

South Park Deer Herd Management Plan

Data Analysis Unit D-38

Game Management Units 50, 500, and 501

Created for:
Colorado Parks and Wildlife



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Date: May 6, 2015



South Park Deer Herd Management Plan

South Park Deer Herd (D-38)

EXECUTIVE SUMMARY

Game management units (GMUs): 50, 500, and 501
Land ownership: 57% USFS, 30% Private, 5% BLM, 5% State, 3% NGO
Post-hunt population: Previous population objective 2450 2013 Model Estimate 2500
New population objective 2500-3100
Post-hunt sex ratio: Previous sex ratio objective 20:100 2013 Observed 18:100
New sex ratio objective 25-30:100

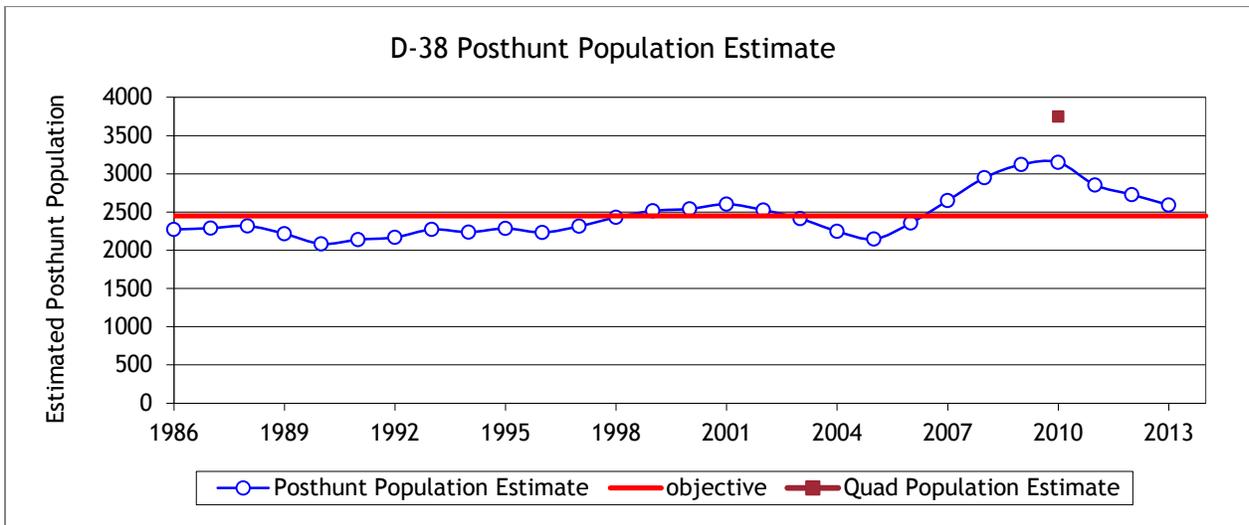


Figure 1: D-38 population estimates.

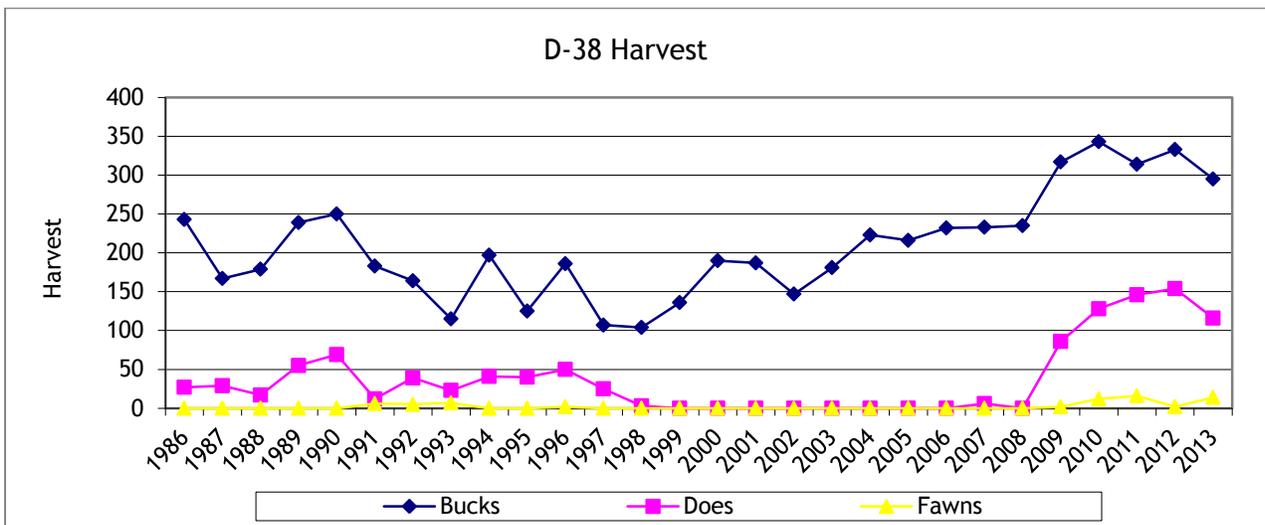


Figure 2: D-38 harvest estimates.

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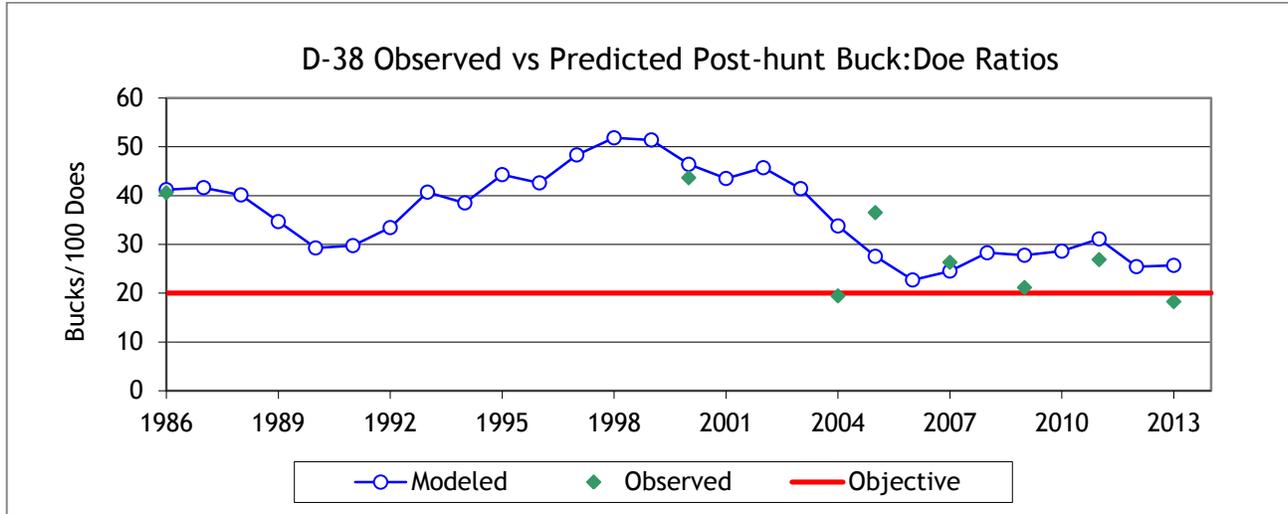


Figure 3: Sex ratio estimates.

Background

The South Park deer herd (D-38) is located in Park County and southwestern Jefferson County. It is composed of game management units (GMUs) 50, 500, and 501 and encompasses 1,163 square miles. There is approximately 62% federal land, 30% private lands, 5% state land and 3% non-governmental organization lands.

The South Park deer herd numbers remained mostly stable around an estimated 2,400 deer from the late 1980s until about 2005. The population began increasing about 2005 after a series of wild fires removed heavy conifer overstory resulting in increased forage. Doe harvest did not occur from 1999-2008. In 2009, doe harvest was initiated in response to the increasing deer population which was estimated at approximately 3,000 deer and over the population objective of 2,450. In response to doe harvest, the population has steadily declined to the current estimate of approximately 2,500 deer which is near the previous population objective.

Herd composition has fluctuated more than population numbers in D-38. The modeled sex ratio decreased from 1986 to 1990 from 40 bucks:100 does to 29 bucks:100 does, but increased during the 1990s peaking at 51 bucks:100 does in 2000. The modeled and observed sex ratios decreased during 2000 to 2006 from 51 bucks:100 does to 21 bucks:100 does. Since 2006, the observed and modeled sex ratio estimates have ranged from 18-30 bucks:100 does with the most recent observed estimate (2013) being 18 bucks:100 does which is slightly below the previous objective of 20 bucks:100 does.

Management Issues

Deer density is variable throughout D-38 and dependent on habitat quality. Habitat quality for deer was limited throughout the DAU prior to the mid-1990s due to the significant proportion of habitat that was either high elevation grasslands or habitat that contained dense conifer overstory. A series of wild fires occurred between 1996 and 2002 in portions of GMUs 50 and 501 resulting in habitat changes that favored deer. Removal of conifer overstory by fire allowed increases in forbs and shrubs which was followed by an increase in the deer population. The increase in deer numbers did not occur evenly within D-38 and were primarily confined to areas that had been recently burned.

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The initial post-fire forage increase has likely peaked and habitat carry capacity may begin to decrease in the future.

In addition to increases in deer numbers in fire burned areas, the reduced canopy cover post-fire also increased visibility of deer to hunters and may have contributed to the observed increases in harvest success rates for both bucks and does.

Management Alternatives

The South Park Deer Herd Management Plan offers three long term management alternatives for population numbers and for herd composition. Population and herd composition alternatives are expressed as ranges in recognition of the challenges to precisely estimating and managing wildlife populations and the variation inherent in range capacity.

Post-hunt Population Objective Alternatives

Alternative 1: 2,000-2,500

The midpoint of Alternative 1 would be a population reduction of about 10% from the 2013 post-hunt estimate and the previous population objective. This alternative would require increased doe harvest and may increase hunter crowding issues in the short term. Once the population was lowered to objective, then doe and buck licenses would likely be similar to or somewhat reduced compared to recent levels.

Alternative 2: 2,500-3,100

Alternative 2 would represent an approximately 10% increase compared to the previous population objective and population estimate. This alternative may require a reduction in doe quotas to keep the population within the objective range long term.

Alternative 3: 3,100-3,700

Alternative 3 would represent a 30% increase in deer numbers from the previous population objective and previous population estimate. Based on past population performance of the D-38 herd (Figure 1), this objective may not be achievable even with a reduction in harvest.

Herd Composition-Sex Ratio Objective Alternatives

Alternative 1: 20-25 bucks:100 does

This alternative includes the previous sex ratio objective and would allow a small increase in the buck:doe ratio. Buck license numbers would remain similar to or slightly less than current management.

Alternative 2: 25-30 bucks:100 does

Alternative 2 would be an increase of 5-10 bucks:100 does above the previous sex ratio objective, however the range would include 3 of the last 4 observed sex ratios. This alternative would likely require a reduction in buck license numbers to maintain.

Alternative 3: 30-35 bucks:100 does

This alternative would be 50-60% increase in the sex ratio from the previous objective and would require a significant reduction in buck licenses in order to achieve and maintain.

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New Approved Alternatives

Post-hunt population objective: 2,500-3,100

Herd composition-sex ratio objective: 25-30 bucks:100 does

The new approved alternatives represent modest increases from current population and sex ratio objectives and estimates. The new population objective includes the previous population estimate on the low end of the range. The new sex ratio objective range would be an increase of approximately 30% from the previous sex ratio estimates and objective. Past population performance and observed sex ratio estimates indicate that the new alternatives are achievable and sustainable through license allocation. Public comments and local field staff support an increase in the deer population and the sex ratio.

This herd management plan was approved by the Colorado Parks and Wildlife Commission on May 6, 2015.

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INTRODUCTION AND PURPOSE

Colorado Parks and Wildlife (CPW) manages wildlife for the use, benefit and enjoyment of the people of the state in accordance with CPW’s Strategic Plan and mandates from the Parks and Wildlife Commission and the Colorado Legislature. Colorado’s wildlife resources are managed as balance between biological capabilities and the public’s demand for recreational opportunities. CPW uses a “Management by Objective” approach to manage the state’s big game populations (Figure 1).

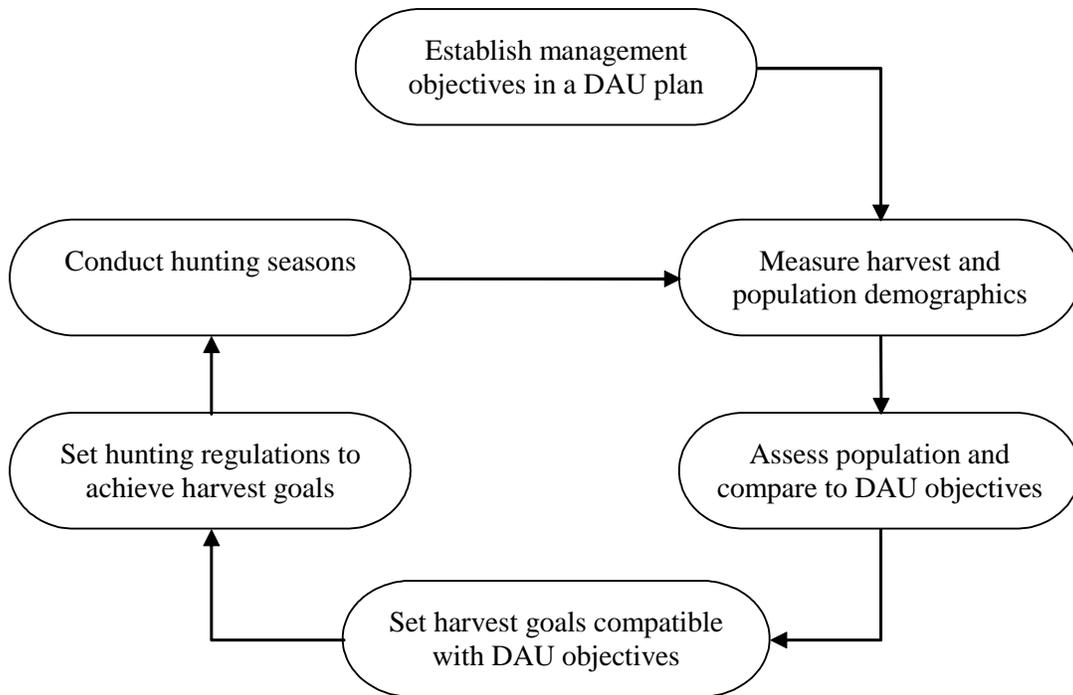


Figure 1: Management by Objective process used by Colorado Parks and Wildlife to manage big game populations by Data Analysis Unit (DAU).

In this approach, big game populations are managed to achieve population objectives established for a Data Analysis Unit (DAU).

A DAU is a defined geographic area that provides the framework to manage individual herds of big game animals. DAUs are generally discrete geographically, and attempt to identify a distinct big game population. However, individual animal movements may at times straddle or encompass more than one DAU. While DAU boundaries are administrative, they represent the best way to encompass the majority of a herd within a biological area, and allow the most practical application of management tools such as hunting to reach objectives. DAUs are typically composed of smaller areas designated as game management units (GMUs), which provide a more practical framework where the management goals can be refined and applied on a finer scale, typically through hunting regulations and licenses.

Management decisions within a DAU are based on a herd management plan. The primary purpose of a herd management plan is to establish population and herd composition (i.e., the number of males per 100 females) objectives for the DAU. There are many factors that are considered in selecting

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objectives for a particular DAU, including the social and biological carrying capacities of the area, population dynamics and the concept of maximum sustained yield (Appendix A).

The herd management plan also describes the strategies and techniques that will be used to reach herd objectives. During the DAU planning process, public input is solicited and collected by way of questionnaires, public meetings and comments to the Parks and Wildlife Commission. The intentions of CPW are integrated with the concerns and ideas of various stakeholders including the U.S. Forest Service (USFS), the Bureau of Land Management (BLM), Habitat Partnership Committees (HPP), hunters, guides and outfitters, private landowners, local chambers of commerce and the general public. In preparing a herd management plan, agency personnel attempt to balance the biological capabilities of the herd and its habitat with the public's demand for wildlife recreational opportunities. Herd management plans are approved by the Parks and Wildlife Commission and are reviewed and updated every 10 years. Changes in land development, public attitudes, hunter success, hunter access, research results, disease prevalence, and game damage may all contribute new information needed when reviewing or revising a DAU plan.

The herd management plan then serves as the basis for the annual herd management cycle. In this cycle, the size and composition of the herd is assessed and compared to the objectives defined in the herd management plan. Hunting seasons are then set and licenses are allocated to either maintain or move toward the objectives.

DESCRIPTION OF THE DAU

Location

The South Park deer herd (DAU D-38) is located in central Colorado within Park County and the southeast corner of Jefferson County. The DAU includes GMUs 50, 500, and 501 (Figure 2). The South Park deer herd management area is bounded on the north by the Continental Divide and the North Fork of the South Platte River, the east by the South Platte River, the south by Highway 24 and the west by Highway 9. The DAU includes the headwaters to the South Platte River and its associated drainages. The major towns include Fairplay, Bailey, and Lake George. The elevation gradient ranges from approximately 6,500 feet on the eastern portion to over 13,000 feet on the northern boundary.

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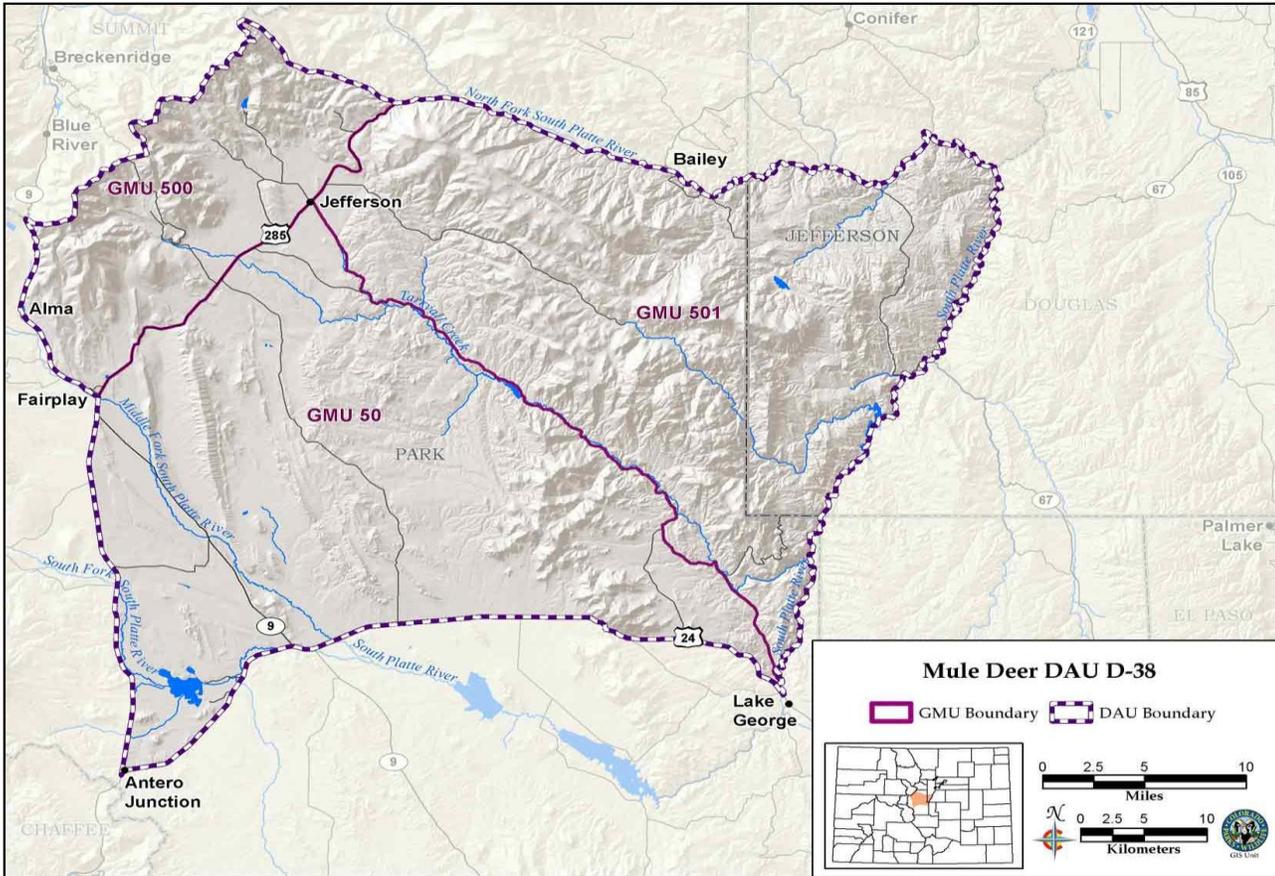


Figure 2: Geographic location of South Park deer herd area, Data Analysis Unit D-38, GMU 50, GMU 500 and GMU 501.

Climate

Weather varies greatly across the DAU depending on location and elevation. The northwest portions, along the Continental Divide, have lower overall temperatures and more significant snow fall accumulations than the eastern portion of the DAU. Winds off of the east side of the Continental Divide keep open habitat on the western and southern slopes during the winter months. The lower elevation of the DAU has generally milder winters and melting periods which reduce the severity of winters for deer. Winter mortality is generally not an issue given that most of the winter range in this DAU has milder winter conditions.

Vegetation

Within the South Park deer herd management area is the South Park basin which is an intermountain grassland basin located around the headwaters of the South Platte River basin and formed by the Mosquito and Park Mountain Ranges in Park County. It is the southernmost high elevation mountain park located on the Front Range of Colorado. The vegetative type varies across this DAU depending on elevation and climate.

The northern portion of the DAU along the Continental Divide is alpine tundra (above 11,500 feet) which mainly consists of willows, grasses, forbs and sedges. As elevation drops (9,000-11,500), the

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next ecosystem is the subalpine forest which consists of densely forested areas of lodgepole, bristlecone and limber pine, spruce/fir, rocky outcroppings, aspens and grass dominated meadows.

The dominant life zone (6,500-9,000 feet) within this DAU consists of ponderosa pine forest, Douglas-fir, and foothill shrub and grass species. Shrub species include mountain mahogany, chokecherries, currant, and shrubby cinquefoil. Plant succession to forested habitats within the last century has contributed to lower quality deer forage throughout some portions of the DAU. In contrast, the eastern portion of the DAU has experienced several wild fires over the last 20 years and habitat consists of early to mid successional forest, shrub, grass and forb species. Forage species richness increased post-fire and deer forage improved in quantity and quality. These areas of the DAU are concentration areas for deer and deer hunting opportunities.

Mountain riparian ecosystems follow the major drainages where species of trees, such as cottonwoods, multiple willows species, and bog birch occur. Agricultural croplands occur along tributaries up to elevations of 9,500 feet and consist of native hay species.

Land Use

D-38 encompasses 1,163 square miles. Approximately 62% (719 miles²) is federal land, 30% (352 square miles²) is private land, 5% (60 square miles²) is state land, and 3% (32 square miles²) is non-governmental organization lands and land trusts. The federal lands are managed by the Pike National Forest office and the Bureau of Land Management. The state land is managed by CPW and the State Land Board.

Much of the lower elevation private land consists of large acreage ranches. The agricultural practices are cattle and horse ranching and also hay production. There are approximately 16 cattle allotments throughout the DAU on public land. Of these 16 allotments, currently 8 of them are vacant. There are 675 cow/calf pairs occupying the other 8 allotments. The majority of utilization occurs within the months of March through November and the average number of grazing days ranges between 10 and 60.

Recreational activity is high from hiking, fishing, hunting, off road vehicle use, and mountain biking. The proximity to Denver and Colorado Springs, along with access to public land, makes this area popular for recreationalists year round. The Colorado Trail runs through the center of D-38 where thousands of hikers utilize the trail and adjacent areas for recreation. The headwaters to the South Platte River basin and its associated tributaries are one of the main tourism revenues for Park County. Three water storage reservoirs are located within or directly adjacent to the DAU: Antero, Tarryall, and Cheesman Reservoir. Each reservoir attracts year round visitors for fishing, camping, bird watching, and hiking. Motorized recreation has increased substantially in this DAU on public land outside of wilderness areas in the last 10 years. The increased motorized recreation has led to the establishment of unauthorized roads which have fragmented landscapes and likely degraded habitat.

The Lost Creek Wilderness Area is located within the center of D-38 along the Tarryall and Kenosha Mountain Ranges and encompasses 120,000 acres. The vegetative types include ponderosa and bristlecone pine, fir, spruce, aspen and alpine tundra. The Lost Creek Wilderness elevation range is 8,000 to 12,400 feet. There are over 130 miles of trails within the Lost Creek Wilderness and recreational use is high in the summer and fall months.

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Several high speed and volume highways bisect or border the DAU. Highway 285 bisects the northern portion of the DAU and Highway 9 borders the west side. Both highways contribute to mortality and may be a barrier to deer movement within the DAU.

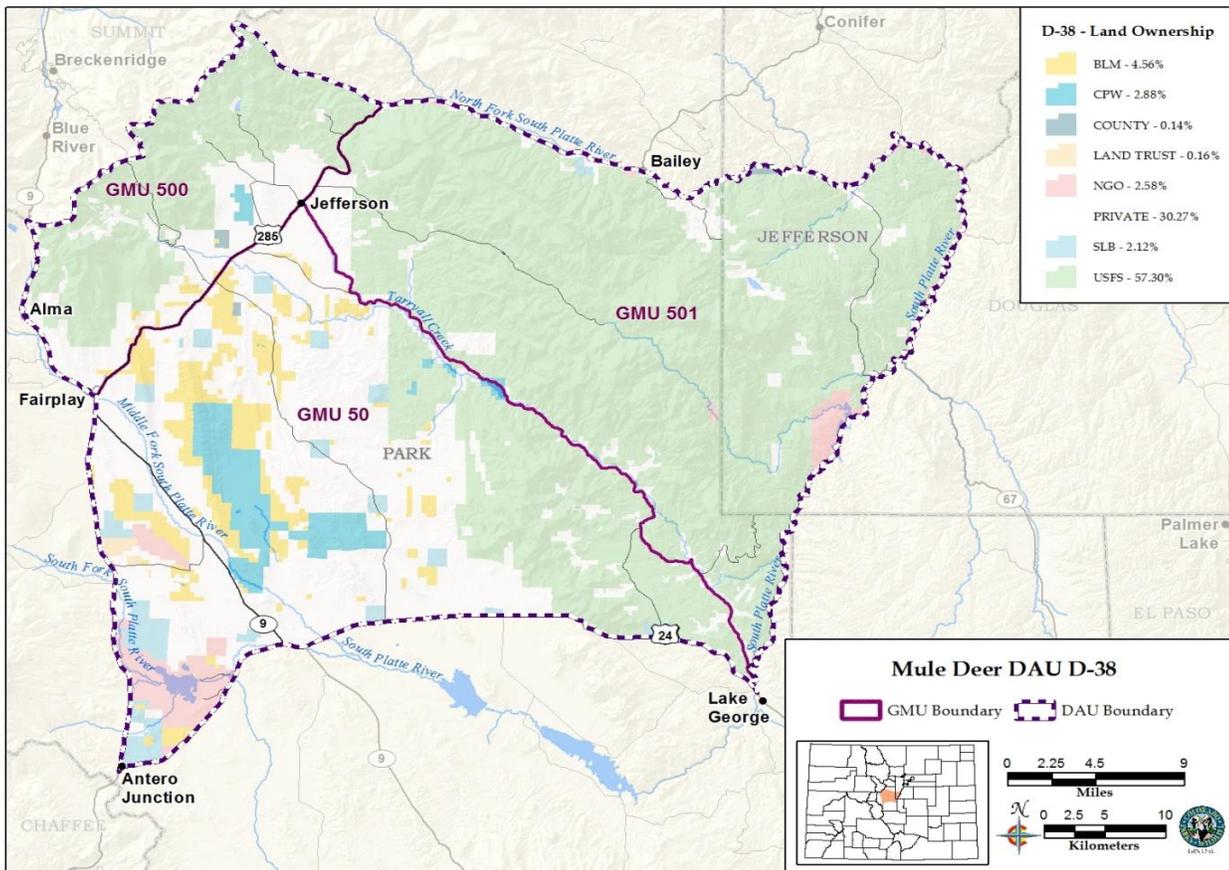


Figure 3: Land ownership in deer DAU D-38.

Deer Distribution

Wildlife species activities and habitat are mapped by the CPW GIS department with the direction of District Wildlife Managers and biologists. The species maps are updated and modified every 4 years to accommodate land use and habitat changes. These maps are made available to the public on CPW's website.

Deer are found throughout the entire DAU at some point during the year. Mule deer summer range occurs throughout most of the DAU (Figure 4). Winter range is more limited and concentrated in areas below 9,000 feet (Figure 5). Most of the deer winter in GMU 501 in areas where fires have occurred due to improved quality of forage and the generally milder winters at the lower elevations. Winter concentration areas for mule deer are located along Tarryall Creek, the South Platte River, and western and southern facing grass and shrub hillsides. White-tailed deer occur in very low numbers and are mainly located along riparian corridors. For the purposes of license setting and managing DAU D-38, both mule deer and white-tailed deer are managed jointly as deer.

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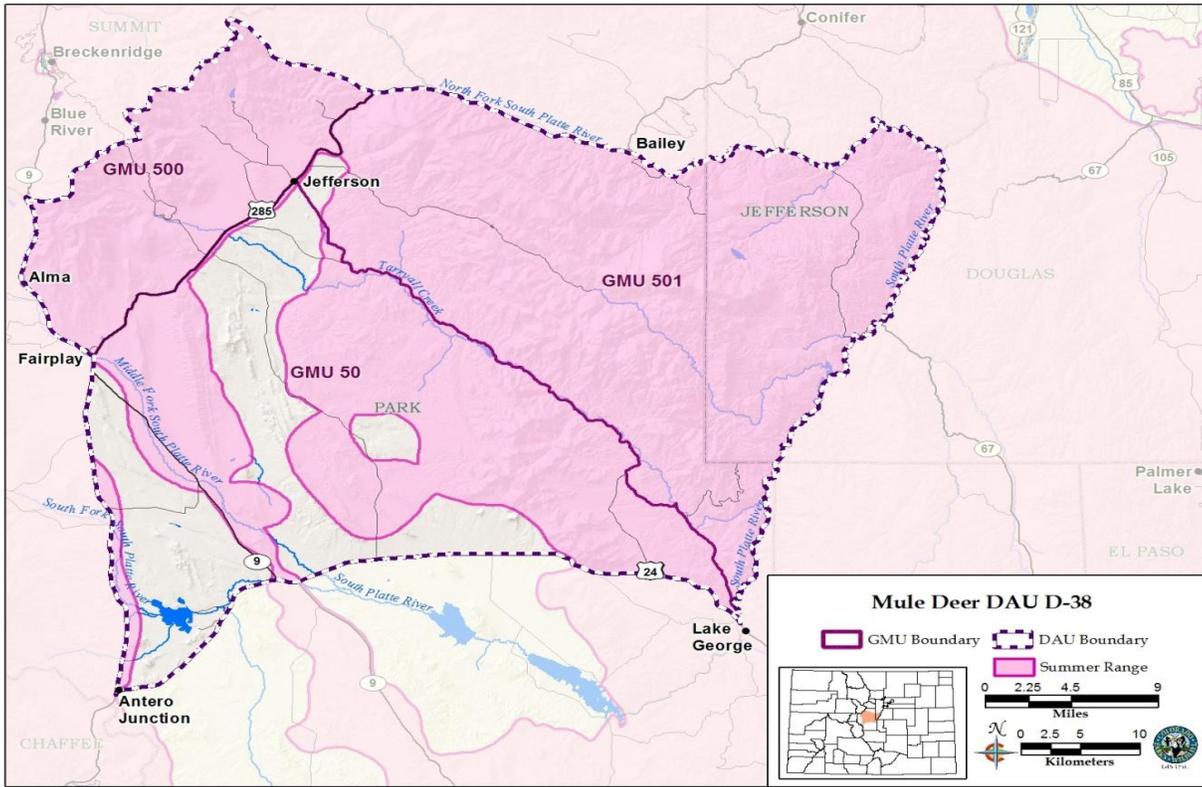


Figure 4: Summer range in DAU D-38.

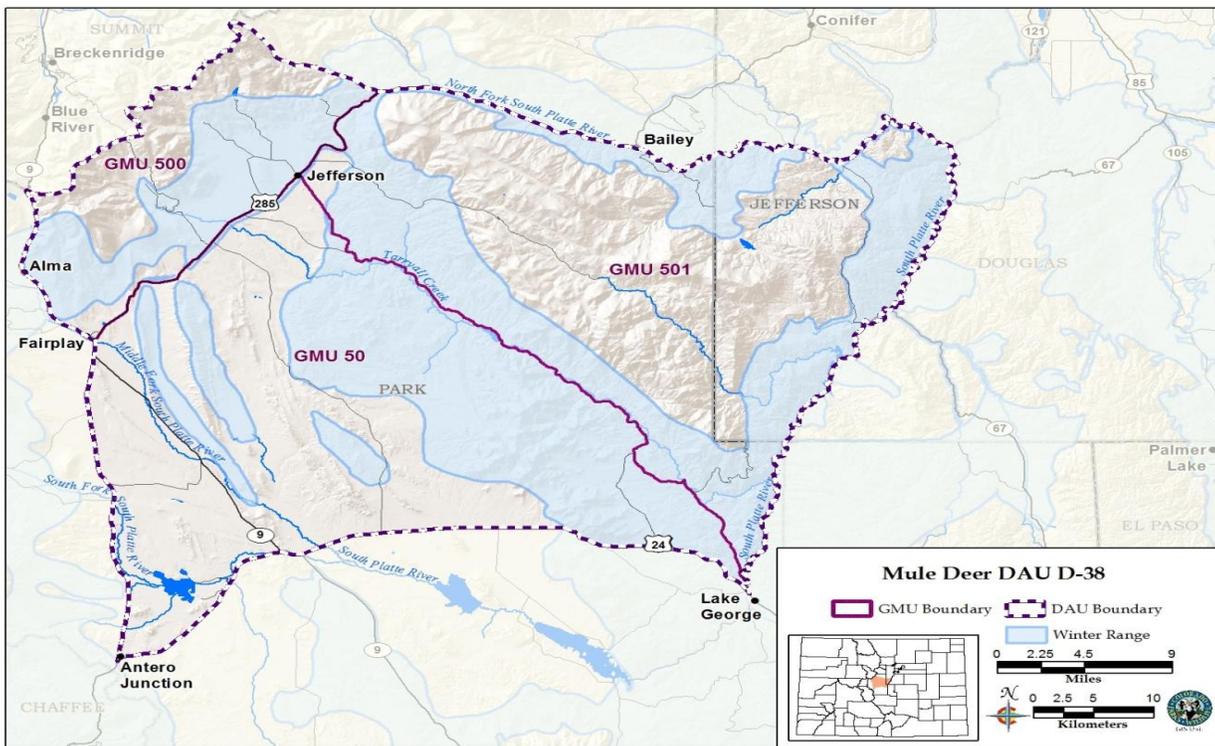


Figure 5: Winter range in DAU D-38.

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HABITAT RESOURCES

Quality and quantity of winter deer habitat is a limiting factor in all of the GMUs of this DAU. Some of the larger blocks of habitat in GMU 500 and 50 are lower quality deer habitat because they are composed mainly of high elevation grassland species. Additionally, some of these grasslands are in poor condition due to senescence, succession due to fire suppression, and drought conditions. Several habitat projects on CPW properties within the DAU have focused on removal of decadent over story and have resulted in an improvement of habitat conditions for deer. Habitat projects have focused on mistletoe treatments, patch cutting and selective thinning of timber.

A large portion of Jefferson County and the Park County-Jefferson County border within GMU 501 has experienced a series of large acreage, high-severity wild fires over the last 20 years. The Buffalo Creek fire occurred in 1996, the Hi Meadows Fire in 2000 and the Hayman Fire occurred in 2002 along the South Platte River corridor. Fuels treatment projects such as timber harvest and prescribed fires have occurred in the same areas as a result of managing the fire effect on the landscape. The effects of these fires and other habitat treatments in the DAU has had varying influences on deer and associated habitat. Overall, the effect has been an improvement to habitat by removing over story and that has boosted native grass, shrub and forb richness and quantity. Forage is more abundant and accessible for deer in post fire areas (Innes 2013). The improved habitat increased carrying capacity of the landscape. Deer occupy summer and winter range within GMU 501 in a significantly higher proportion than GMU 500 and the western portion of GMU 50. The higher density of deer and the higher proportion of public land in GMU 501 create disproportionate hunter densities. Hunter crowding in GMU 501 has been an increasing concern among hunters.

Northern portions of D-38 have been affected by mountain pine beetle where lodgepole pine and mixed stands of ponderosa and lodgepole pine occur. Factors that contribute to mountain pine beetle infestations include fire suppression, low precipitation, and mild winters (Fettig et al. 2013). Mountain pine beetle outbreaks kill trees and open understory which benefits many species including deer. These areas affected by mountain pine beetle may improve deer summer range conditions over time.

HERD MANAGEMENT HISTORY

Post-hunt Population Size

Population estimates are derived from data collected during helicopter quadrat surveys, classification flights, and computer modeled estimates. Computer modeled estimates utilize initial population size, sex and age composition, harvest estimates, wounding loss and survival rates. Estimating population size of wild animals over a large geographic area can be difficult and is not an exact science. It is recommended that the population estimates presented in this document be used only as an index or as trend data and not as an absolute estimate of the deer population in the DAU.

The South Park deer herd is estimated at approximately 2,500 deer post-hunt 2013(Figure 6). The population was relatively stable from late 1980s until the mid 2000s. In 2005, the population began increasing which may be attributed to habitat condition improvements resulting from the Hayman fire, other area wild fires, forest thinning projects and habitat treatments. The estimated D-38 population in 2005 was under objective at 2,100 and the population was estimated to be over

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objective at approximately 3,100 in 2010. Licenses quotas remained stable between the years 2001-2008 with only buck licenses allocated (Table 1). Licenses were increased during 2009-2011 and doe licenses were added when the estimated population moved above the population objective (Table 2). The population was estimated to have decreased in 2011 and licenses were reduced in 2012 to keep the population near the previous objective of 2,450 deer.

There has been 1 helicopter quadrat population estimate for this herd which coincided with peak deer numbers in 2010. The population was estimated at approximately 3,600 deer. The confidence interval for this estimate includes the model estimate of the population (3,200). The quadrat estimate and model estimate are compatible and also above the previous population objective (Figure 6).

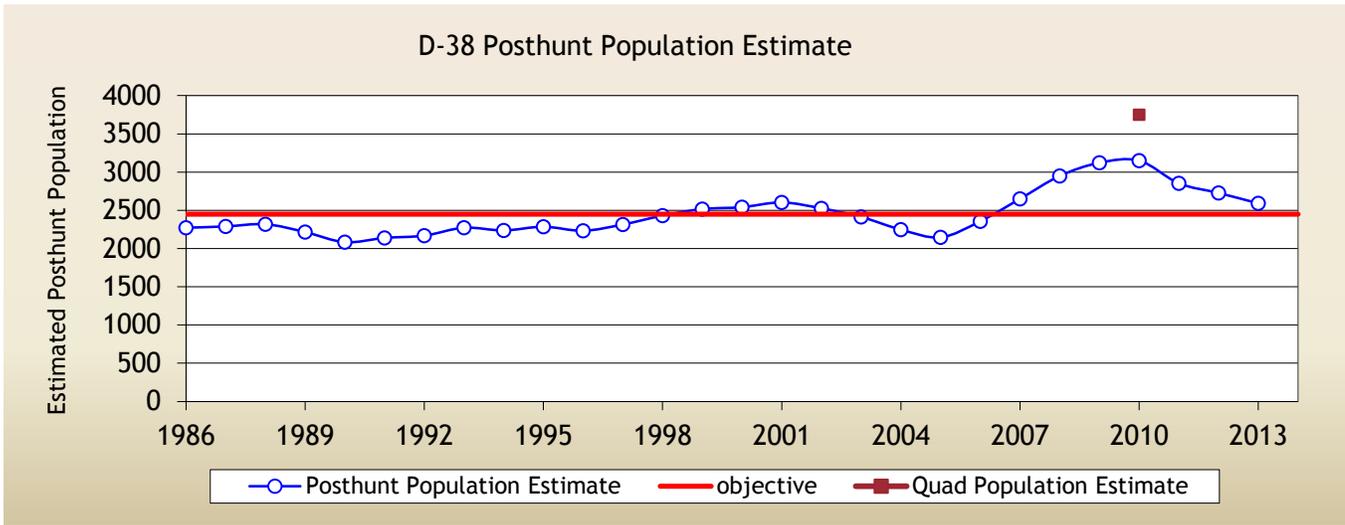


Figure 6: D-38 modeled and observed post-hunt population estimates from 1986 to 2013.

Post-hunt herd composition

Herd composition is measured utilizing helicopter surveys when deer are concentrated on winter range and before bucks drop their antlers. Counts occur from late November through mid-January. These herd composition flights allow observers to individually categorize each animal as yearling male, 2-year old male, male over 3 years of age, female or juvenile (< 1 year old). All composition counts are given as number of males and juveniles per 100 females. These surveys are actual field observations and are not the results of computer modeling efforts.

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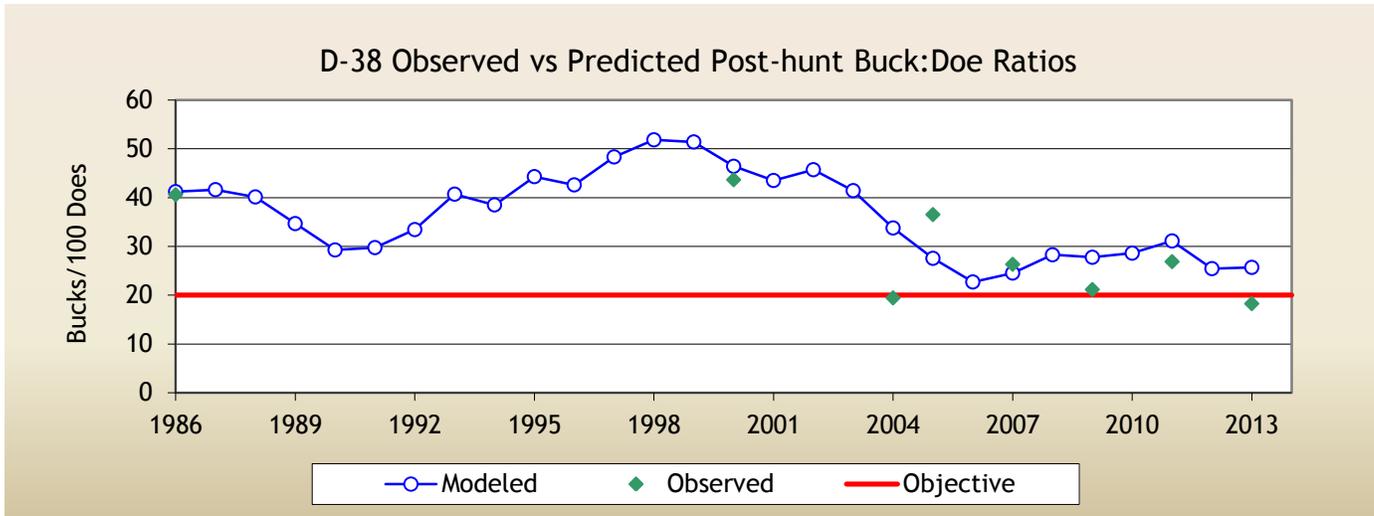


Figure 7: Observed, predicted, and target sex ratios for D-38 from 1986-2013.

Herd composition flights were conducted in 8 separate years since 1986 with the last 7 flights occurring since 2000. Based on both observed and modeled estimates, buck:doe ratios have declined from around 40 bucks:100 does pre-2000, to between 18-30 bucks:100 does during the last 7 years. From 1999-2008 doe harvest was eliminated and buck harvest increased in response to increasing population estimates, however during those years, rifle buck license numbers stayed relatively constant during. The buck harvest increased post fire until about 2010. Buck to doe ratios have declined to an estimated 18 bucks:100 does from the 2013 flight (Figure 7), which is slightly below the previous herd composition objective of 20 bucks:100 does.

Licenses

Season structure and license history has changed over the last 30 years within Colorado and for D-38. In the 1960s hunters could harvest two deer and from 1970 to 2002 hunters were limited to one deer. In 1986, the Wildlife Commission approved either-sex archery, limited muzzleloader and three combined unlimited buck and limited doe seasons as the general statewide season structure. The three combined rifle seasons varied in length from 5-12 days, and were used as a method to spread out increasing hunter pressure. In 1986, deer antler point restrictions (APR) were approved statewide, limiting harvest of bucks to those with three points or more on one antler. While APR worked well for elk, by delaying the kill one year, bucks did not show the same antler growth response as bull elk, and APR were abandoned over much of the state for deer after the 1991 season. In 1992, deer hunting was restricted to a three-day buck hunt. In 1995, buck hunting was extended to the first five days of each of the three combined seasons. Buck licenses remained unlimited or over-the-counter until 1999. Starting 1999 to the present, deer hunting was changed to a totally limited license (i.e., no over-the-counter licenses) for archery, muzzleloader, and regular rifle seasons. From 2000 to the present, the season structure includes:

- 1) A limited antlered or either-sex archery season;
- 2) A limited muzzleloader season for antlered and antlerless deer;
- 3) Two combined rifle seasons (second and third season) for limited antlered and antlerless deer;
- 4) A limited fourth season for antlered and antlerless deer.

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Prior to 1999, all licenses allocated within the DAU were over-the-counter and buck only (Table 1). The licenses were buck only as the population was estimated to be stable to declining, but buck:doe ratios remained high. From 2001-2006, approximately 1200 limited buck only licenses were issued for archery, muzzleloader, second rifle and third rifle season. The buck licenses floated across second and third rifle seasons. There was not a fourth season in the DAU.

This license allocation remained the same until 2009 when doe licenses were added for rifle and muzzleloader seasons. Once doe licenses were added to the DAU, archery licenses converted from buck only to either sex in 2009. The overall quota for archery licenses remained the same from the buck only quota to the either-sex quota. For 2009, the rifle doe licenses floated across second and third season. In 2010, floating rifle licenses were removed and rifle licenses were allocated to second, third, and fourth season for bucks and does to more evenly distribute hunting pressure. Since 2009, rifle and muzzleloader buck licenses have decreased, rifle doe licenses have generally increased and either-sex archery licenses have remained the same (Table 1 and Table 2).

Table 1: Number of deer licenses in D-38 from 1996-2013.

YEAR	RIFLE			ARCHERY			MUZZLELOADER			TOTAL
	Buck OTC	Buck Limited	Doe Limited	Buck OTC	Buck Limited	ES Limited	Buck OTC	Buck Limited	Doe Limited	
1996	930			241			184			1,355
1997	849			247			101			1,197
1998	721			169			58			948
1999		830			220			110		1,160
2000		830			220			110		1,160
2001		900			220			150		1,270
2002		900			220			150		1,270
2003		900			220			150		1,270
2004		900			220			150		1,270
2005		900			220			150		1,270
2006		900			200			150		1,250
2007		900			200			150		1,250
2008		900			200			150		1,250
2009		850	100			200		150	25	1,325
2010*		845	175			200		150	50	1,420
2011		755	275			200		150	50	1,430
2012		635	225			200		125	25	1,210
2013		635	225			200		125	25	1,210

*no longer floating licenses

Table 2: Rifle deer licenses for D-38 from 2009-2013.

YEAR	RIFLE BUCK			TOTAL	RIFLE DOE			TOTAL
	2nd Rifle	3rd Rifle	4th Rifle		2nd Rifle	3rd Rifle	4th Rifle	
2009	FLOAT			850	FLOAT			100
2010	410	410	25	845	75	75	25	175
2011	360	360	35	755	100	100	75	275
2012	300	300	35	635	100	100	25	225
2013	300	300	35	635	100	100	25	225

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Hunting Pressure

From 1988 to 1999, licenses were not limited in number, so hunting pressure was determined by the number of hunters that chose to hunt GMUs 50, 500, and 501. The number of hunters was at the highest (1,500-2,000) in the 1980s (Figure 8).

Since 1999, the number of hunters in D-38 has been controlled by the number of licenses issued. In general, the number of hunters (1,000-1,200) in the DAU trends with the number of licenses available, but the number of hunters by GMU is not evenly distributed across the DAU (Figure 8 and Figure 9). The distribution of hunters can be attributed to hunting access and also deer distribution. From 1988 to 2009, most hunters hunted in GMUs 501 and 50 and only about 25% of hunters hunted in GMU 500. Since about 2009, over 50% of hunters hunted in GMU 501. This shift in hunter distribution may result from the combination of several publicized, large antlered harvested bucks in GMU 501, the post-fire improved habitat conditions that favor deer, and the addition of GMU 501 doe licenses.

In general, hunting access has become more limited in Colorado so areas with public land allowing hunting are in demand. The proximity to the Denver metro area combined with the high percentage of public land, have contributed to the increased interest in hunting in the South Park deer herd management area.

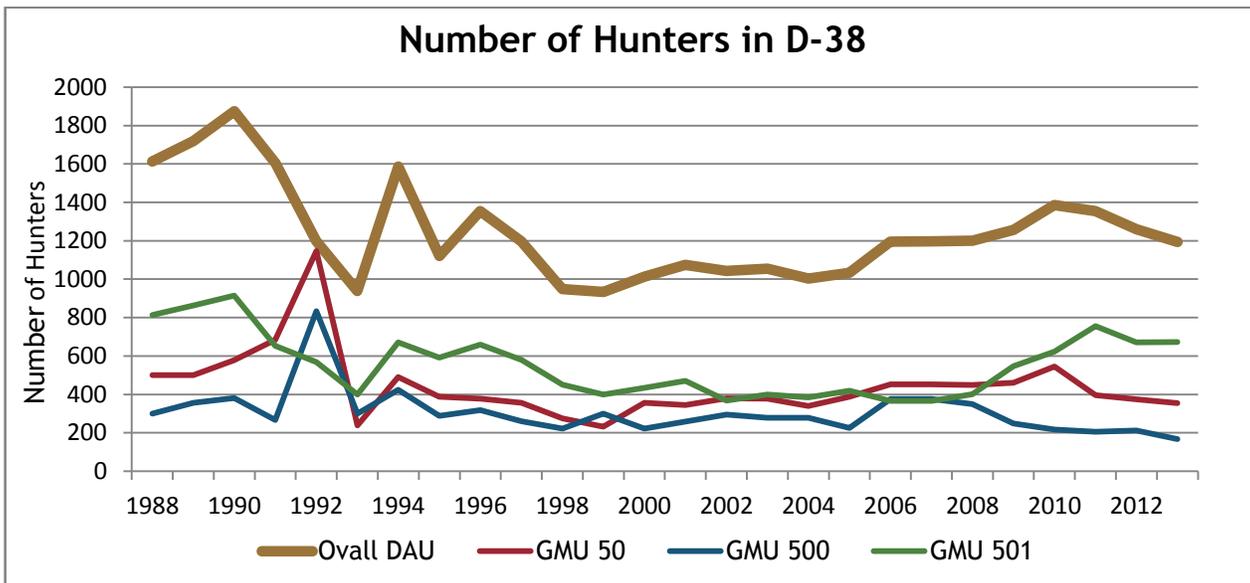


Figure 8: Total number of deer hunters in D-38 from 1988-2013.

South Park Deer Herd Management Plan

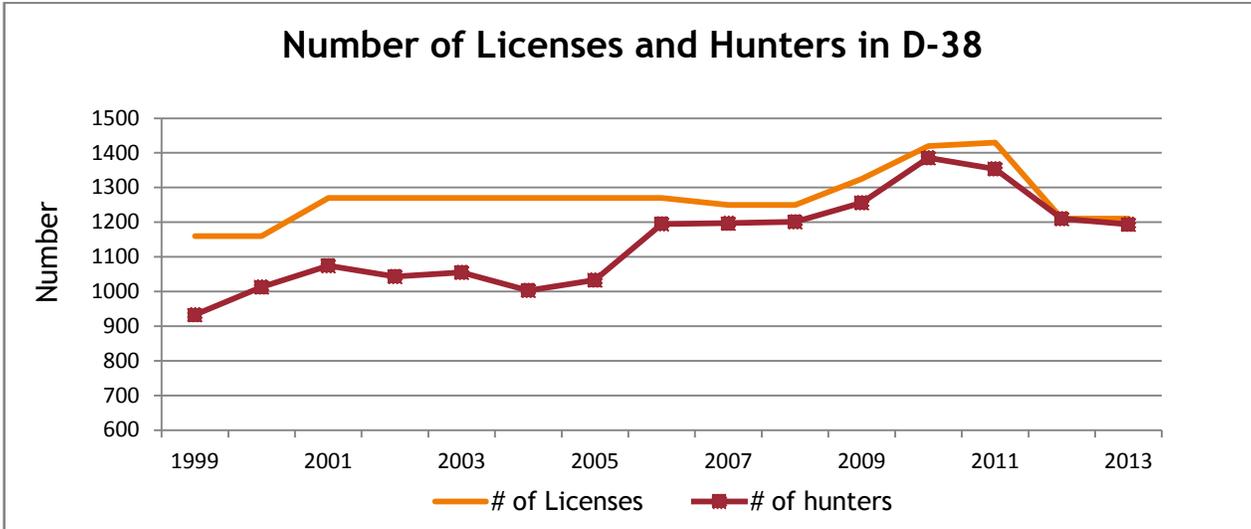


Figure 9: Number of deer licenses and hunters in D-38 from 1999-2013.

Harvest

Harvest fluctuated from 150-200 deer, but was generally stable from 1988-2002, excepting a spike in 1990 to almost 400 deer (Figure 10). Doe harvest was eliminated from 1998 to 2008, but buck harvest remained stable at about 200 each year during that time (Figure 10). The most significant changes in harvest estimates have occurred since 2009. In 2009, doe licenses were made available and both buck and doe harvest increased to a total harvest of 405. 2009 saw the highest estimate since 1988 at 343 bucks and 140 does. In 2010, buck licenses were reduced and doe licenses increased but the overall harvest remained similar at 476 total deer. In 2011, licenses were reduced further and harvest was estimated at the similar total harvest of 489 deer. Licenses remained the same through 2013 and harvest remained at just over 400 deer. The average annual harvest from the last 5 years of 450 is 80% higher than the average harvest from 1988-2013 of 250 (Figure 10).

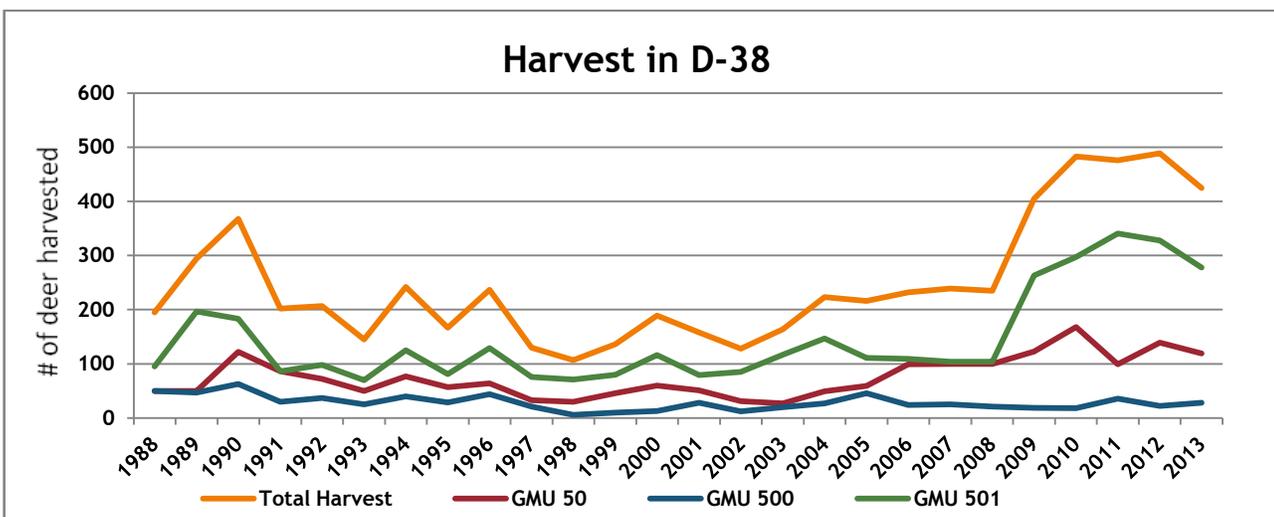


Figure 10: Deer harvest by DAU and GMU in D-38 from 1988-2013.

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Harvest Success Rates

Success rates are calculated by dividing harvest by the number of hunters and are calculated annually by DAU and GMU (Figure 11). Success rates from 1988-2007 for the South Park deer herd remained fairly stable and ranged from 12-22%. Beginning in 2007, success rates increased. The success rates in the last 5 years are approximately double what the success rates were in the previous 20 years. The overall average success rate from 1988-2009 was 15% compared to 2009-2013 at 35%. Both GMU 50 and 501 success rates have followed the pattern of increase during the last five years. The increase in success rates may be attributed to the effects of fire on the landscape by reducing tree cover and to higher deer densities in these areas due to improved habitat conditions.

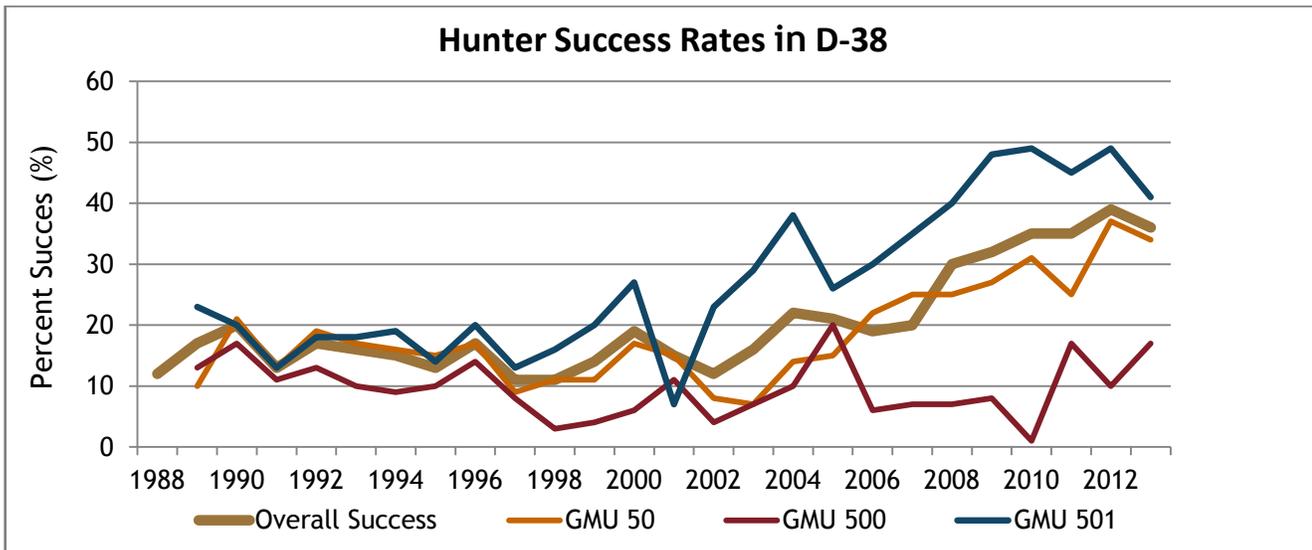


Figure 11: Hunter success rates by DAU and GMU in D-38 from 1988-2013.

CURRENT HERD MANAGEMENT

The previous post-hunt population estimate is approximately 2,500 and the previous estimated observed herd composition is 18 bucks:100 does. The previous DAU population objective is 2,450 and the previous herd composition objective is 20 bucks:100 does. With the increase in the quantity and quality of deer forage in portions of D-38, it is believed that the habitat can support more deer. Additionally, the public has expressed interest in seeing more deer within the South Park deer herd area. There is not any history of game damage related to South Park deer so that is not a concern with increasing the population. The previous herd composition objective of 20 bucks:100 does is relatively low compared to historical modeled and observed sex ratio estimates. Uneven deer distribution across the DAU remains an element of management as deer are concentrated in the areas where fires occurred over the last 20 years in GMU 501. The hunting pressure and harvest is concentrated in the areas affected by fire where deer densities are highest.

Current Management Issues and Strategies

Achieving a more even deer distribution within the DAU will be difficult to accomplish given the contrast in habitat quality across the DAU. The western and northern portions of DAU are dominated by high elevation grasslands which are not preferred by deer over habitats with forbs and browse dominance. Additionally, fire suppression for the last 100 years in those areas has contributed to

South Park Deer Herd Management Plan

decadent stands of forest consisting of lower quality deer habitat. In contrast, the habitat conditions for deer have improved from the fires over the last 20 years in large portions of GMU 501 and some parts of GMU 50. South Park deer prefer the areas of GMU 501 and GMU 50 affected by the fires because of the increase in the quality and quantity of forage and the lower elevation.

Because the deer in the DAU more densely occupy GMU 501 and some parts of GMU 50, much of the management for the entire DAU is driven by these GMUs. Over the last 5 years, the number of hunters in GMUs 501 and 50 has increased by 10%, while numbers in GMU 500 have decreased by 10%. Hunter access is focused around access roads which results in hunter complaints of over-crowding and other conflicts with non-hunter recreationists. When evaluating the annual license quotas, it is important to understand that hunters do not hunt evenly across the DAU. A large portion of license holders will hunt based on vehicle access and deer densities. Changes in license numbers, especially increases, need to consider hunter densities because they can influence hunter satisfaction and harvest success.

The increased visibility of deer within the fire affected areas has contributed higher harvest success rates because of the reduced canopy cover. Success rates influence the number of licenses that can be allocated depending on the projected harvest in relation to the DAU objectives. South Park deer herd license quotas have decreased during the last few years, but harvest has remained nearly the same because of higher hunter success. The previous population and sex ratio objective could not be maintained without reducing licenses. Additionally, the public prefers a higher population objective and a higher buck:doe ratio than the previous population objective and sex ratio objective.

PUBLIC INVOLVEMENT

Public input on the South Park Deer Herd Management Plan was sought in two ways: a survey and a public open house (Appendix B). The public was notified that input was being accepted via postcards sent to everyone who had applied for a deer hunting license in the DAU in the previous 3 years (approximately 1200 postcards were sent out). The public was also informed of the survey in press releases to local papers and also on the CPW website. In addition to the postcards and media outlets individuals and groups known to be interested were personally notified by CPW staff.

The public was informed that they could complete the survey online or contact the Area Wildlife Biologist to have a hard copy sent to them. They were also informed that background information on the herd could be found on the CPW website. Twenty people requested and were sent hard copies of the survey, of which 10 were completed and returned. Approximately 224 people completed the online survey (Appendix B and Appendix C).

A public open house was held in Bailey on November 18, 2013. Historical data for the DAU was presented at the meeting and CPW staff was available to answer questions. The online survey was available on several computers for completion during the open house. Twenty four people attended the open house.

Public input was then incorporated into a draft management plan that was posted on the CPW website and sent to local governments and land management agencies for review. Individuals, land management agencies and local governments were invited to submit comments on this draft herd

South Park Deer Herd Management Plan

management plan during a 30-day comment period which was held during the months of September and October 2014. Five private citizens provided comments on the draft plan. The South Park Habitat Partnership Program Committee provided comments (Appendix D). No governmental or other non-governmental agencies provided comments.

Summary of Public Input

Eighty-seven percent of the respondents reported that they were residents of the Colorado and 22% of those reported that they lived within the boundaries of D-38. Twenty five percent of the respondents reported that they owned land within D-38. The primary interest of the respondents was reported as a hunter or sportsman. Ninety two percent of respondents reported to have hunted in GMUs 50, 500 and 501 and 92% reported that hunting was their primary interest in the DAU.

Season preference was split across seasons somewhat equally. Respondents could select more than one season as preferred. Twenty-eight percent responded that they prefer archery, 12% reported first rifle, 32% reported second rifle, 38% reported third rifle, and 22% reported fourth rifle and 18% reported muzzleloader as their season preference.

The survey asked respondents to characterize the quality of their hunting experience over the last ten years in GMUs 50, 500, and 501. Answer choices were: hasn't changed, quality of bucks increased, quality of bucks decreased, overcrowding increased, overcrowding decreased, and other comments. The characterization that received the most responses was that the quality of bucks has decreased. The second most common response was that overcrowding has increased (Table 3).

Table 3: Characterization of the quality of hunting experience in GMUs 50, 500, and 501 over the last ten years in percentages and number of responses by respondents. Bold text indicates highest response percentage and most responses. Other comments are summarized in Appendix C.

Answer Choices	Percent Count	Response Count
Hasn't changed	25.0%	47
Quality of bucks has increased	9.6%	18
Quality of bucks has decreased	42.0%	79
Overcrowding has increased	33.5%	63
Overcrowding has decreased	1.6%	3
Other (please specify)	18.1%	34

The survey asked respondents to rank items that reflect what is most important to the quality of their deer hunting experience in the South Park deer herd management area. Seeing deer of all sizes and ages was ranked first, seeing larger antlered bucks ranked second, hunting with family and friends ranked third and being outdoors ranked fourth (Table 4).

Table 4: Percentage of respondents for what is most important to the quality of their deer hunting experience in order of rank. Respondents ranked responses from a 1 through a 4. A ranking of 1 is the most important. The bold print text indicates the highest response for that answer.

	1	2	3	4
Seeing larger antlered bucks	29.0% (53)	20.8% (38)	20.2% (37)	30.1% (55)
Seeing many deer of all sizes/ages	31.1% (57)	28.4% (52)	26.2% (48)	14.2% (26)

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Being outdoors	15.8% (29)	23.0% (42)	29.0% (53)	32.2% (59)
Hunting with family and friends	24.2% (44)	28.0% (51)	24.7% (45)	23.1% (42)

The survey asked respondents what they considered to be the most significant issue affecting deer management in the South Park deer herd management area. The choices for a response were: lack of public access, seeing too many other hunters, lack of large antlered bucks, not enough deer, poor habitat conditions, drought, limited winter range, disease, predation, and other (please specify) The highest percentage of responses was for the answer of **Not enough deer** (Table 5).

Table 5: Percentage of respondents and number of responses for the most significant issue affecting deer management in the South Park area. The bolded text is the highest percentage of responses and the highest number of responses. Other comments are summarized in Appendix C.

<u>Most significant issue</u>	<u>Response Percent</u>	<u>Response Count</u>
Lack of public access	14.6%	31
Seeing too many other hunters	16.5%	35
Lack of large antlered bucks	16.0%	34
Not enough deer	20.3%	43
Poor habitat conditions	4.2%	9
Drought	6.6%	14
Limited winter range	2.4%	5
Disease	0.5%	1
Predation	2.4%	5
Other (please specify)	16.5%	35

Respondents were asked to rate CPWs management of the South Park deer herd area. Forty-eight of the respondents rated CPWs management of the South Park deer herd as average, 16% above average, 10% below average, 11% unsure, 9% poor, and 3% as excellent.

The survey asked respondents to answer how they would like to see the South Park deer herd managed for the next ten years. The highest percentage of responses was for **Increase somewhat** (Table 6).

Table 6: Percentage of responses for question on how the South Park deer herd should be managed for the next ten years. The highest percentage and highest number of responses is given in bold text.

	<u>Response Percent</u>	<u>Response Count</u>
Increase greatly	23.6%	50
Increase somewhat	48.1%	102
Stay the same	20.3%	43
Decrease slightly	3.3%	7
Decrease greatly	0.9%	2
I am not sure	3.8%	8

The survey asked respondents to answer how they would like to see the number of buck licenses managed for the South Park deer herd for the next ten years. The highest percentage of responses was for **Managed for moderate levels of opportunity and quality of bucks** (Table 7).

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Table 7: Percentage and number of responses for question on how to manage the number of buck licenses for the next ten years. The highest percentage and number of responses is given in bold text.

	Response Percent	Response Count
Managed for moderate levels of opportunity and quality of bucks. (This is the current management strategy.)	48.6%	104
Decrease the number of buck licenses to increase the number of bucks and antler size in the herd. This would result in less frequent ability to hunt bucks.	37.9%	81
Increase the number of buck licenses to increase hunting opportunity and allow more hunters to hunt more often.	8.4%	18
I am not sure.	5.1%	11

MANAGEMENT ALTERNATIVES AND NEW OBJECTIVES

Population Objective

The previous population objective is expressed as a point objective of 2,450. Population objectives are now given as ranges in recognition of the difficulties of precisely estimating and managing wildlife populations and the variation inherent in range capacity due to changes in climate patterns, land management and habitat (e.g. fires, winter weather events, droughts). The intention is to manage for the midpoint of the selected objective range during most years.

Post-hunt population alternative 1: 2,000-2,500 deer

Alternative 1 includes the previous population objective at the upper end of this objective range while the midpoint (2,250 deer) is about 10% less. Given the current harvest rates and ability to fill license quotas, it is believed that the midpoint could be achieved by a temporary increase in doe harvest. Once the population was reduced to the lower objective, then doe and buck licenses would likely be somewhat reduced from recent levels.

Post-hunt population alternative 2: 2,500-3,100 deer

The lower end of the alternative 2 objective range is roughly equivalent to the previous population objective and estimate. Consequently, managing toward a midpoint target of 2,800 would result in a 10% increase in the deer population. It is expected that this alternative can be achieved through temporarily reducing license quotas and harvest numbers.

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Post-hunt population alternative 3: 3,100-3,700 deer

The midpoint of this population alternative (3,400 deer) is a 30% increase over the previous population objective. Based on past population performance, it is likely that a population increase of this magnitude may not be sustainable even with significantly reduced hunting licenses and hunting opportunity.

Herd Composition - Sex Ratios

The previous sex ratio objective is expressed as a point objective of 20 bucks:100 does. In updated DAU plans, sex ratio objectives are now given as ranges in recognition of the difficulties of precisely estimating and managing sex ratios within free ranging big game populations. The intention is to manage for the midpoint of the selected objective range during most years, while allowing some flexibility to respond to changes in habitat, land ownership, weather affects, etc. All of the following 3 alternatives allow more than enough bucks for breeding purposes.

Sex ratio alternative 1: 20-25 bucks:100 does.

This alternative would include the previous sex ratio objective of 20 bucks:100 does and would result in fewer bucks in the population than the other two alternatives. Bucks in the population would be smaller and younger. Alternative 1 would allow for the most antlered deer hunting opportunity.

Alternative 1 would be achievable through managing buck harvest, but may not address hunter concerns with the quantity and quality of bucks in the population. Buck license numbers would be similar to or somewhat reduced compared to 2011 and 2012 to achieve a somewhat higher sex ratio.

Sex ratio alternative 2: 25-30 bucks:100 does

Alternative 2 represents an increase of 5-10 bucks:100 does above the previous sex ratio objective. This sex ratio objective would be similar to modeled and observed sex ratios over the last 10 years, but would work toward more and older bucks in the population than the current sex ratio allows. The 5-year average sex ratio is 22 bucks:100 does so a reduction in buck harvest would be necessary to work toward the higher sex ratio objective range. Buck hunting opportunity would be more limited at least in the first several years with Alternative 2.

The public expressed that they want to see more bucks and older bucks in D-38. Compared to the other two alternatives, Alternative 2 would balance buck hunting opportunity with availability of more and older bucks.

Sex ratio alternative 3: 30-35 bucks:100 does

Alternative 3 would be an increase of 10-15 bucks:100 does above the previous sex ratio objective and represents the highest sex ratio of the three alternatives. It would allow for the least buck hunting opportunity, but hunters could expect to see considerably more and older bucks. This alternative would require the most significant reduction in buck license numbers.

New Objectives

Population Alternative 2: 2,500-3,100 deer

Herd Composition Alternative 2: 25-30 bucks:100 does

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The new objectives, *approved by the Colorado Parks and Wildlife Commission on May 6, 2015*, are near previous population and sex ratio objectives, however, both represent some level of increase from recent post-hunt estimates. The new population objective would be a small increase (~10%) from the 2013 post-hunt estimate. The new herd composition alternative represents a larger increase (~30%) from the 2013 post-hunt estimate in an effort to find a balance between hunting opportunity and increasing the number of bucks in the population. The new objectives are obtainable through harvest regulation and are supported by public input received during the DAU planning process.

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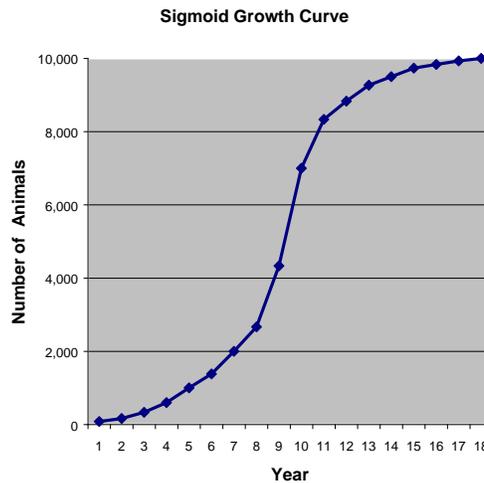
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APPENDIX A: Population Dynamics, Maximum Sustained Yield, and Density Dependence

Numerous studies of animal populations, including such species as bacteria, mice, rabbits, and white-tailed deer have shown that the populations grow in a mathematical relationship referred to as the "sigmoid growth 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 to predation or accidents can significantly affect population growth.

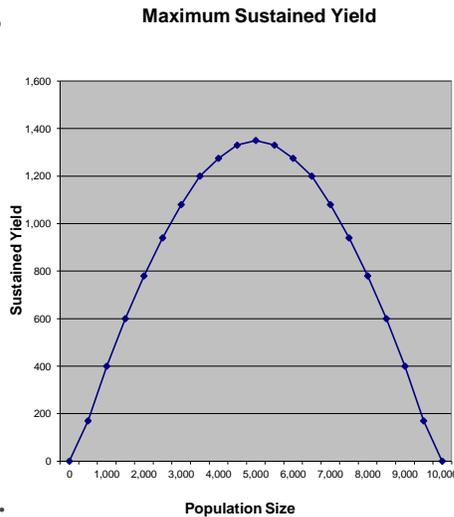


The second phase occurs when the population number is at a moderate level. This phase is characterized by high reproductive and survival rates. During this phase, food, cover, water and space are not a limiting factor. During this phase animals such as white-tailed deer have been known to successfully 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 sex and age classes are also 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. These types of factors that increasingly limit productivity and survival at higher population densities are known as density-dependent effects. During this phase, for example, 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 adult does. Severe winters affect future buck:doe ratios by favoring more does and fewer bucks in the population. Also, because the quality of a buck's antlers is somewhat dependent upon the quantity and quality of his diet, antlers development is diminished. 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 and "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 "hunnable surplus." The animals in the population would be in relatively poor body condition, habitat condition would be degraded from over-use, and when a severe winter or other catastrophic event occurs, a large die-off is inevitable.

South Park Deer Herd Management Plan

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 that are being limited by density-dependent effects, we should attempt to hold the populations more towards the middle of the "sigmoid growth curve." Biologists call this point of inflection of the sigmoid growth curve the point of "MSY" or "maximum sustained yield." In the example below, MSY, which is approximately half the maximum population size or "K", would be 5,000 animals. At this level, the population should provide the maximum production, survival, and available surplus animals for hunter harvest. Also, at this level, range habitat condition should be good to excellent and range trend should be stable to improving. Game damage problems should be lower and economic return to the local and state economy should be higher. 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 the population 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 because 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 but lower watchable wildlife values.

Actually managing deer and elk populations for MSY on a DAU basis is difficult if not impossible due to the amount of detailed biological information about habitat and population size required. Additionally, carrying capacity is not static, the complex and dynamic nature of the environment cause carrying capacity to vary seasonally, annually, and trend over time. In most cases we would not desire true MSY management even if possible because of the potential for overharvest and the number of mature of bulls and bucks are minimized because harvest reduces recruitment to older age classes. However, the concept of MSY is useful for understanding how reducing densities and pushing asymptotic 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.

Research in several studies in Colorado has shown that density-dependent winter fawn survival is the mechanism that limits mule deer population size because winter forage is limiting (Bartmann et al. 1992, Bishop et al. 2009). Adult doe survival and reproduction remain high but winter fawn survival

South Park Deer Herd Management Plan

is lower at higher population sizes relative to what the winter habitat can support. The intuition to restrict, or even eliminate, female harvest in populations where productivity is low and when populations are below DAU plan objectives is counterproductive and creates a management paradox. In that, for populations limited by density dependent processes, this “hands-off” type of management simply exacerbates and perpetuates the problem of the population being resource limited, and countermands the goals and objectives of the DAU plan. As Bartmann et al. (1992) suggest, because of density-dependent processes, it would be counterproductive to reduce female harvest when juvenile survival is low and increase harvest when survival is high. Instead, a moderate level of female harvest helps to maintain the population below habitat carrying capacity and should result in improved survival and recruitment of fawns. Increased fawn recruitment allows for more buck hunting opportunity and a more resilient population.

Thus, the key for DAU planning and management by objective is to set population objectives in line with what the limiting habitat attributes can support. A population objective range aptly set must be below carrying capacity.

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Bishop, C.J., G.C. White, D.J. Freddy, B.E. Watkins, and T.R. Stephenson. 2009. Effect of enhanced nutrition on mule deer population rate of change. *Wildlife Monographs* No. 172. 28 pp.

South Park Deer Herd Management Plan

APPENDIX B: South Park Deer Herd Survey

South Park Deer DAU Survey



Colorado Parks and Wildlife (CPW) manages deer herds with herd management plan with an established population and sex ratio. Each herd management plan is composed of one to several Game Management Units (GMUs). The herd management plan represents the geographic area where the big game herd lives from season to season, year round. The South Park deer herd management plan includes GMUs 500, 50 and 501. The South Park deer herd management area is bounded on the north by the Continental Divide and the North Fork of the South Platte River, the east by the South Platte River, the south by Highway 24 and the west by Highway 9. This area includes parts of Park and Jefferson counties.

The primary objectives for herd management plans are to determine how many animals should exist in a population and how many of those should be males and females. The size of the population and ratio of males to females drive important decisions in the big game season setting process, such as how many animals can be harvested to reach the desired population size and what seasons are required to achieve the desired harvest. CPW attempts to balance the biological characteristics of the herd and its habitat with the public's interest and demand for recreational opportunities. These objectives are set for a 10-year period.

In order to determine hunter's desires for the South Park deer herd, we are interested in hearing from you. Please take a few moments to fill out this survey. The information you provide will guide CPW in determining the desired population size and ratio of males to females for this herd. This information will allow us to develop management objectives and strategies within the herd management plan for the South Park deer herd.

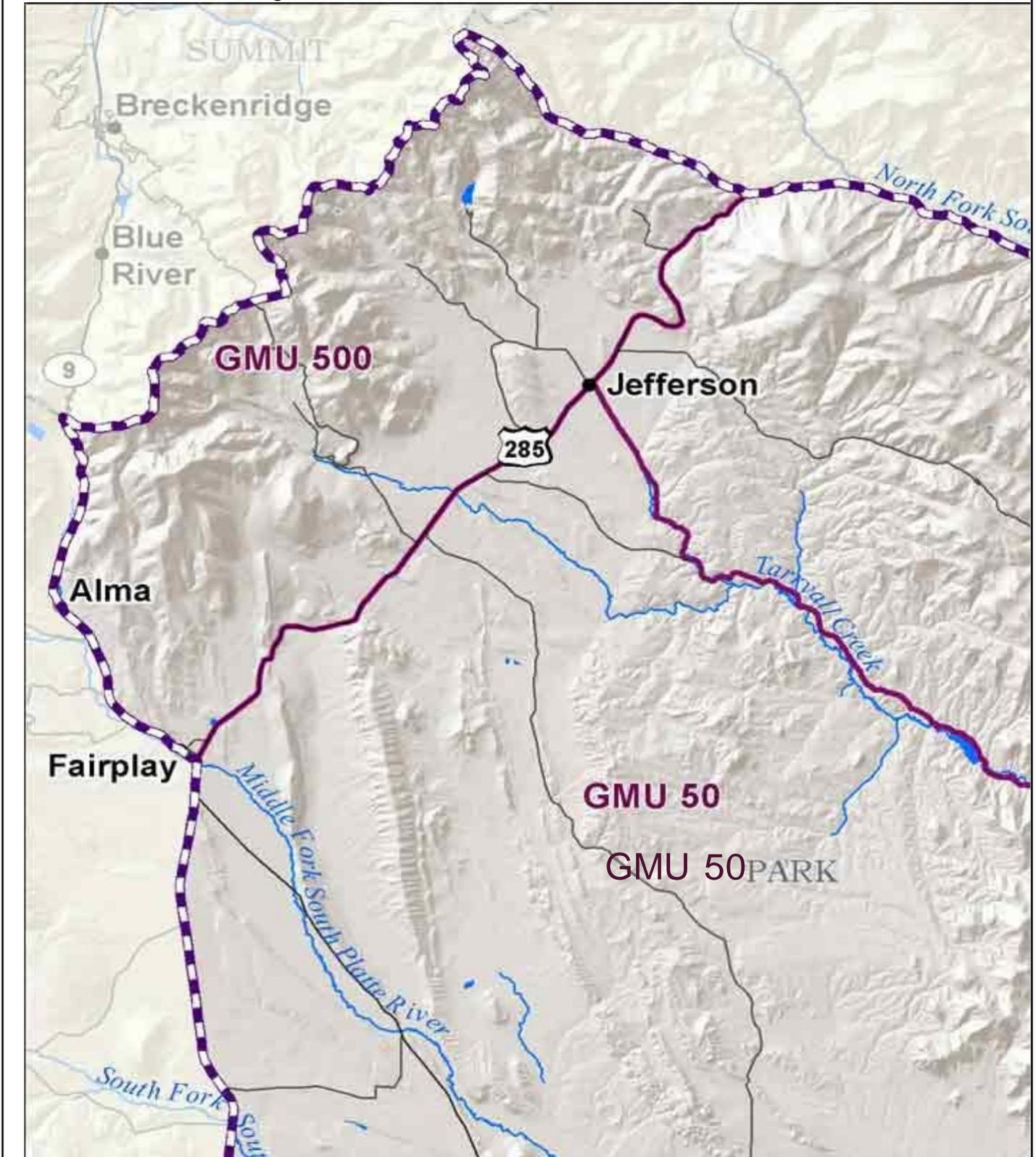
If you would rather complete a paper survey, or have additional comments or questions about the South Park deer herd, please contact me, Shannon Schwab, at 303-291-7367 or shannon.schwab@state.co.us.

Sincerely,
Shannon Schwab
Terrestrial Biologist
Denver, CO

South Park Deer Herd Management Plan

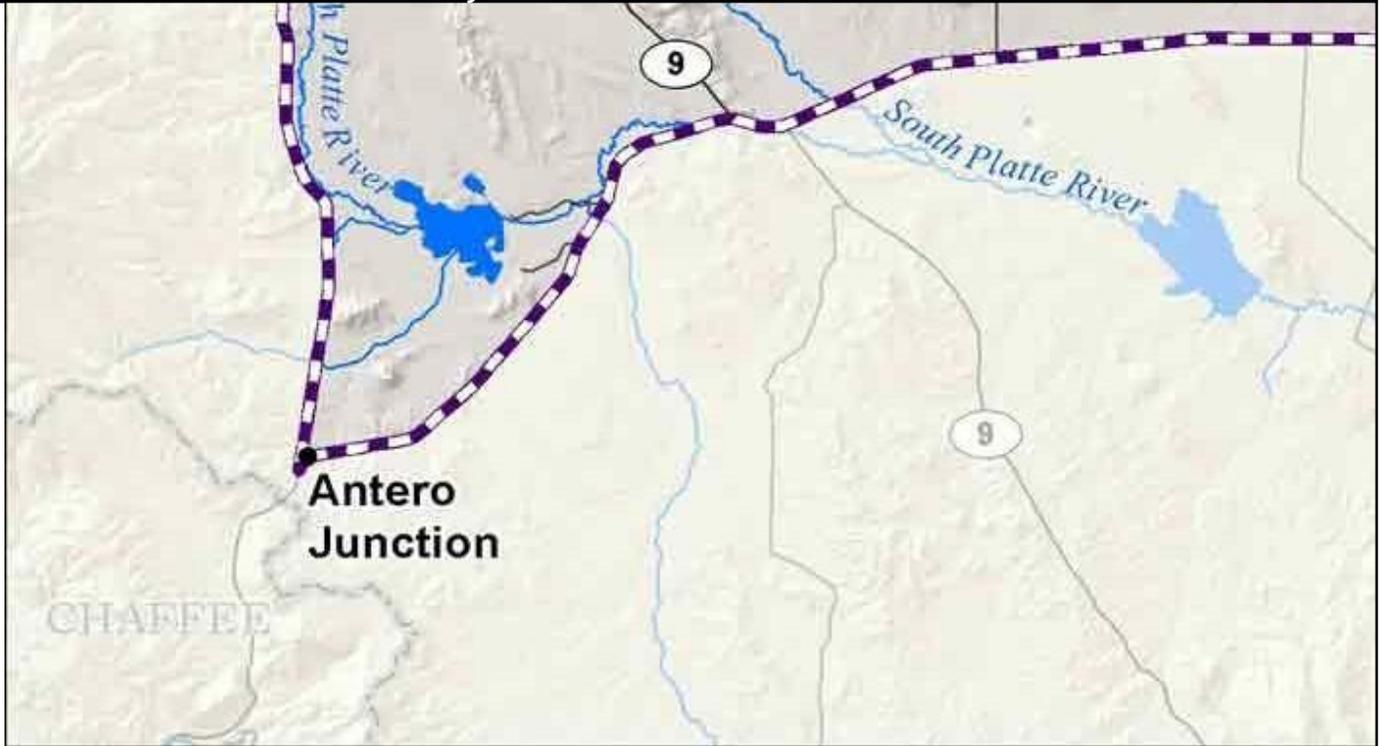
South Park Deer DAU survey

South Park Deer Herd Management Area



South Park Deer Herd Management Plan

South Park Deer DAU survey



1. Are you a resident of Colorado? (Please check one.)

Yes

No

2. Do you live in the South Park deer herd area? See map above. (Please check one.)

Yes

No

I am not sure.

3. Do you own or lease land in the South Park deer herd area? See map above. (Please check one.)

Yes

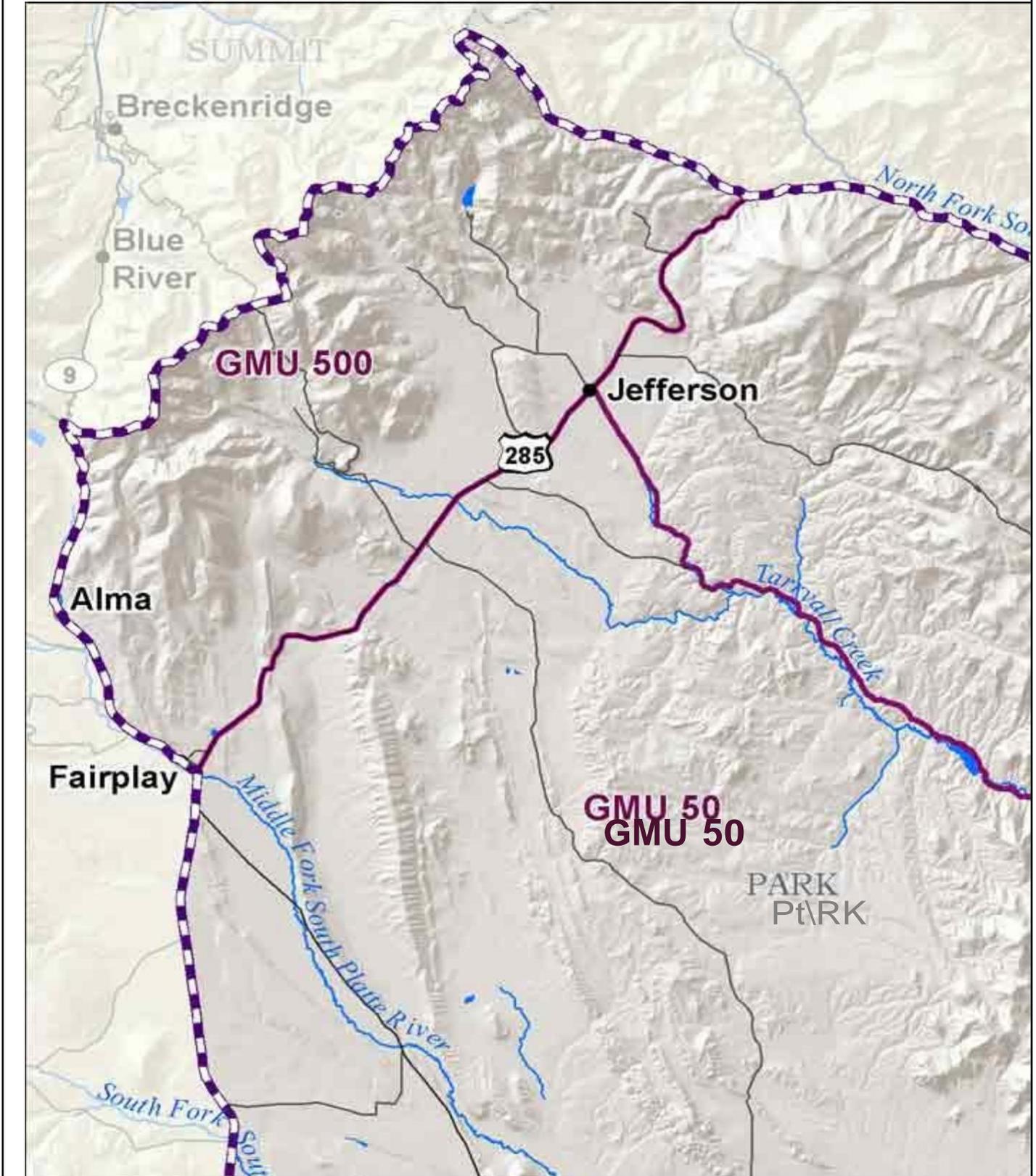
No

I am not sure.

South Park Deer Herd Management Plan

South Park Deer DAU survey

South Park Deer Herd Area



South Park Deer DAU survey



4. Are you enrolled in, or have you received landowner vouchers, through the Priority Landowner Preference Program? (Please check one.)

- Yes
- No
- I am not sure.

South Park Deer DAU survey

5. Which of the following represents your primary interest in the South Park deer herd? (Please check one.)

- Rancher or farmer
- Business owner
- Landowner
- Guide or outfitter
- Hunter or sportsman
- Outdoor recreationalist (non hunter)
- Member of environmental or conservation group
- Work for a governmental agency
- Other (please specify)

6. Have you ever hunted deer in Colorado? (Please check one.)

- Yes
- No
- I am not sure.

7. Have you ever hunted in GMU 50, 500, or 501? See map below. (Please check one)

- Yes
- No
- I am not sure.

South Park Deer DAU survey

8. Overall, how satisfied were you with your deer hunting experience in the GMUs 50, 500, and 501? (Please check one.)

- Very satisfied
- Somewhat satisfied
- Neither satisfied, nor unsatisfied
- Somewhat unsatisfied
- Very unsatisfied
- I am not sure.

9. On average, how many days do you spend hunting, scouting and/or observing deer in GMUs 50, 500, and 501 in a year? (Please check one.)

- 0 days
- 1-5 days
- 6-10 days
- 11-15 days
- 16-20 days
- More than 20 days

10. During which season do you prefer to hunt deer in GMUs 50, 500 or 501? (Check all that apply.)

- Archery
- 1st Rifle
- 2nd Rifle
- 3rd Rifle
- 4th Rifle
- Muzzleloader
- I am not sure.

South Park Deer DAU survey

11. Overall, how would you characterize the quality of your hunting experience in GMUs 50, 500, and 501 over the last ten years? (Please check all that apply.)

- Hasn't changed
- Quality of bucks has increased
- Quality of bucks has decreased
- Overcrowding has increased
- Overcrowding has decreased
- Other (please specify)

12. Please rank the following 4 items to reflect which is most important to the quality of your deer hunting experience in the South Park area.

There are 2 ways to do this:

- 1) Drag and drop the text into the order you would like it with your first choice at the top.**
- 2) Select a number from the drop down menu and the text will automatically be re-ordered according to the number you selected.**

<input type="text"/>	Seeing larger antlered bucks
<input type="text"/>	Seeing many deer of all sizes and ages
<input type="text"/>	Being outdoors
<input type="text"/>	Hunting with family and friends

South Park Deer Herd Management Plan

South Park Deer DAU survey

13. What do you consider to be the most significant issue affecting deer management in the South Park deer herd? (Please check one.)

- Lack of public access
- Seeing too many other hunters
- Lack of large antlered bucks
- Not enough deer
- Poor habitat conditions
- Drought
- Limited winter range
- Disease
- Predation
- Other (please specify)

14. How would rate CPWs management of deer in the South Park deer herd area? (Please check one.)

- Excellent
- Above average
- Average
- Below average
- Poor
- I am not sure.

Population objective

CPW establishes a desired population size in each herd management plan. CPW has been managing the South Park deer herd with a population target of 2450 deer and the population is estimated to at objective. This size is a balance between the biological characteristics of the herd and its habitat and the public's demand for recreational opportunities. When populations are near the desired population size, people can enjoy watching, photographing, and hunting deer while deer-human conflicts are minimized. If deer herd numbers are too low, it can be difficult for hunters and viewers to find deer. If deer herd numbers are too high, conflicts can increase with deer and vehicle collisions, agricultural damage, impacts to landscaping increase. In order to achieve a larger population size in the South Park area, CPW may need to decrease the number of hunting licenses issued to allow the population to increase. Once the higher population objective is reached, the number of deer licenses will likely be increased and stay at a higher level.

South Park Deer DAU survey

15. How would you like to see the population for the South Park deer herd managed for the next ten years? (Please check one.)

- Increase greatly
- Increase somewhat
- Stay the same
- Decrease slightly
- Decrease greatly
- I am not sure.

Ratio of male to female deer

Deer herds can be managed to provide hunting opportunity for a larger number of people or maximize the opportunity to harvest older, larger antlered bucks or somewhere in between. Maximizing the number of hunters who are able to hunt in an area will increase the number of buck licenses available and allow more people to hunt bucks in more years. Managing for older, larger antlered bucks will decrease the number of buck licenses issued every year and may cause an increase in the number of preference points needed to draw a buck license. There is a trade-off between managing for larger antlered bucks and the number of buck licenses issued. Currently, the South Park deer herd is managed to give more hunters opportunity to hunt in each year and not specifically managed for a high number of large antlered, older bucks. Buck hunters can hunt bucks every year or every other year under the current management.

16. How would you like to see the number of buck licenses managed for the South Park deer herd in the next ten years? (Please check one.)

- Managed for moderate levels of opportunity and quality of bucks. (This is the current management strategy.)
- Decrease the number of buck licenses to increase the number of bucks and antler size in the herd. This would result in less frequent ability to hunt bucks.
- Increase the number of buck licenses to increase hunting opportunity and allow more hunters to hunt more often.
- I am not sure.

South Park Deer Herd Management Plan

South Park Deer DAU Survey

17. In your opinion, what is the best way to inform the public on management of deer in South Park deer herd? (Please check all that apply.)

Newspaper

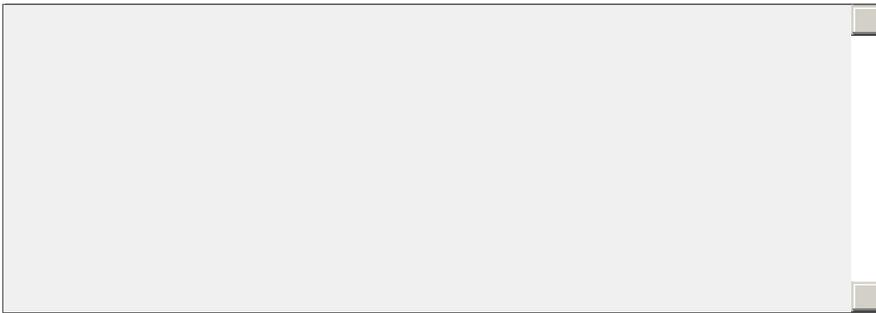
Web

CPW Press releases

Other governmental agencies' websites

Other

18. Please use the space below to share any additional comments you may have about the deer herd in the South Park area.



Thank you for completing this survey about the South Park deer management plan. If you have any additional comments or questions about the South Park herd management plan, please contact Shannon Schwab at 303-291-7367 or shannon.schwab@state.co.us.

South Park Deer Herd Management Plan

APPENDIX C: Summary of additional comments from the South Park Deer Herd Survey

Question 11: Overall, how would you characterize the quality of your hunting experience in GMUs 50, 500, and 501 over the last ten years?

The additional comments provided for this question are summarized in the three responses below.

- Haven't hunted here long enough to know.
- The number of deer overall has decreased.
- The number of bucks in the population has decreased.

Question 13: What do you consider to be the most significant issue affecting deer management in the South Park deer herd?

The additional comments provided for this question are summarized below.

- Deer numbers have declined.
- There are not enough bucks in the population.
- There are too many does in the population and not enough doe licenses.
- Overharvest of the deer population.
- Too many non hunter recreationalists in the area pushing the deer out of the area.
- Poor habitat and degraded habitat.
- Too many licenses issued.
- There is plenty of habitat and not enough deer.
- This DAU should be a trophy deer area.

Question 17: In your opinion, what is the best way to inform the public on management of deer in the South Park herd?

The additional comments provided are summarized into general categories below.

- Email
- Radio
- TV
- Game wardens talking to hunters
- Those who are interested already know
- Mailers

South Park Deer Herd Management Plan

Respondents were asked for additional comments on the South Park deer herd including the draft comment period. The following is a list of comments and summarized common themes:

- There is too much overgrazing year round.
- The DAU should be managed for trophy bucks.
- There aren't enough tags available.
- Increase the population and increase the buck ratio.
- There are too many hunters in GMU 501 and it's dangerous.
- GMU 501 should be managed separately from the rest of the DAU.
- Deer management has been good in this DAU.
- The habitat looks good and area has good potential to grow big bucks.
- Decrease doe tags
- Motorized access should be controlled better because there is too much off road motorized use and it's ruining the hunting.
- I would like to hunt every year-don't cut tags.
- I am happy with the current management plan.
- There should be more deer in the population.
- The herd has improved but not to a level I personally would like to see.
- Hunting is good and with good numbers of deer and good buck numbers.
- Decrease both buck and doe tags so the population can increase.
- Increase early season licenses and decrease later season tags.
- There are too many small bucks.
- Increase doe tags and decrease buck tags.
- There is not enough private land access.
- There are not very many mature bucks in the population.
- Regulations should be made to protect older bucks.
- There need to be more does licenses issued.
- There are too many non-hunter recreationalists disrupting hunting seasons.
- The deer herd is declining like the rest of the Western States.
- CPW does a good job overall, especially given the number of variables they have to deal with.
- There are many does in the population but not enough bucks so the buck ratio is too low.

South Park Deer Herd Management Plan

APPENDIX D: South Park Habitat Partnership Program Committee Letter



January 15, 2015

Shannon Schaller
Colorado Parks and Wildlife
6060 Broadway
Denver, CO 80216

RE: DAU Plan D-38 (South Park Deer, GMUs# 50,500,501)

Dear Shannon,

Thank you for the providing the information regarding Deer DAU Plan D-38 to the South Park Habitat Partnership Program committee. We appreciate you taking the time to keep us involved and informed.

After reviewing and discussing the plan, it is our consensus that we support Colorado Parks and Wildlife's recommendations of a post hunt objective of 2,500-3,000 deer and a herd composition-sex ration objective of 25-30bucks:100 does.

Thank you for allowing our committee to provide input and comment on this plan. We feel it is extremely important to find the balance between managing big game and reducing damage to livestock operators. We feel it is important to realize the positive economic importance of hunting to the local businesses and landowners. If you have any questions or concerns, please feel free to contact me at 303-838-9638 or by e-mail at woodwardcattle@wispertel.net. Thank you!

Sincerely,

John Woodward
South Park HPP Committee - Chairman