunity to provide input into big game management in their areas. The diverse makeup of local HPP committees (3 livestock growers, Forest Service, BLM, USFWS, CPW and sportsmen representatives) provide a good cross section of local interests to review DAU proposals and respond accordingly for CPW consideration.

The San Luis Valley HPP committee has discussed your presentation and reviewed the draft alternatives for this DAU plan update. The San Luis Valley HPP committee is in agreement with the following comments pertaining to proposals for the population range and sex ratio objectives for the above DAU plan.

The SLVHPP committee supports the draft alternative to increase the number of animals within this DAU and within our committee area (alternative #3). The SLVHPP committee does not believe this increase would create more conflicts and we also believe we have the resources necessary to address conflicts should they occur. Increasing the population objective will ultimately lead to more hunting licenses and sportsmen opportunities.

The SLVHPP also discussed the proposed sex ratio alternative. We support raising the current sex ratio objective to provide larger bucks for sportsmen to pursue (alternative #3). We understand this option would reduce hunting opportunity but our committee believes having higher quality animals in this area is desired and possible.

Thank you for the presentation and the opportunity to provide these comments.

Sincerely,

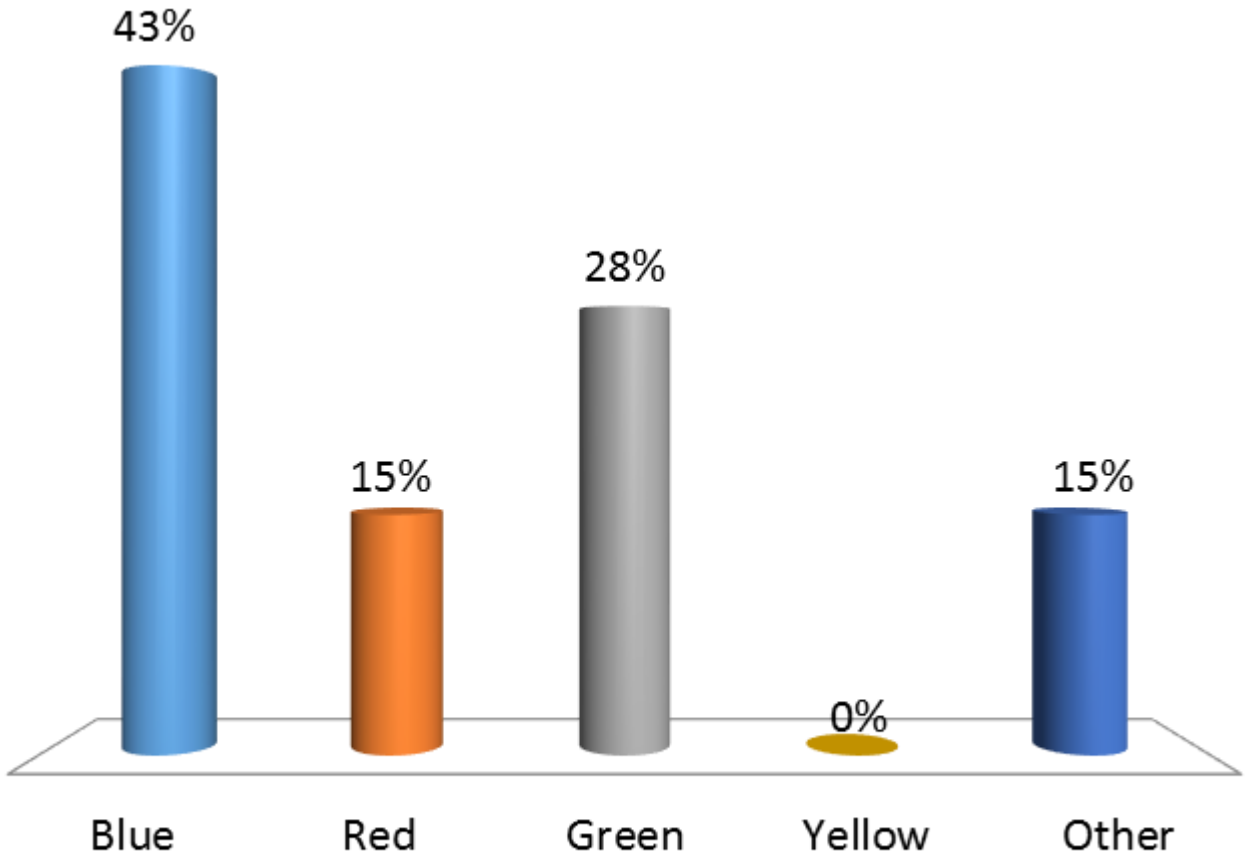
Mick Davis

Mick Davis, Chair
San Luis Valley HPP Committee

YOUR TURN -- DIGITAL POLLING

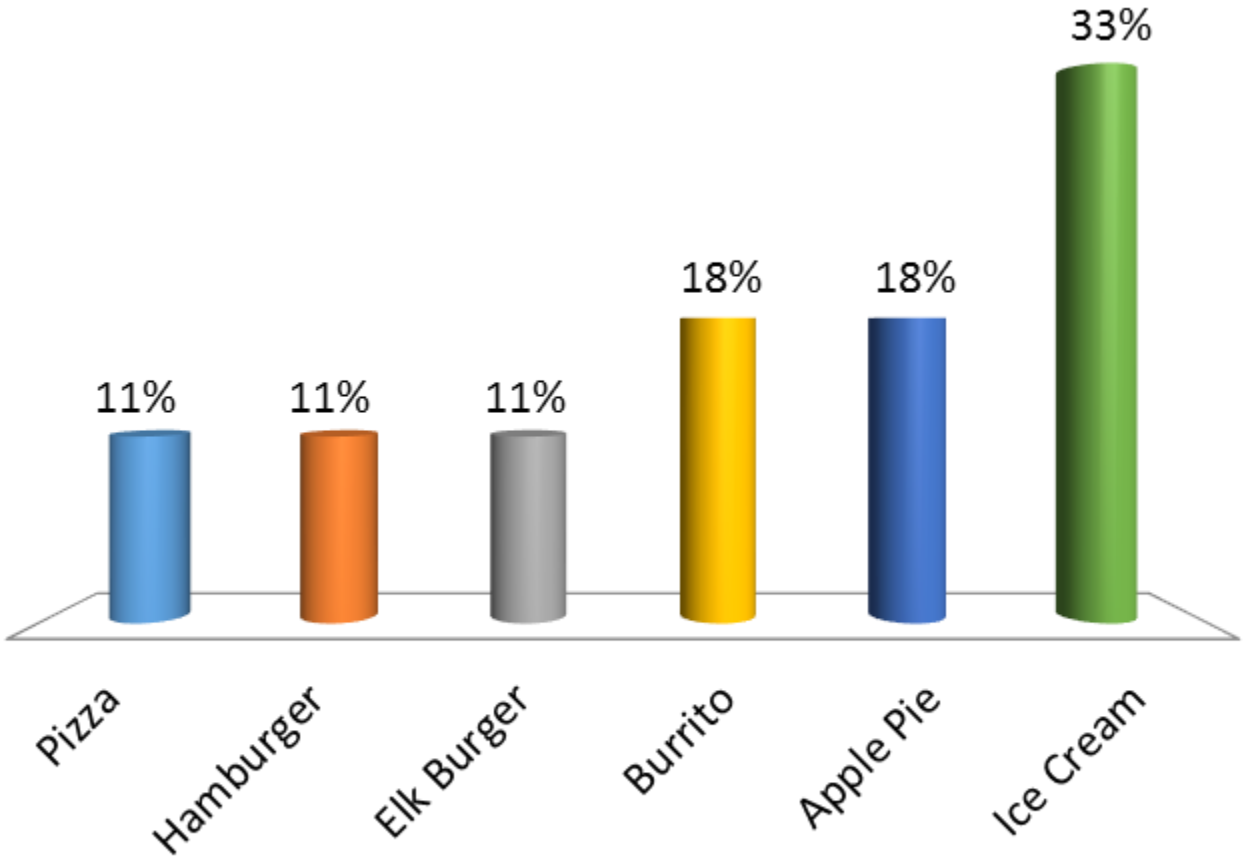
Practice: What is your favorite color? (*Please check one.*)

A. Blue
B. Red
C. Green
D. Yellow
E. Other



What are your top three favorite foods from these options? (*Please select up to three*.)

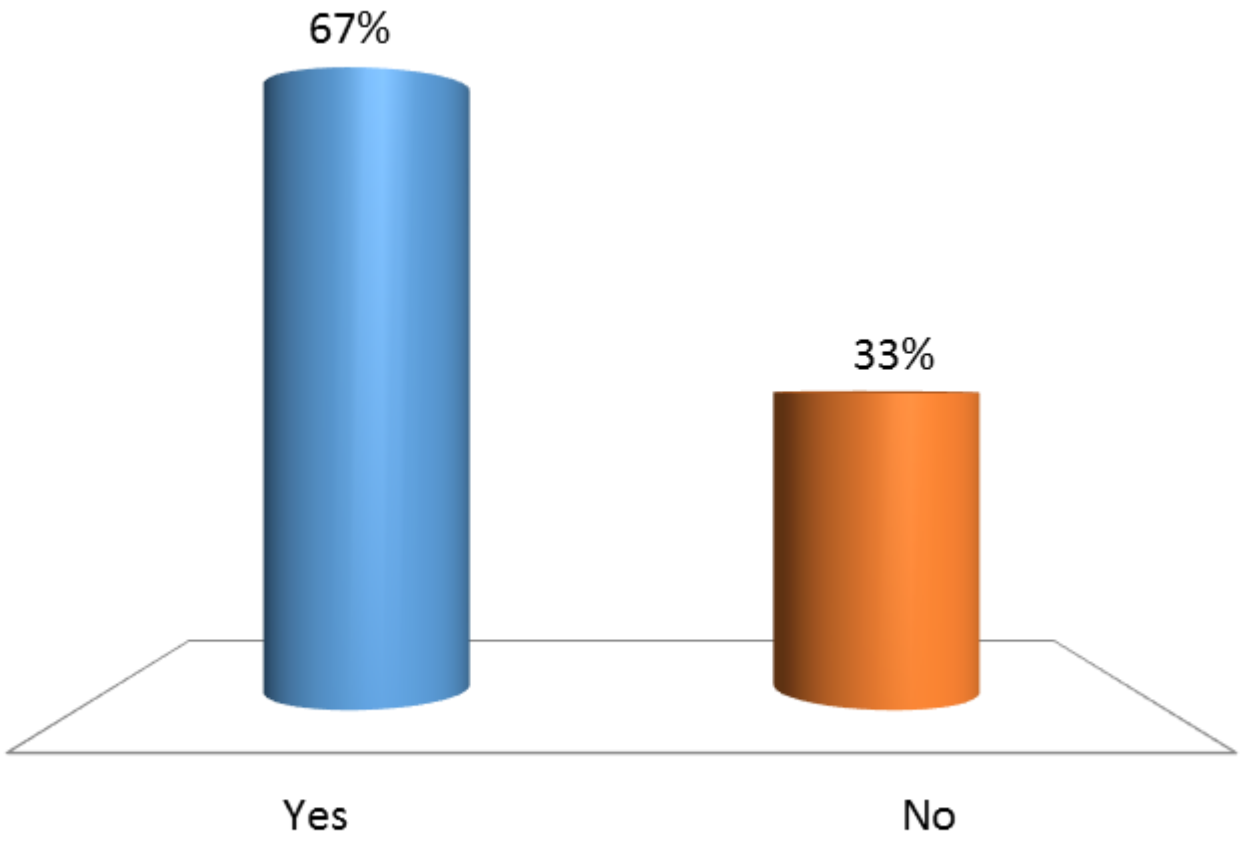
A. Pizza
B. Hamburger
C. Elk Burger
D. Burrito
E. Apple Pie
F. Ice Cream



Do you live in GMU 68, 681 or 682?

0

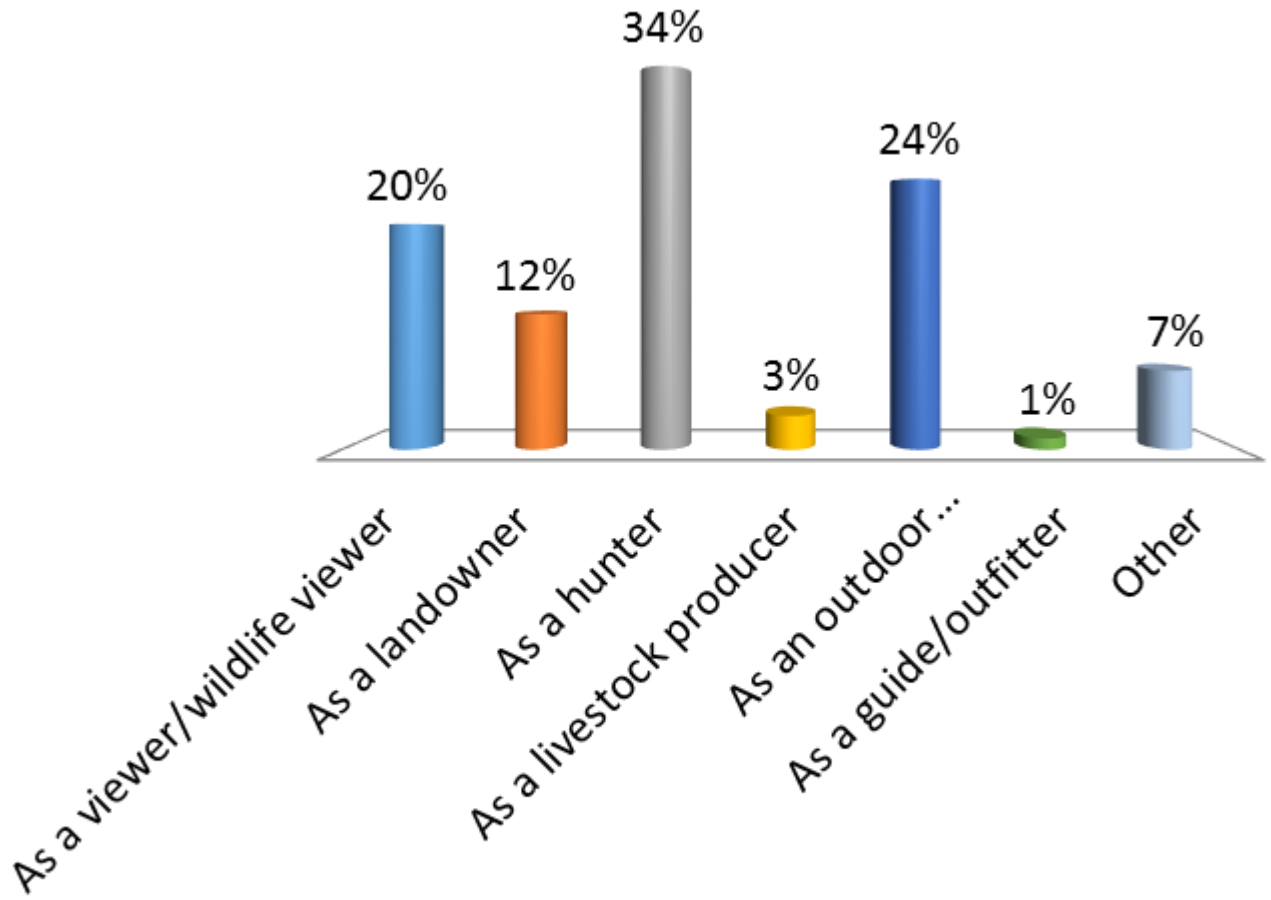
A. Yes
B. No



Which of the following best describes how you interact with elk or deer in GMUs 68, 681 and/or 682? (*Please select up to three.)*

0

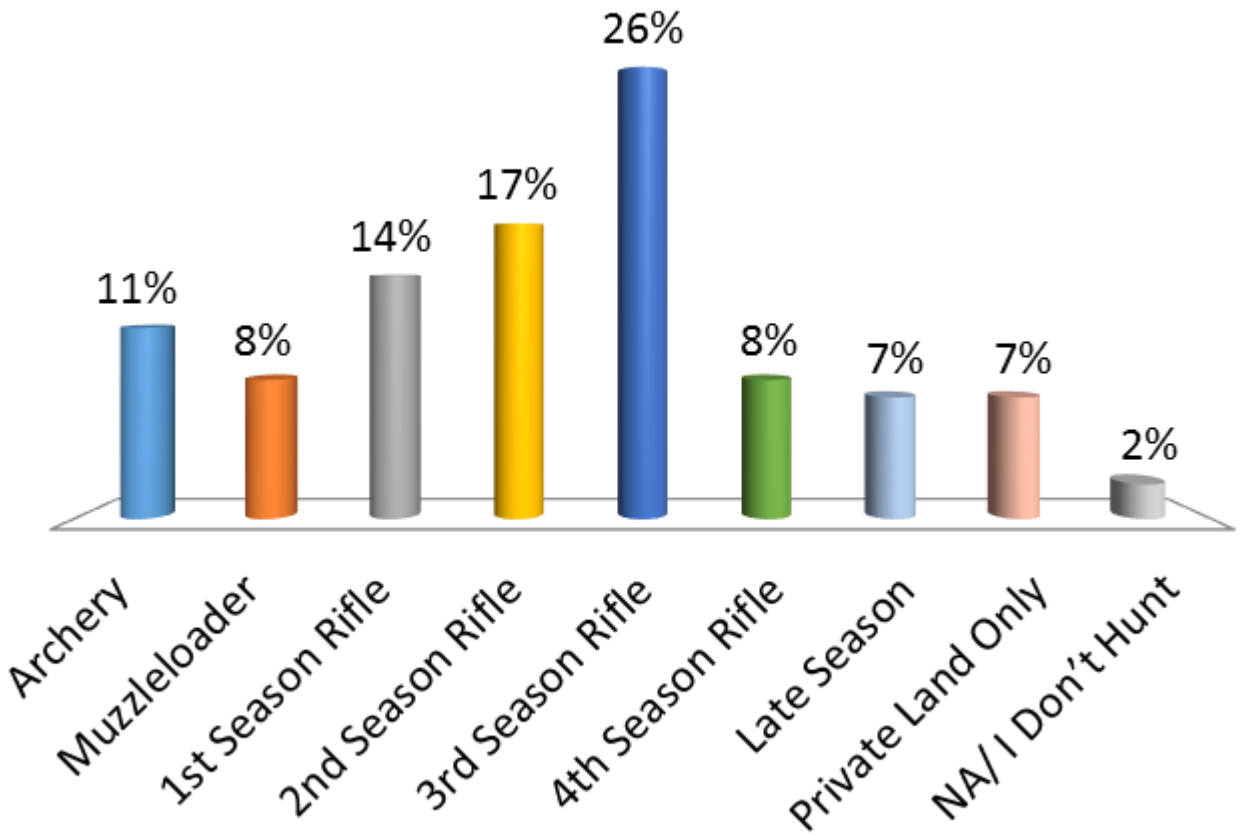
A. As a viewer/wildlife viewer
B. As a landowner
C. As a hunter
D. As a livestock producer
E. As an outdoor recreationist (eg. Hiker, skier, mountain biker, etc.)
F. As a guide/outfitter
G. Other



During which season do you <u>most prefer</u> to hunt in GMUs 68, 681 and/or 682? (*Select up to three.)*

0

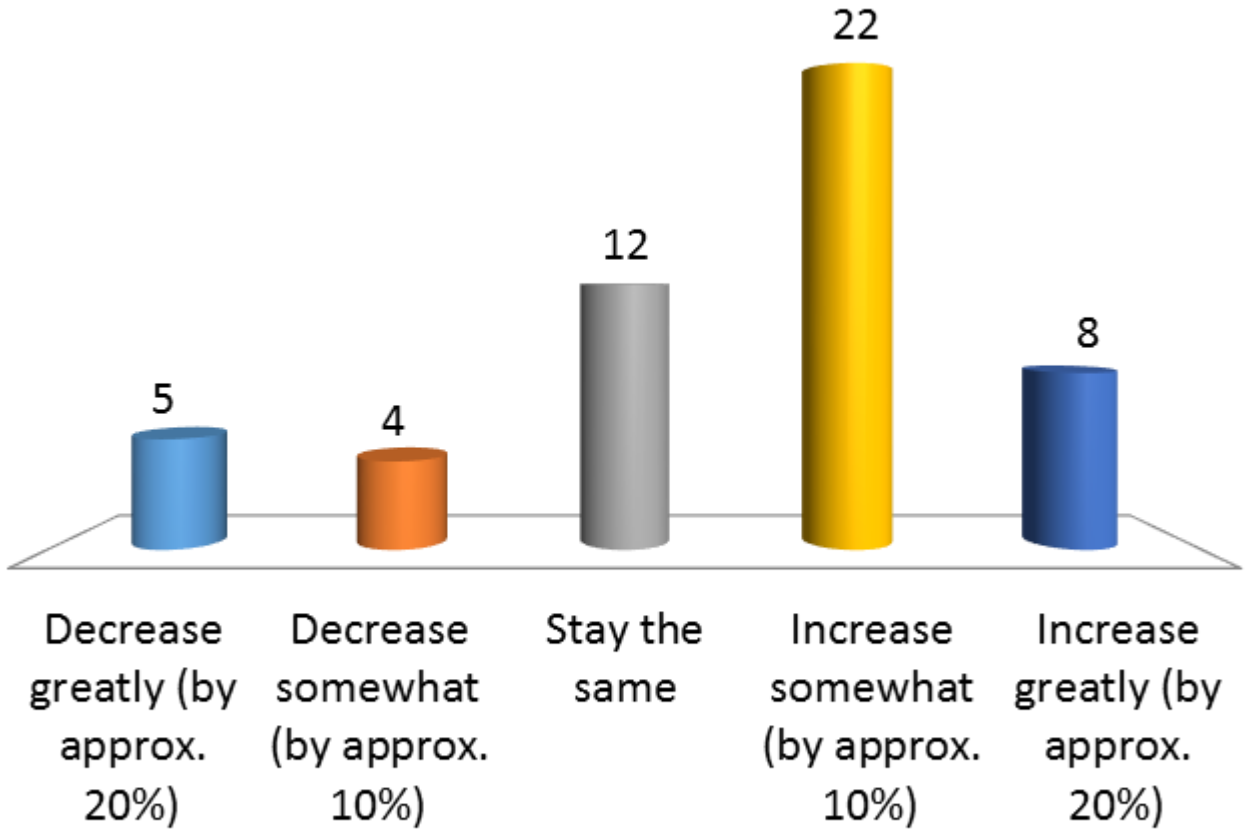
A. Archery
B. Muzzleloader
C. 1st Season Rifle
D. 2nd Season Rifle
E. 3rd Season Rifle
F. 4th Season Rifle
G. Late Season
H. Private Land Only
I. NA/ I Don't Hunt



Please indicate which option best represents how you would like to see the **DEER** Herd managed in the next 10 years. (*Please select one.)*

0

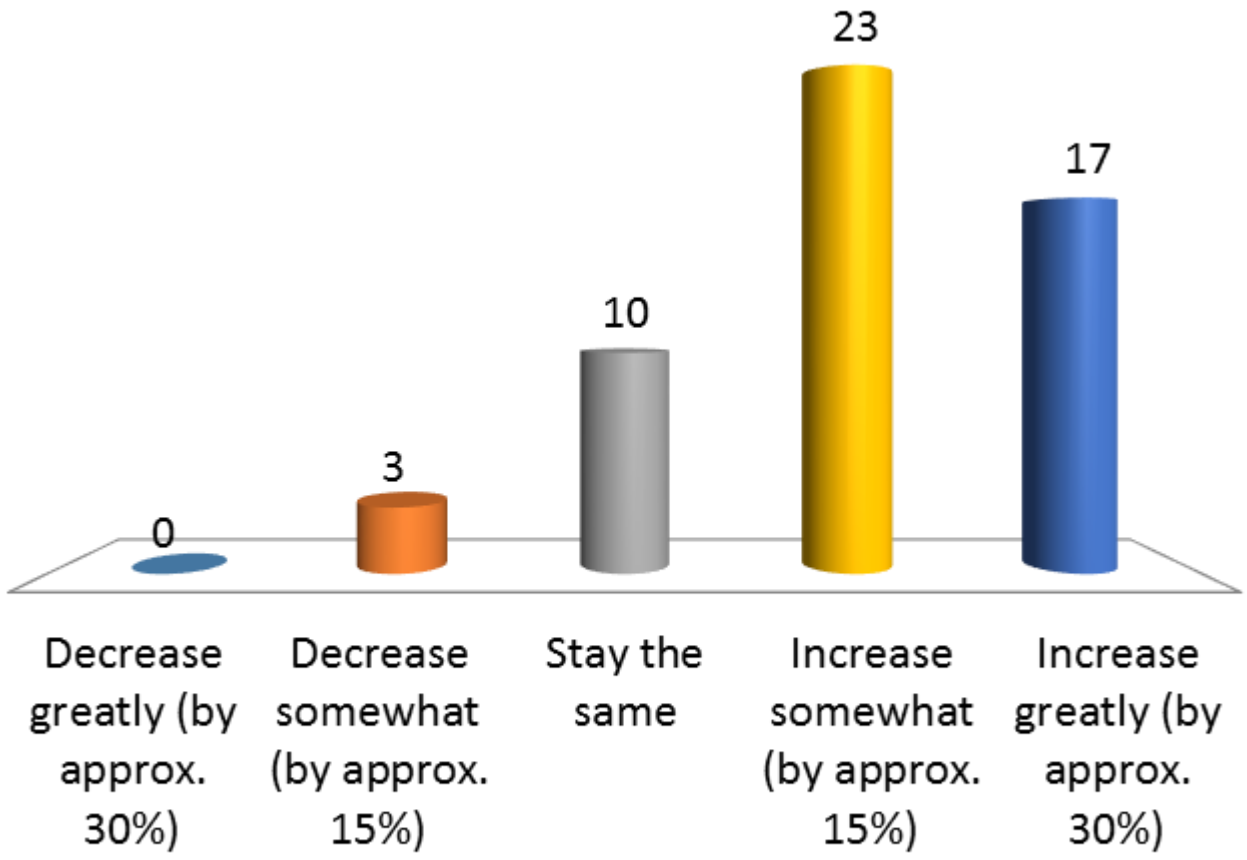
A. Decrease greatly (by approx. 20%)
B. Decrease somewhat (by approx. 10%)
C. Stay the same
D. Increase somewhat (by approx. 10%)
E. Increase greatly (by approx. 20%)



Please indicate which option best represents how you would like to see the **ELK** Herd managed in the next 10 years. (*Please select one.)*

0

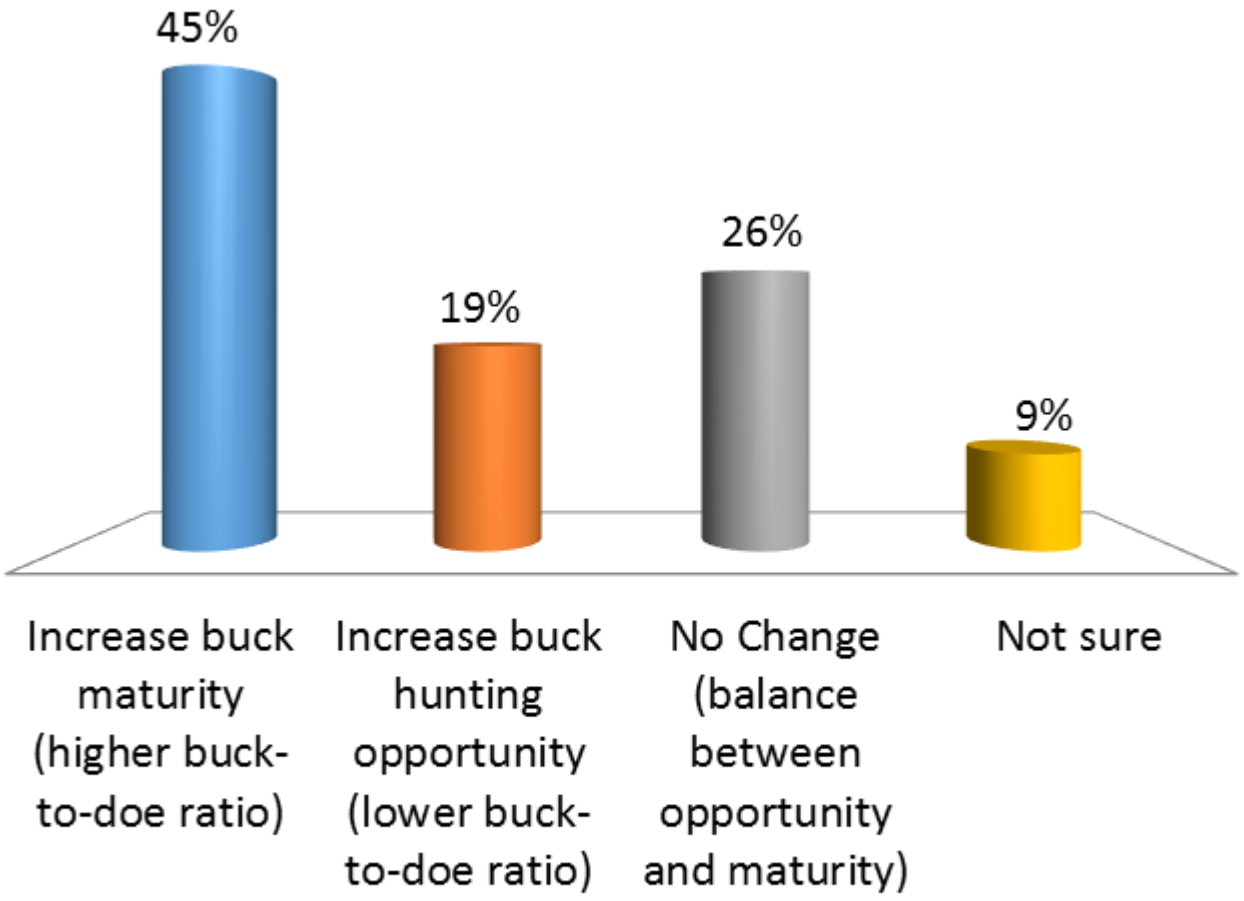
A. Decrease greatly (by approx. 30%)
B. Decrease somewhat (by approx. 15%)
C. Stay the same
D. Increase somewhat (by approx. 15%)
E. Increase greatly (by approx. 30%)



How do you believe the **DEER** Herd should be managed in terms of buck opportunity and maturity? (*Please select one.)*

0

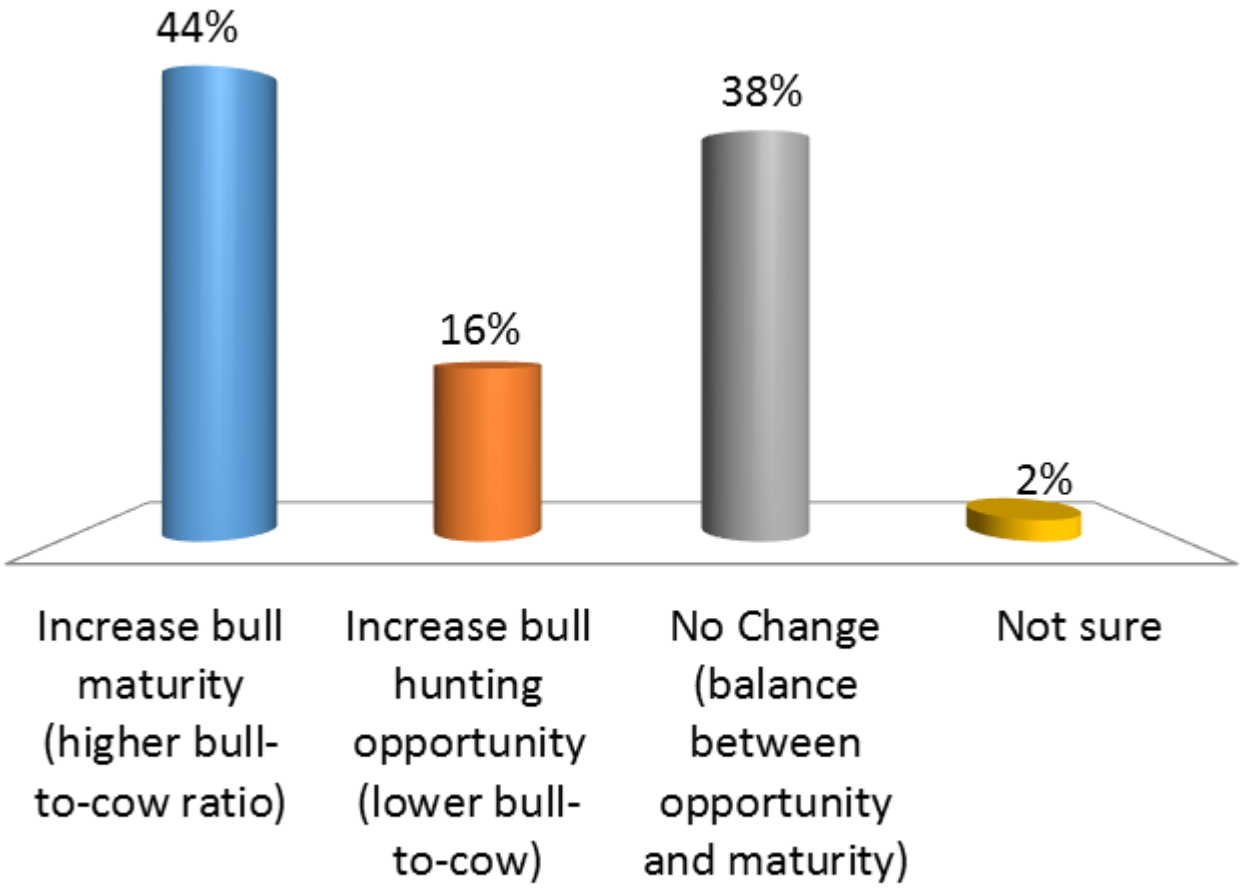
A. Increase buck maturity (higher buck-to-doe ratio)
B. Increase buck hunting opportunity (lower buck-to-doe ratio)
C. No Change (balance between opportunity and maturity)
D. Not sure



How do you believe the **ELK** Herd should be managed in terms of buck opportunity and maturity? (*Please select one.)*

0

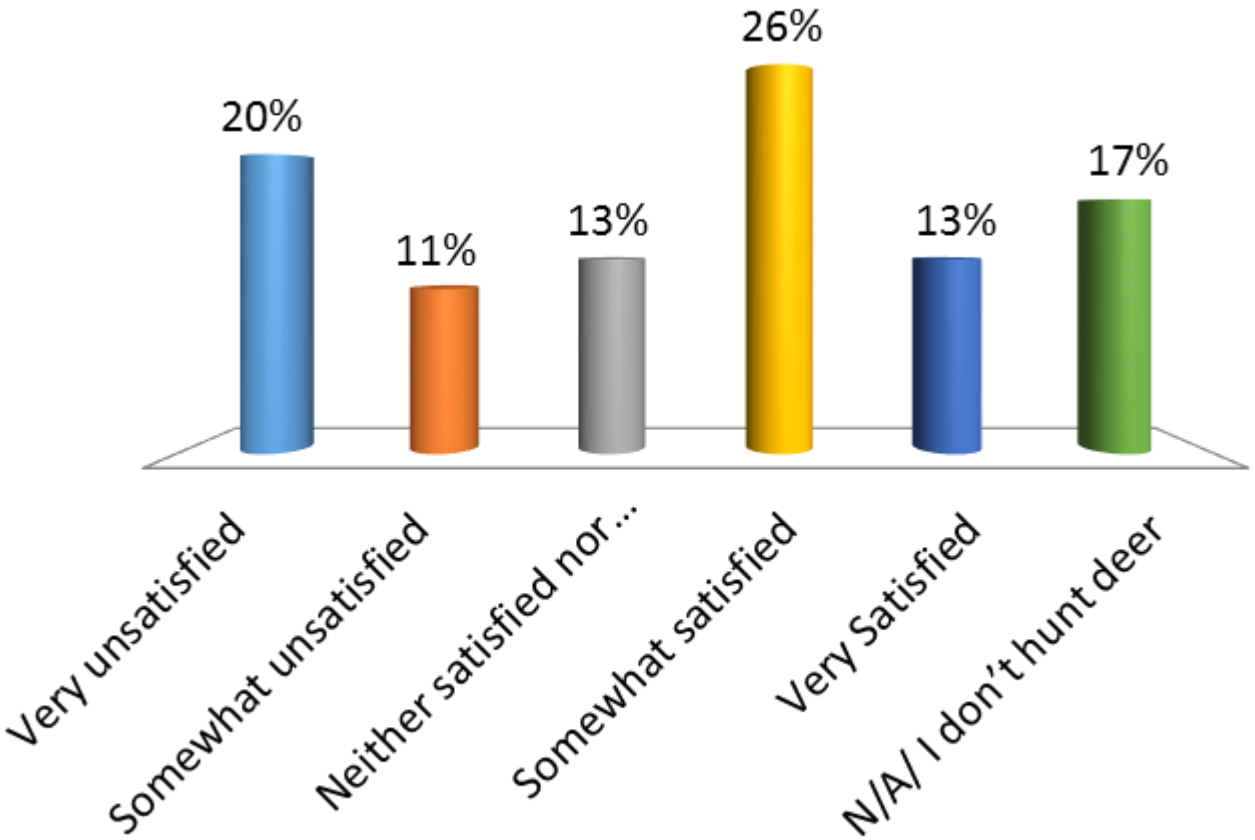
A. Increase bull maturity (higher bull-to-cow ratio)
B. Increase bull hunting opportunity (lower bull-to-cow)
C. No Change (balance between opportunity and maturity)
D. Not sure



Overall how satisfied were you with your **DEER** hunting experience in GMU's 68, 681 and/or 682? (*Please select one.*)

0

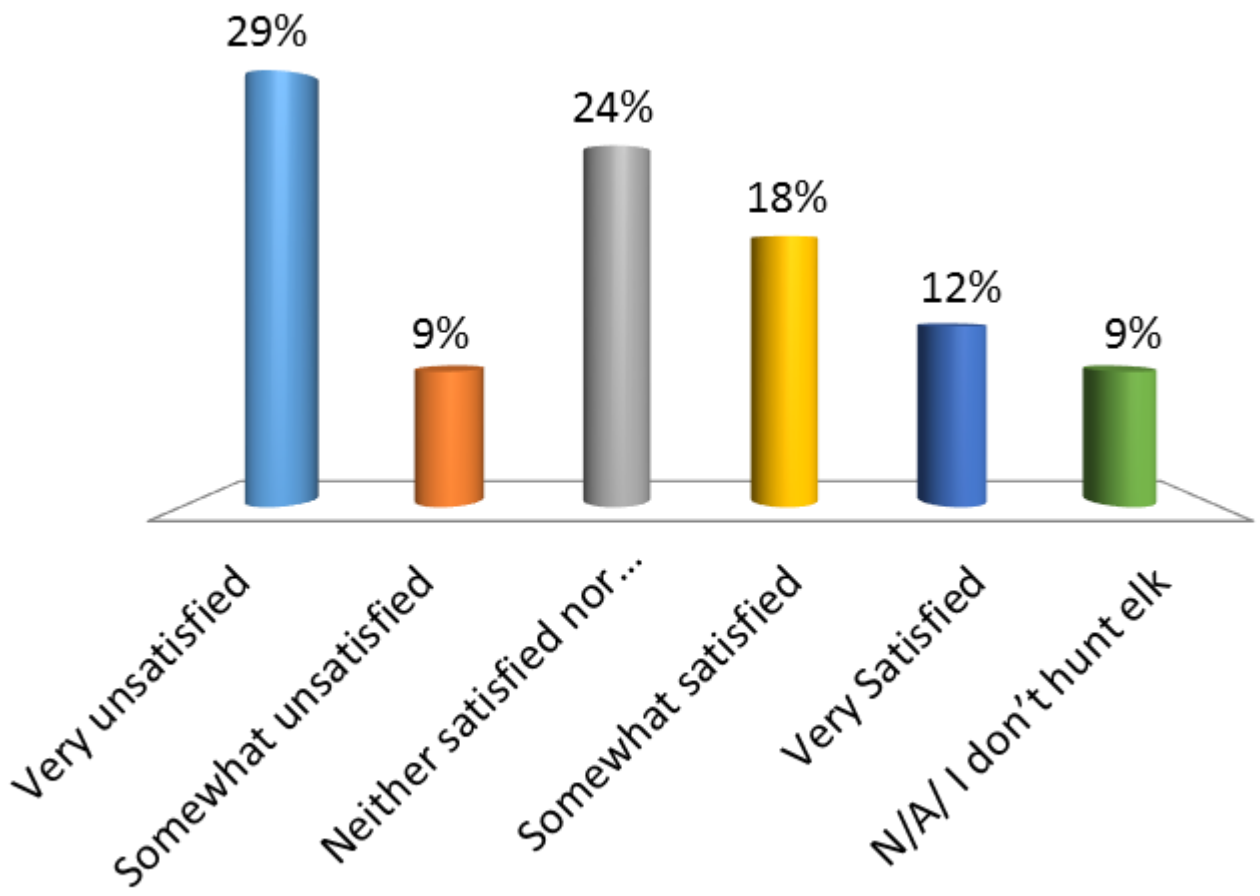
A. Very unsatisfied
B. Somewhat unsatisfied
C. Neither satisfied nor unsatisfied
D. Somewhat satisfied
E. Very Satisfied
F. N/A/ I don't hunt deer



Overall how satisfied were you with your **ELK** hunting experience in GMU's 68, 681? (*Select one.*)

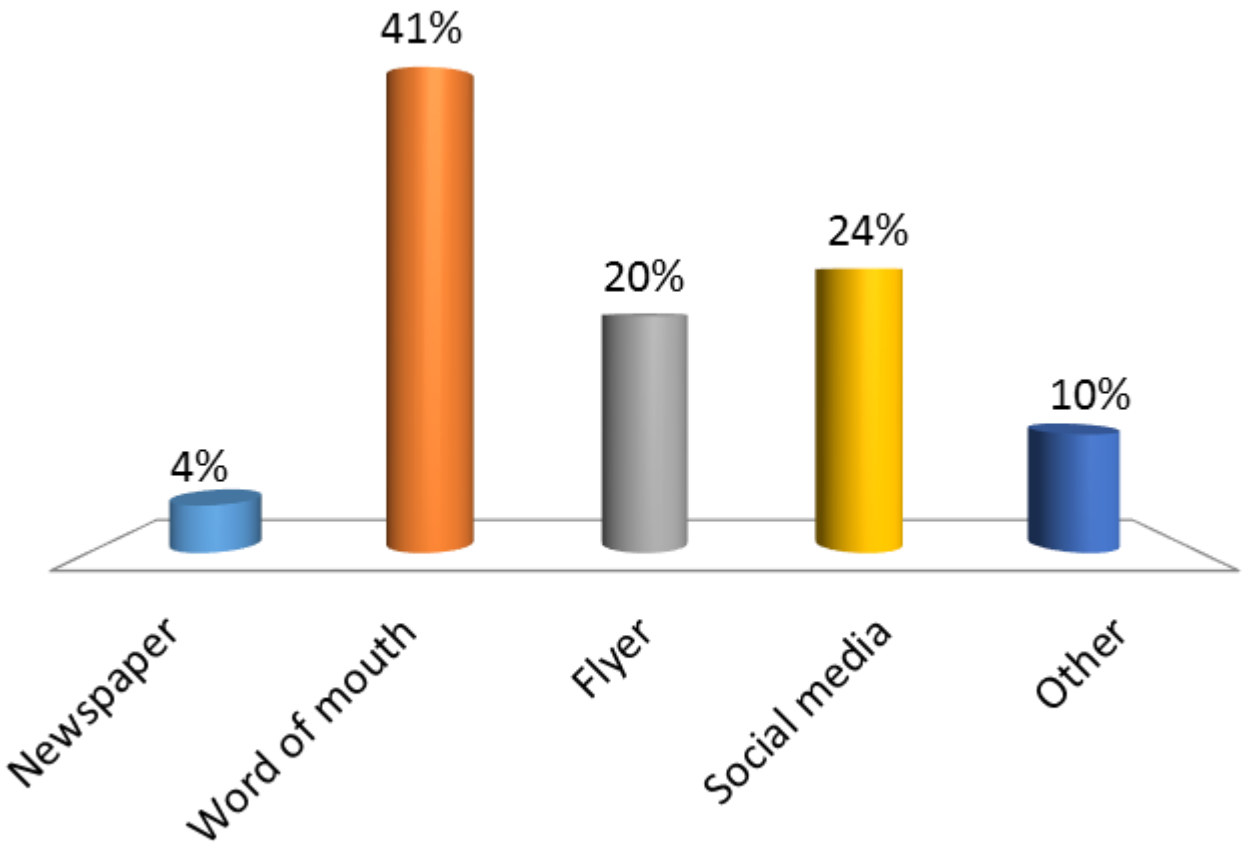
0

A. Very unsatisfied
B. Somewhat unsatisfied
C. Neither satisfied nor unsatisfied
D. Somewhat satisfied
E. Very Satisfied
F. N/A/ I don't hunt elk



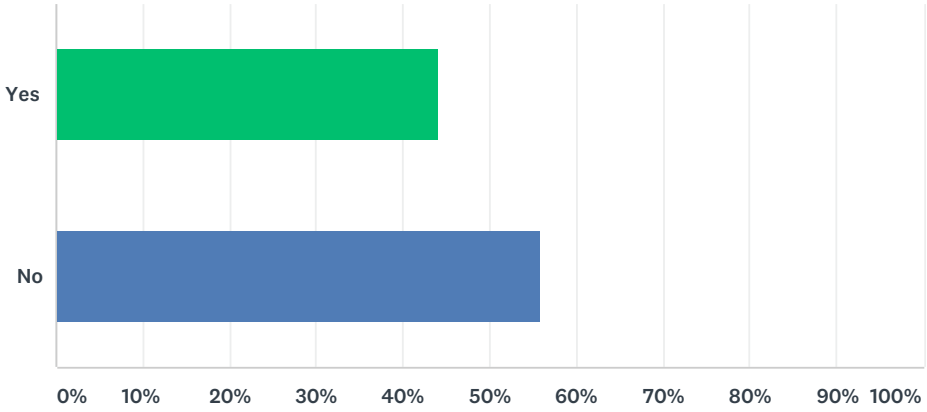
How did you learn about this meeting ? (*Select one.*)

A. Newspaper
B. Word of mouth
C. Flyer
D. Social media
E. Other



Q1 Do you currently live in GMU 68, 681 or 682? (See map below) (Please check one.)

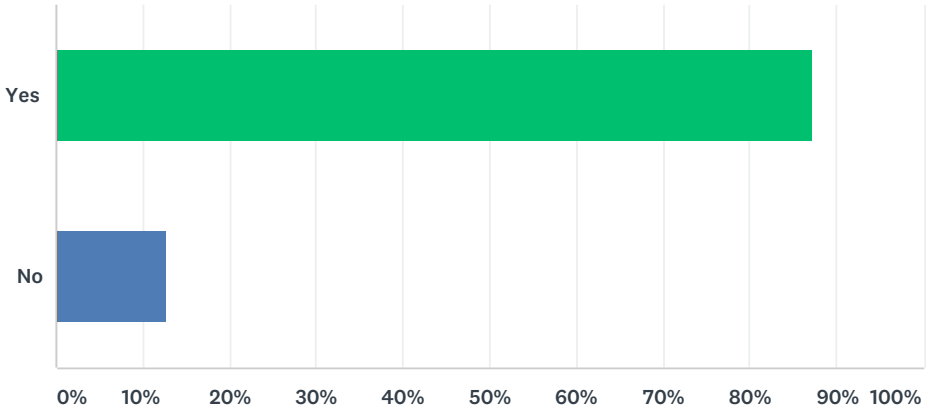
Answered: 59 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	44.07%	26
No	55.93%	33
TOTAL		59

Q2 During the last 12 months, have you participated in any outdoor recreation other than hunting (e.g., camping, snowmobiling, etc.) in GMU 68, 681, OR 682? (Please check one.)

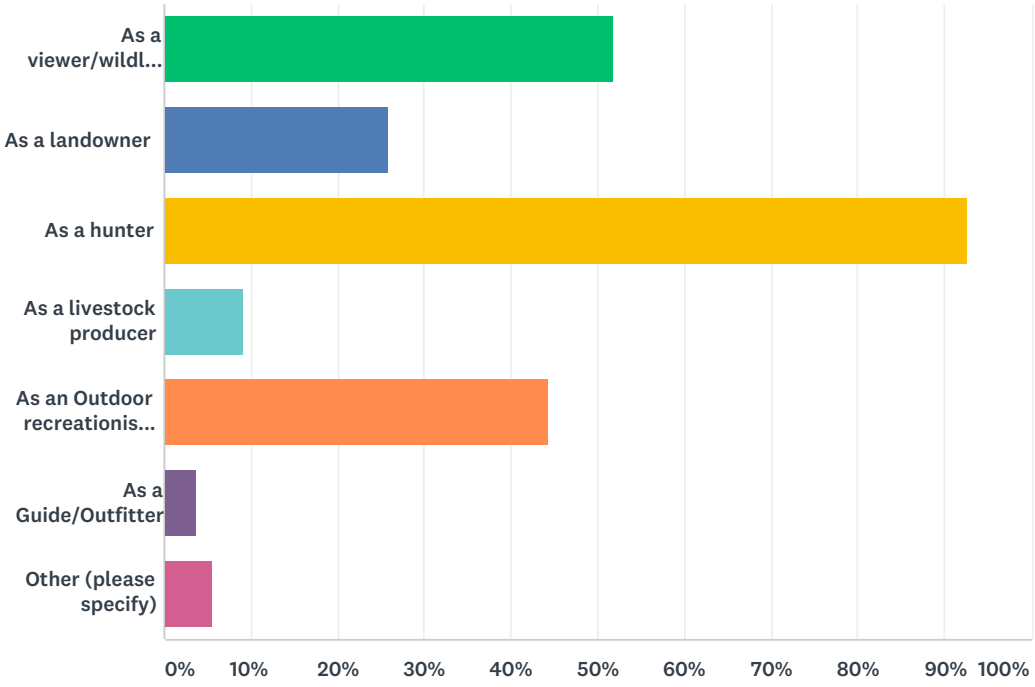
Answered: 55 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	87.27%	48
No	12.73%	7
TOTAL		55

Q3 Which of the following best describes how you interact with deer or elk in GMUs 68, 681, & 682? (Please check all that apply.)

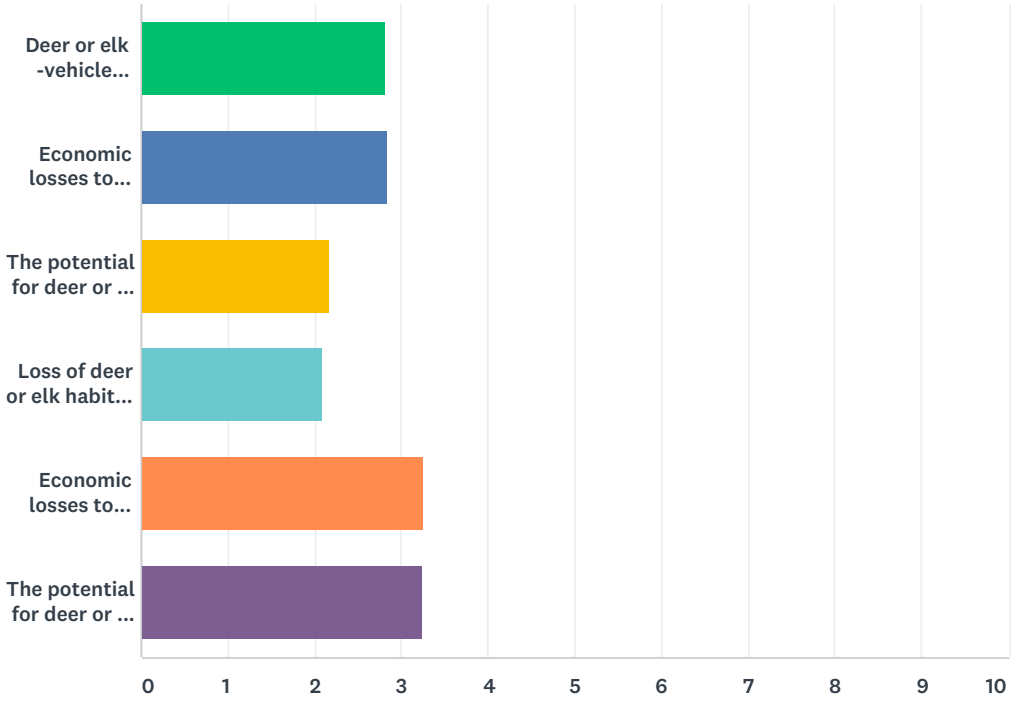
Answered: 54 Skipped: 5



ANSWER CHOICES	RESPONSES	
As a viewer/wildlife watcher	51.85%	28
As a landowner	25.93%	14
As a hunter	92.59%	50
As a livestock producer	9.26%	5
As an Outdoor recreationist (e.g., hiker, skier, mountain biker, etc.)	44.44%	24
As a Guide/Outfitter	3.70%	2
Other (please specify)	5.56%	3
Total Respondents: 54		

Q4 How concerned are you about the following items? (Please check one response for each item.)

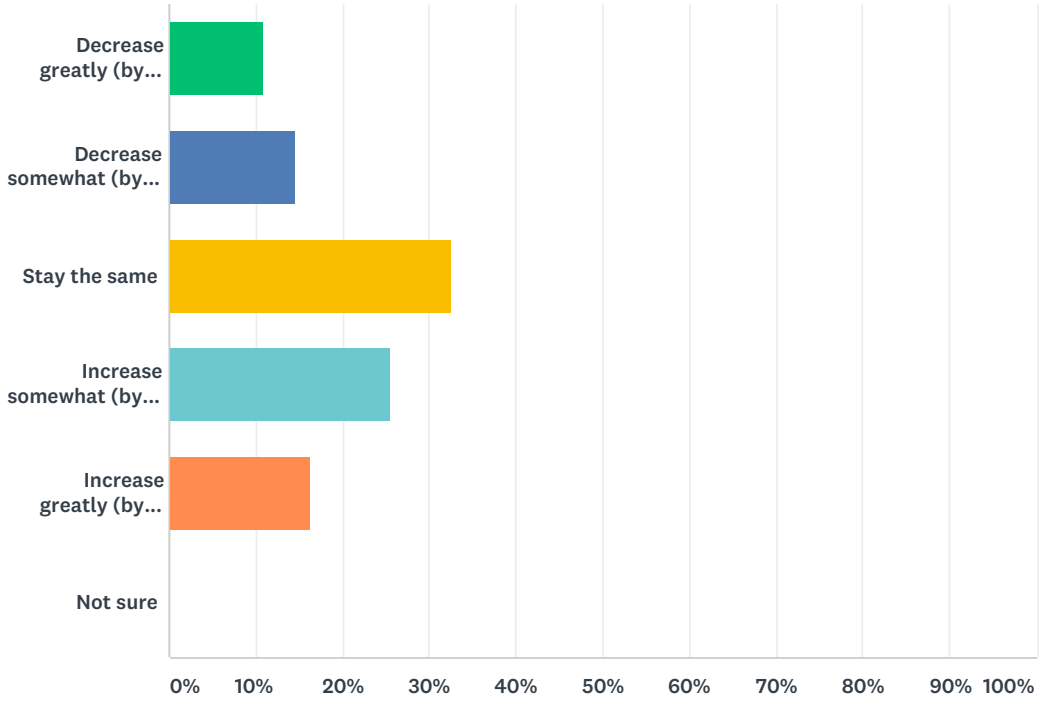
Answered: 54 Skipped: 5



	VERY CONCERNED	MODERATELY CONCERNED	SLIGHTLY CONCERNED	NOT AT ALL CONCERNED	TOTAL	WEIGHTED AVERAGE
Deer or elk -vehicle collisions	11.11% 6	24.07% 13	35.19% 19	29.63% 16	54	2.83
Economic losses to ranchers/farmers due to deer or elk damaging crops, fences, etc.	11.11% 6	24.07% 13	33.33% 18	31.48% 17	54	2.85
The potential for deer or elk to starve during the winter	37.04% 20	24.07% 13	24.07% 13	14.81% 8	54	2.17
Loss of deer or elk habitat due to human population growth and development	44.23% 23	21.15% 11	15.38% 8	19.23% 10	52	2.10
Economic losses to residents due to deer or elk damaging gardens, trees, shrubs	5.56% 3	14.81% 8	27.78% 15	51.85% 28	54	3.26
The potential for deer or elk to spread disease to humans, pets, or livestock	9.26% 5	12.96% 7	22.22% 12	55.56% 30	54	3.24

Q5 Please indicate which option best represents how you would like to see the deer herd managed in the next 10 years. (Please check one.)

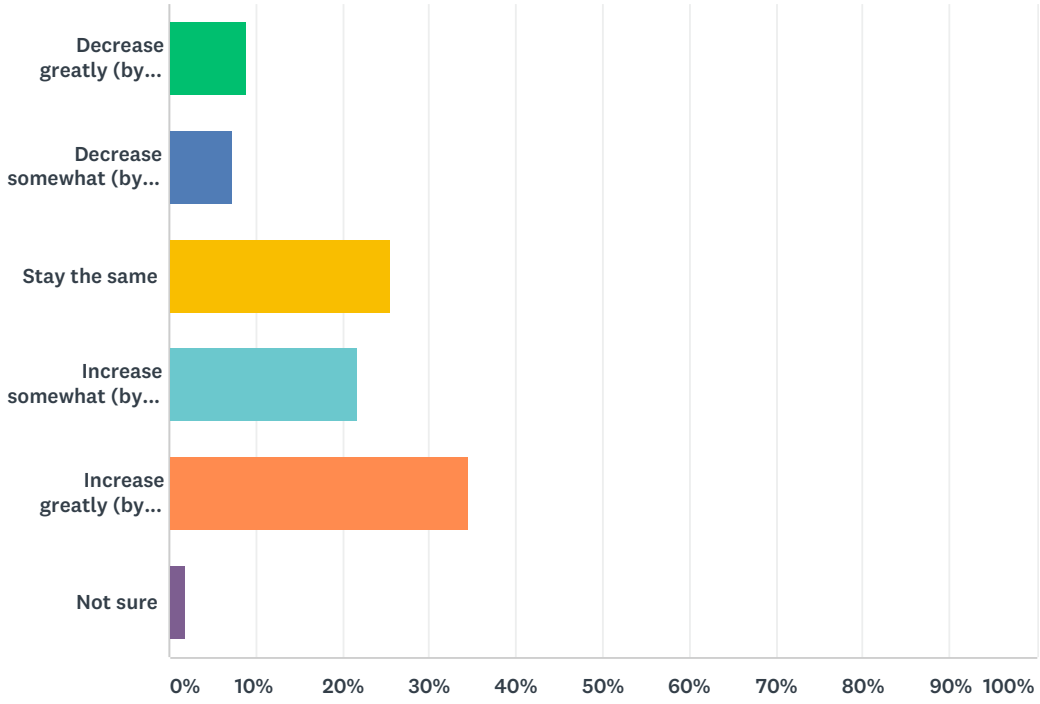
Answered: 55 Skipped: 4



ANSWER CHOICES	RESPONSES	
Decrease greatly (by 20%)	10.91%	6
Decrease somewhat (by 10%)	14.55%	8
Stay the same	32.73%	18
Increase somewhat (by 10%)	25.45%	14
Increase greatly (by 20%)	16.36%	9
Not sure	0.00%	0
TOTAL		55

Q6 Please indicate which option best represents how you would like to see the elk herd managed in the next 10 years. (Please check one.)

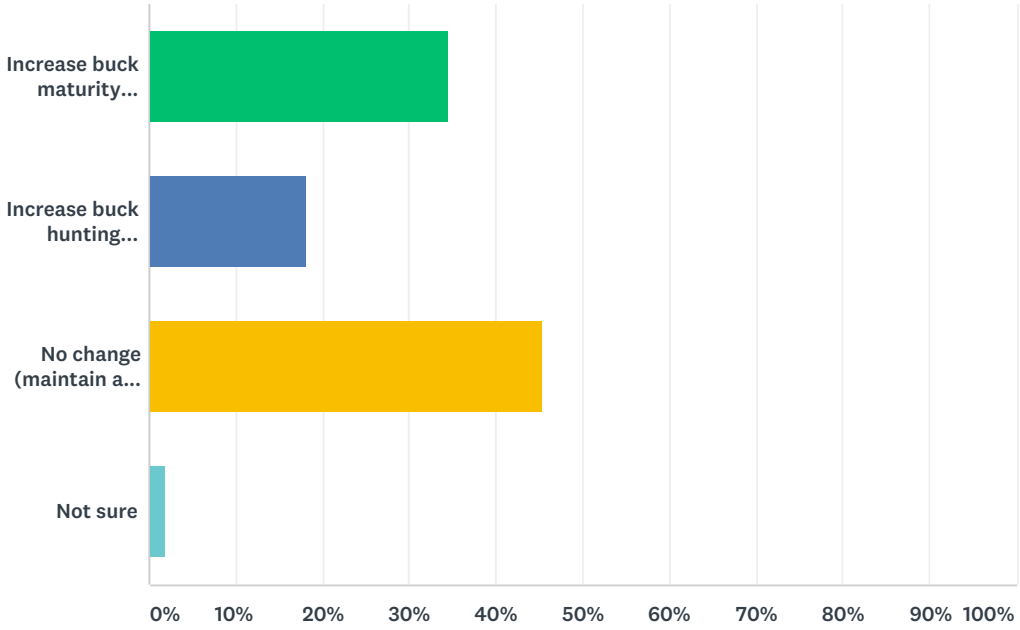
Answered: 55 Skipped: 4



ANSWER CHOICES	RESPONSES	
Decrease greatly (by 30%)	9.09%	5
Decrease somewhat (by 15%)	7.27%	4
Stay the same	25.45%	14
Increase somewhat (by 15%)	21.82%	12
Increase greatly (by 30%)	34.55%	19
Not sure	1.82%	1
TOTAL		55

Q7 How do you believe the deer herd should be managed in terms of buck opportunity and maturity? (Please check one.)

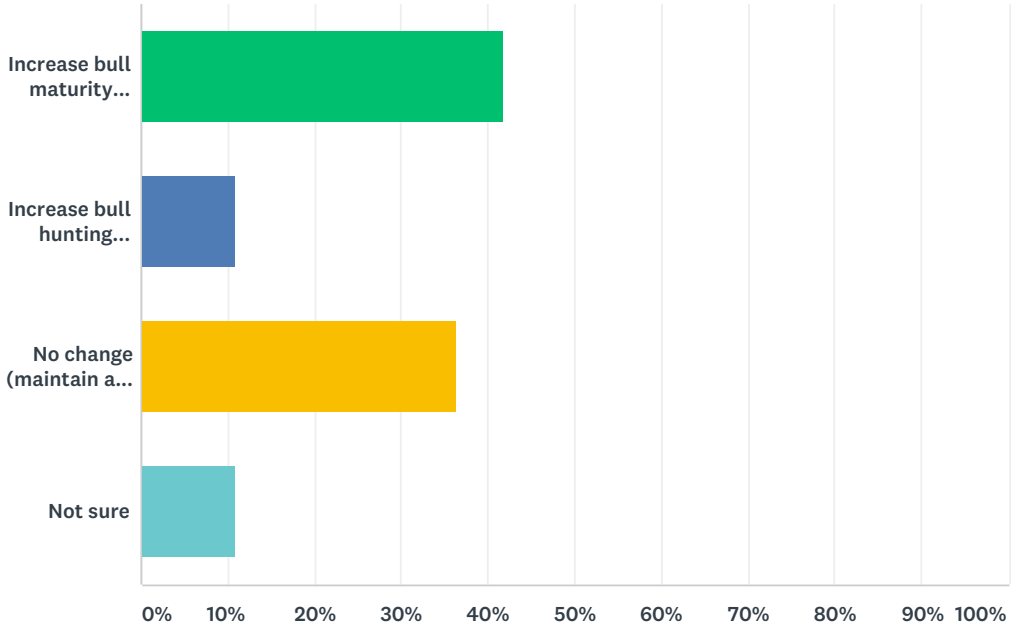
Answered: 55 Skipped: 4



ANSWER CHOICES	RESPONSES	
Increase buck maturity (higher buck-to-doe ratio)	34.55%	19
Increase buck hunting opportunity (lower buck-to-doe ratio) ratio	18.18%	10
No change (maintain a balance between opportunity and maturity)	45.45%	25
Not sure	1.82%	1
TOTAL		55

Q8 How do you believe the elk herd should be managed in terms of buck opportunity and maturity? (Please check one.)

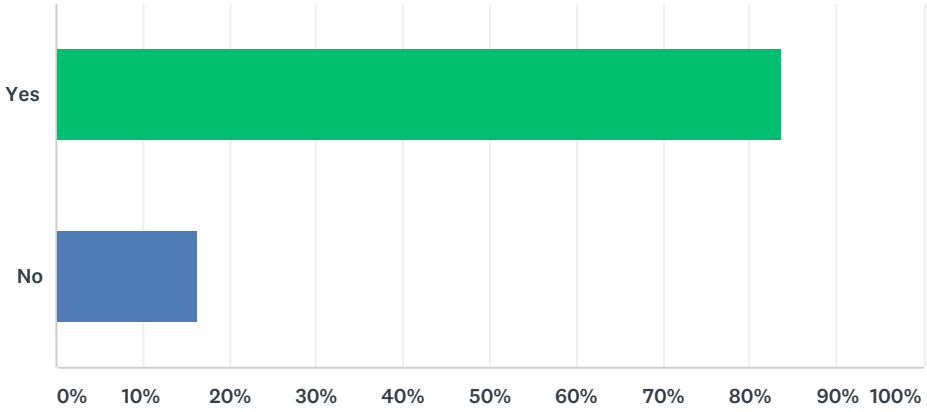
Answered: 55 Skipped: 4



ANSWER CHOICES	RESPONSES	
Increase bull maturity (higher bull-to-cow ratio)	41.82%	23
Increase bull hunting opportunity (lower bull-to-cow) ratio	10.91%	6
No change (maintain a balance between opportunity and maturity)	36.36%	20
Not sure	10.91%	6
TOTAL		55

Q9 Have you ever hunted deer in GMU 68, 681 or 682? (See map below.) (Please check one.)

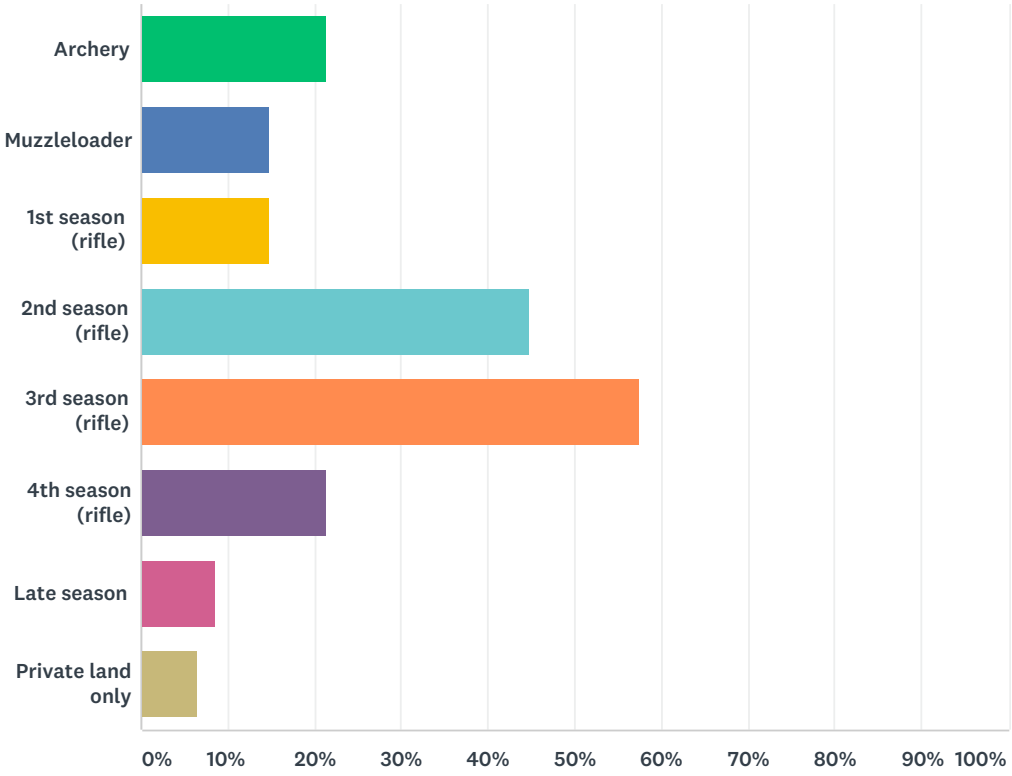
Answered: 55 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	83.64%	46
No	16.36%	9
TOTAL		55

Q10 During which of the following seasons have you hunted deer in GMUs 68, 681 or 682? (Please check all that apply.)

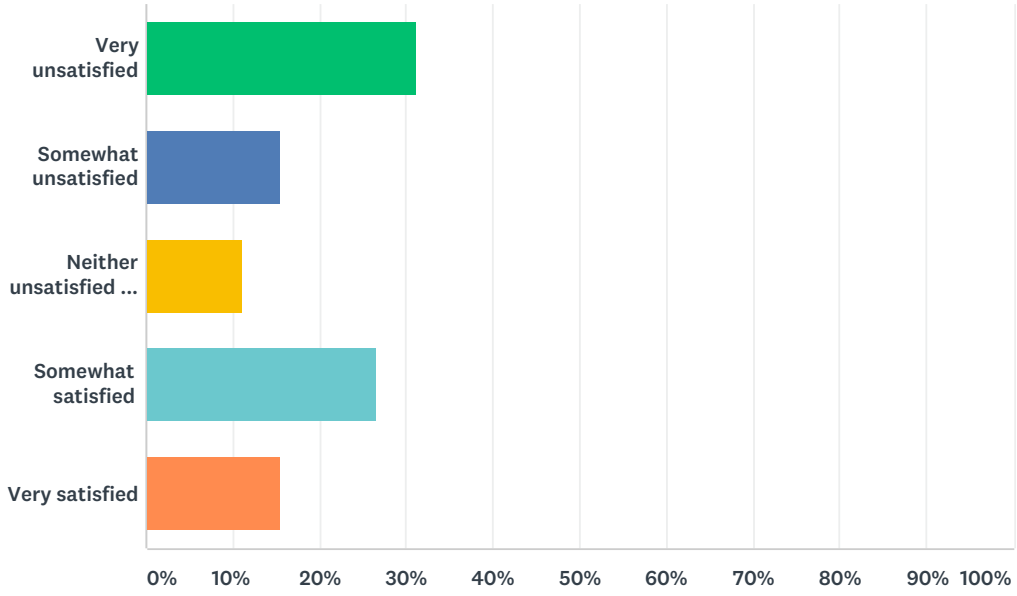
Answered: 47 Skipped: 12



ANSWER CHOICES	RESPONSES	
Archery	21.28%	10
Muzzleloader	14.89%	7
1st season (rifle)	14.89%	7
2nd season (rifle)	44.68%	21
3rd season (rifle)	57.45%	27
4th season (rifle)	21.28%	10
Late season	8.51%	4
Private land only	6.38%	3
Total Respondents: 47		

Q11 Overall, how satisfied were you with your deer hunting experience(s) in GMU 68, 681 or 682? (Please check one.)

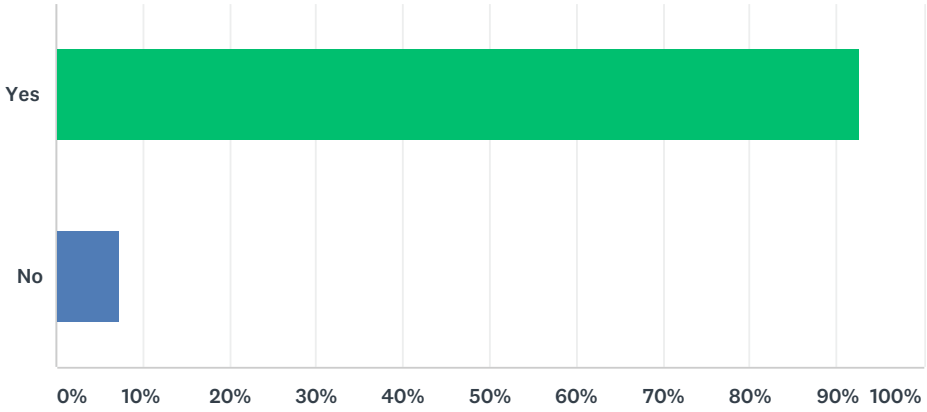
Answered: 45 Skipped: 14



ANSWER CHOICES	RESPONSES	
Very unsatisfied	31.11%	14
Somewhat unsatisfied	15.56%	7
Neither unsatisfied nor satisfied	11.11%	5
Somewhat satisfied	26.67%	12
Very satisfied	15.56%	7
TOTAL		45

Q12 Have you ever hunted elk in GMU 68 or 681? (See map below.) (Please check one.)

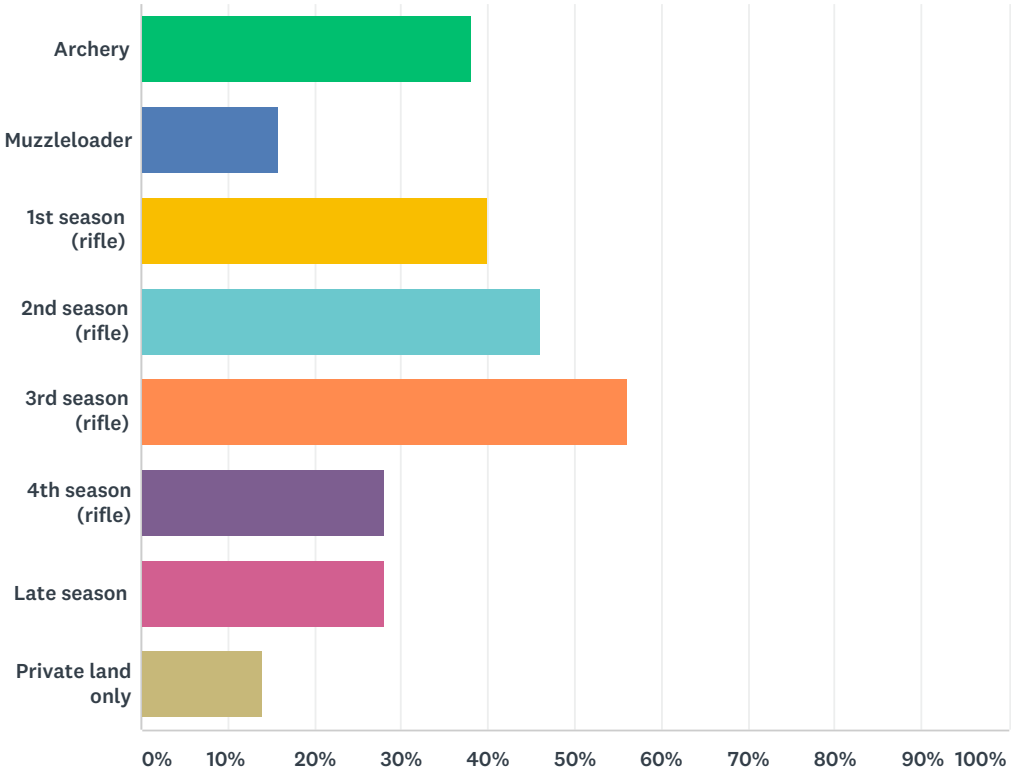
Answered: 54 Skipped: 5



ANSWER CHOICES	RESPONSES	
Yes	92.59%	50
No	7.41%	4
TOTAL		54

Q13 During which of the following seasons have you hunted elk in GMUs 68 or 681? (Please check all that apply.)

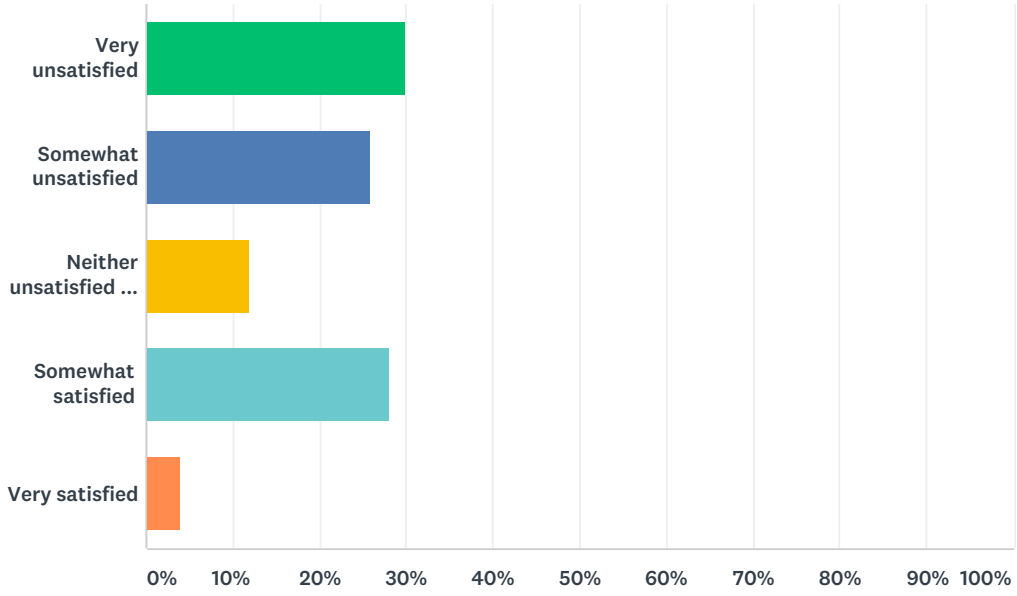
Answered: 50 Skipped: 9



ANSWER CHOICES	RESPONSES	
Archery	38.00%	19
Muzzleloader	16.00%	8
1st season (rifle)	40.00%	20
2nd season (rifle)	46.00%	23
3rd season (rifle)	56.00%	28
4th season (rifle)	28.00%	14
Late season	28.00%	14
Private land only	14.00%	7
Total Respondents: 50		

Q14 Overall, how satisfied were you with your elk hunting experience(s) in GMU 68 or 681? (Please check one.)

Answered: 50 Skipped: 9



ANSWER CHOICES	RESPONSES	
Very unsatisfied	30.00%	15
Somewhat unsatisfied	26.00%	13
Neither unsatisfied nor satisfied	12.00%	6
Somewhat satisfied	28.00%	14
Very satisfied	4.00%	2
TOTAL		50

Q15 In what year were you born? (Please provide four-digit year.)

Answered: 53 Skipped: 6

Q16 In what zip code do you reside for most of the year?

Answered: 53 Skipped: 6

Q17 Please use the space below to describe any other aspects about deer or elk hunting that would improve your hunting experience or to share any additional comments you have about the management of deer or elk herds in GMUs 80 or 81.

Answered: 34 Skipped: 25