

# **KENOSHA PASS ELK MANAGEMENT PLAN**

DATA ANALYSIS UNIT E-18

GAME MANAGEMENT UNITS  
50, 500, 501

September 2007



Jack Vayhinger, Terrestrial Biologist  
Colorado Division of Wildlife  
7405 Highway 50  
Salida, CO 81201

## DAU E-18 (Kenosha Pass) EXECUTIVE SUMMARY September 2007

GMUs: 50, 500, and 501

Land Ownership: 31% Private, 58% USFS, 5% BLM, 6% State of Colorado

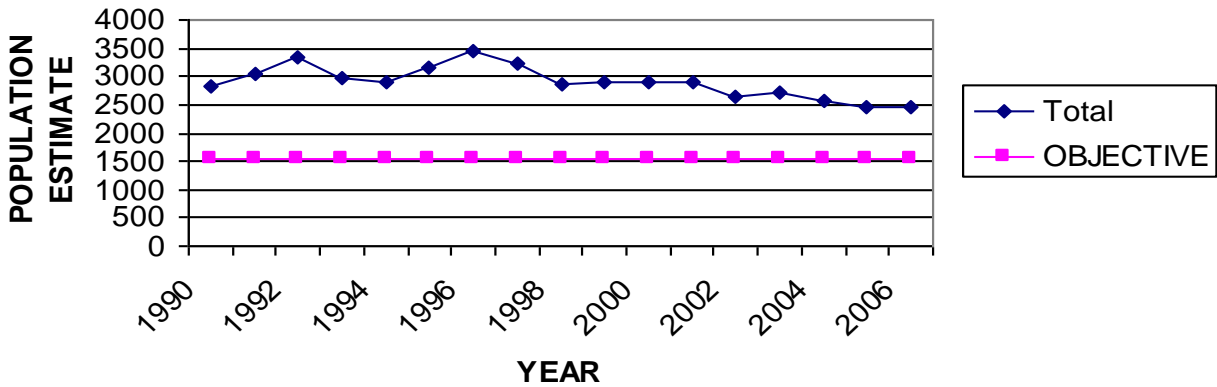
Posthant Population: Previous Objective 1,530 2006 Estimate 2,400

Current Objective 1,800 - 2,200

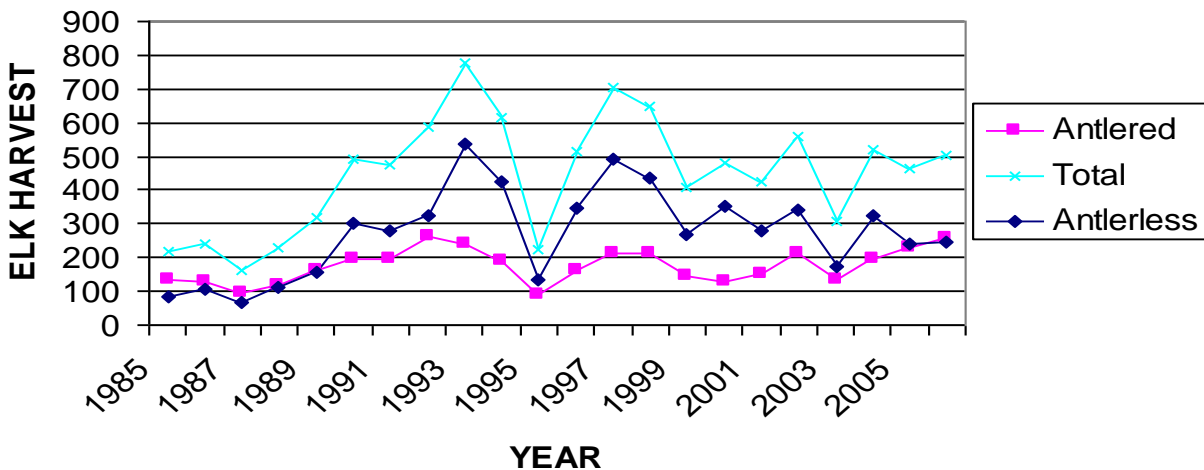
Posthant Sex Ratio: Previous Objective 35 2006 Observed 36 2006 Modeled 37

Current Objective 35-40

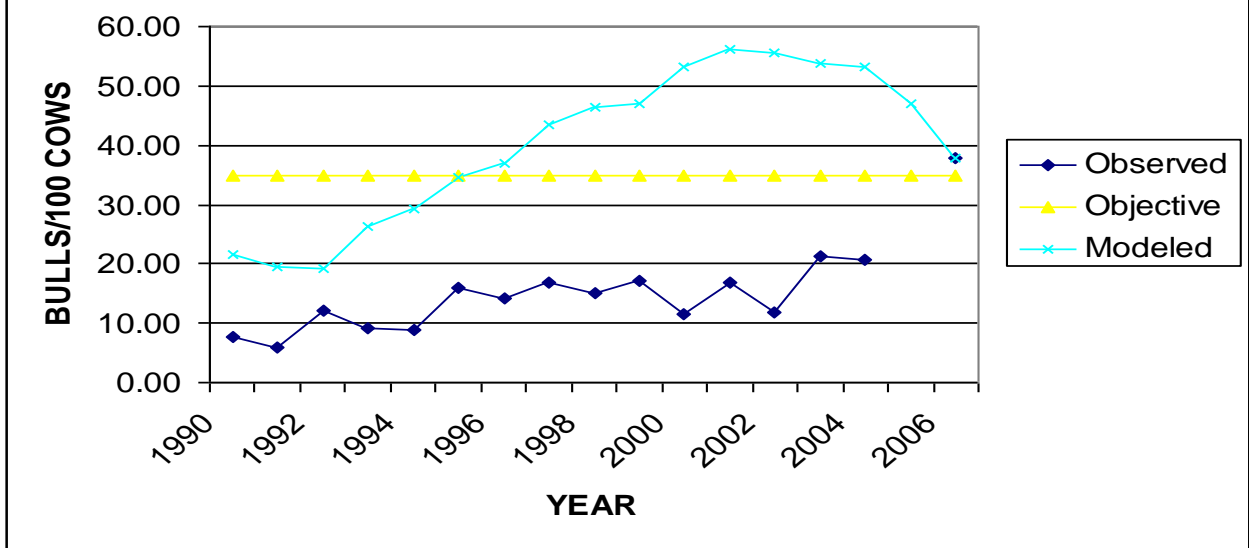
**Figure 1. E-18 Elk posthant population estimate, 1990 through 2006.**



**Figure 2. E-18 elk harvest, 1985 through 2006.**



**Figure 3. E-18 Sex Ratio, 1990 through 2006.**



**E-18 Background**

This Data Analysis Unit (DAU) has been managed as a quality hunting area since 1958 with limited bull and cow licenses. The population estimate peaked around 1996 at approximately 3,500 and as a result of aggressive cow harvest, has declined to the current estimate of 2,400. As part of the management regime to reduce the population, antlerless harvest has exceeded bull harvest for all but one of the last seventeen years. Snow conditions before and during the hunting seasons create significant fluctuation in annual harvest levels. Support for continuation of quality hunting opportunities and the resultant limitation on numbers of antlered hunters is strong in this DAU (81%).

Changes in land use and conversion of rangeland to residential subdivision have negatively impacted the carrying capacity of the area as well as impacting hunter access and harvest success. While there is adequate forage in most years for a larger population (4,500) than currently exists in the DAU (2,400) based on a habitat assessment model developed for Colorado’s HPP program, localized conflicts with agricultural producers still occur. There is relatively little hay production in this DAU and no game damage claims have been paid, but complaints of forage competition and fence damage have increased in the last two years.

**Management Issues and Strategies**

267 responses to a public opinion questionnaire were received. 56% favored an increase in population, 29% recommended no change, and 11% preferred a decrease

in population. 26 survey respondents identified themselves as landowners who are ranchers or farmers, owning 31,456 acres. Of those 26, 24% indicated their preference was no change in the current population, 20% preferred a slight increase, and 24% preferred a slight decrease. The habitat evaluation model, with adjustments for the drought conditions that occurred in recent years, indicates the current population can be supported without risk of habitat degradation.

Management tools such as 1) an extended private land only cow elk season, 2) two late cow seasons, 3) distribution hunts, 4) a hunt coordinator provided by the HPP committee, and 5) provision of a game damage fence, are being used to respond to the few site specific conflict areas in the DAU. Those conflict sites are attractive habitats that would have conflicts even if the population was reduced significantly so site specific management actions have been undertaken.

The South Park Habitat Partnership Program (HPP) committee, in cooperation with the Colorado Division of Wildlife (CDOW) and United States Forest Service (USFS), is actively promoting habitat improvements in areas that can support more elk or where elk use is not problematic. The goal of this effort is to move as much of the elk use as possible to habitats on public lands where there are no or very limited conflicts.

Observed bull/cow ratios in E-18 have been very low compared to estimated ratios due to the relatively mild winters in most of this DAU and use of forested habitats. Bulls are able to winter throughout the area and are difficult to find during standard surveys. Cow/calf groups, on the other hand, often spend the winter in large groups and in open areas which has resulted in overrepresentation in age and sex ratio surveys. A random point sex and age classification survey was utilized in 2007 which resulted in a higher observed bull/cow ratio of 36/100. Although the more intense survey likely still underestimates the true sex ratio, this year's survey design and intensity resulted in more accurate sex ratio estimates.

The more intensive aerial survey combined with greater than average snow cover also resulted in an increase in the estimated elk population. The prior estimate of 1,750 was increased to 2,400 when 1,990 elk were classified in the February 2007 aerial survey. The above average snow cover may have caused more elk than normal to migrate into E-18 from adjacent DAUs which would also contribute to the higher population estimate in 2007.

### **E-18 Management Alternatives**

Three population objectives were considered, 1) A 25% reduction from the current population estimate; 1,600 to 2,000; 2) The current population estimate of 2,200 to 2,600; and 3) A 25% increase to 2,800 to 3,200.

Three sex ratio alternatives were also considered, 1) a reduction to 25 to 30 bulls per 100 cows; 2) 35 to 40 bulls per 100 cows which is the current estimate and objective; and 3) 45 to 50 bulls per 100 cows. Public input from hunters and landowners (81%) support maintenance of the current or a higher sex ratio objective.

### **Long term objectives**

The CDOW will manage for a population of 1,800-2,200 as recommended by the South Park Habitat Partnership Program committee. This objective is a 17% reduction from the current population estimate. The CDOW will manage for a post-hunt sex ratio alternative of 35-40 bulls:100 cows (Alternative 2). This alternative represents no change from the previous objective and the 2007 post season estimate.

*This plan was approved by the Colorado Wildlife Commission on September 13, 2007.*

# DRAFT - KENOSHA PASS ELK MANAGEMENT PLAN - DRAFT

## Table of Contents

Executive Summary.....	2
Table of Contents .....	6
Introduction and Purpose.....	8
Description of DAU E-18.....	10
Location .....	10
Physiography .....	11
Vegetation .....	11
Climate .....	11
Land Status .....	12
Land Use .....	12
Forage Production .....	13
Elk Distribution .....	14
Herd Management .....	16
Post Hunt Population Size .....	17
Post Season Herd Composition .....	17
Harvest .....	19
Current Management Issues .....	21
Development of Alternatives .....	22
Population Alternative Discussion .....	23
Sex Ratio Alternative Discussion .....	24
Recommended Objectives .....	25
Final Management Objectives .....	26
Literature Cited .....	27

### Appendices

Appendix 1. Landownership, Elk Conflict, and Elk Distribution Maps .....	28
Appendix 2. Mail Survey form with responses .....	32
Appendix 3. Comments on draft plan.....	49

### List of Figures

Figure 1. E-18 Population estimate, 1990 – 2006 .....	2
Figure 2. E-18 Harvest, 1985 – 2006 .....	2
Figure 3. E-18 Post-hunt bulls/100 cows, 1990 – 2006.....	3
Figure 4. Management by objective process .....	8

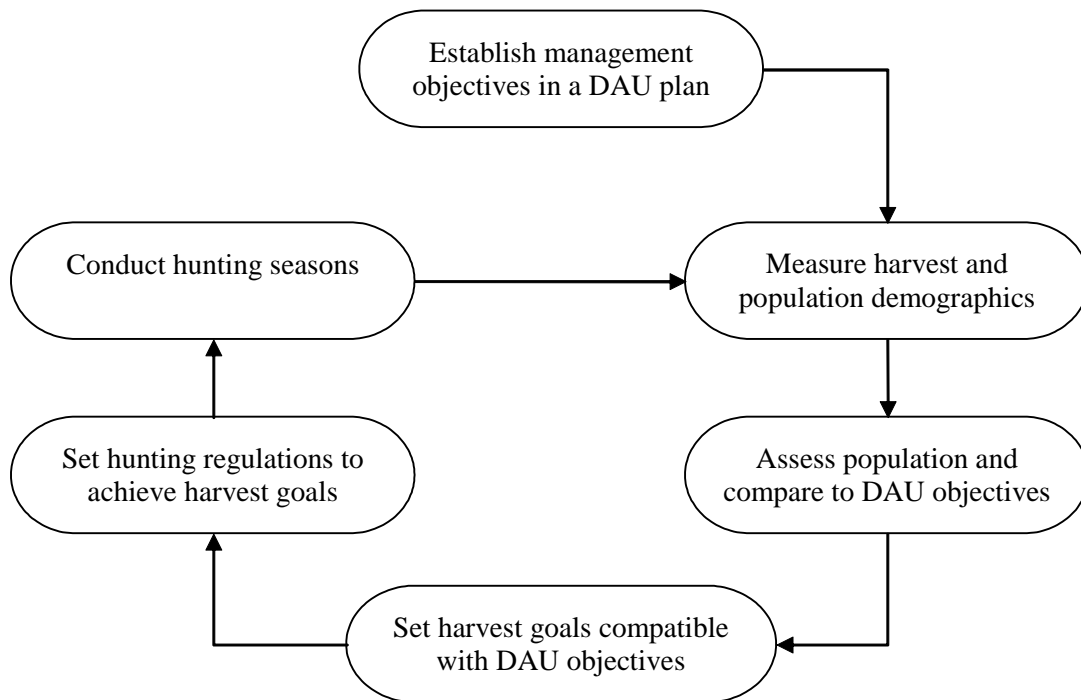
Figure 5.	Map of E-18 .....	10
Figure 6.	E-18 Post-hunt population estimate, 1990 – 2006.....	17
Figure 7.	E-18 Observed age ratios, 1990 – 2006 .....	18
Figure 8.	E-18 Post-hunt sex ratios, 1990 – 2006 .....	19
Figure 9.	E-18 Harvest, 1985 – 2006 .....	20
Figure 10.	E-18 Total hunters and percent success, 1985 – 2006.....	20

#### List of Tables

Table 1.	Land ownership within E-18 .....	12
Table 2.	E-18 Habitat categories .....	15

## INTRODUCTION AND PURPOSE

The Colorado Division of Wildlife (CDOW) manages wildlife for the use, benefit and enjoyment of the people of the state in accordance with the CDOW's Strategic Plan and mandates from the Colorado Wildlife Commission (CWC) and the Colorado Legislature. Colorado's wildlife resources require careful and increasingly intensive management to accommodate the many and varied public demands and growing human impacts. The CDOW uses a "Management by Objective" approach to manage the state's big game populations (Figure 4).



**Figure 4. Management by Objective process used by the Colorado Division of Wildlife to manage big game populations by Data Analysis Unit.**

In this approach, big game populations are managed to achieve population objectives established for a Data Analysis Unit (DAU). A DAU is the geographic area that includes the year-round range of a big game herd. A DAU includes the area where the majority of the animals in a herd are born, live and die. DAU boundaries are delineated to minimize interchange of animals between adjacent DAUs. A DAU may be divided into several GMUs in order to distribute hunters and harvest within a DAU.

Management decisions within a DAU are based on a DAU plan. The primary purpose of a DAU plan is to establish population and herd composition (i.e., the number of males per 100 females) objectives for the DAU. The DAU plan also describes the strategies and techniques that will be used to reach these objectives. During the DAU planning process, public input is solicited and collected through questionnaires, public meetings and comments to CDOW staff and the CWC. The intentions of the CDOW are



integrated with the concerns and ideas of various stakeholders including the United States Forest Service (USFS), the Bureau of Land Management (BLM), hunters, guides and outfitters, private landowners, local chambers of commerce and the general public. In preparing a DAU plan, agency personnel attempt to balance the biological capabilities of the herd and its habitat with the public's demand for wildlife recreational opportunities. DAU plans are approved by the CWC and are reviewed and updated every 10 years.

The DAU plan 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 DAU plan. Hunting seasons are then set and licenses are allocated to either maintain the population or move it toward the objectives.

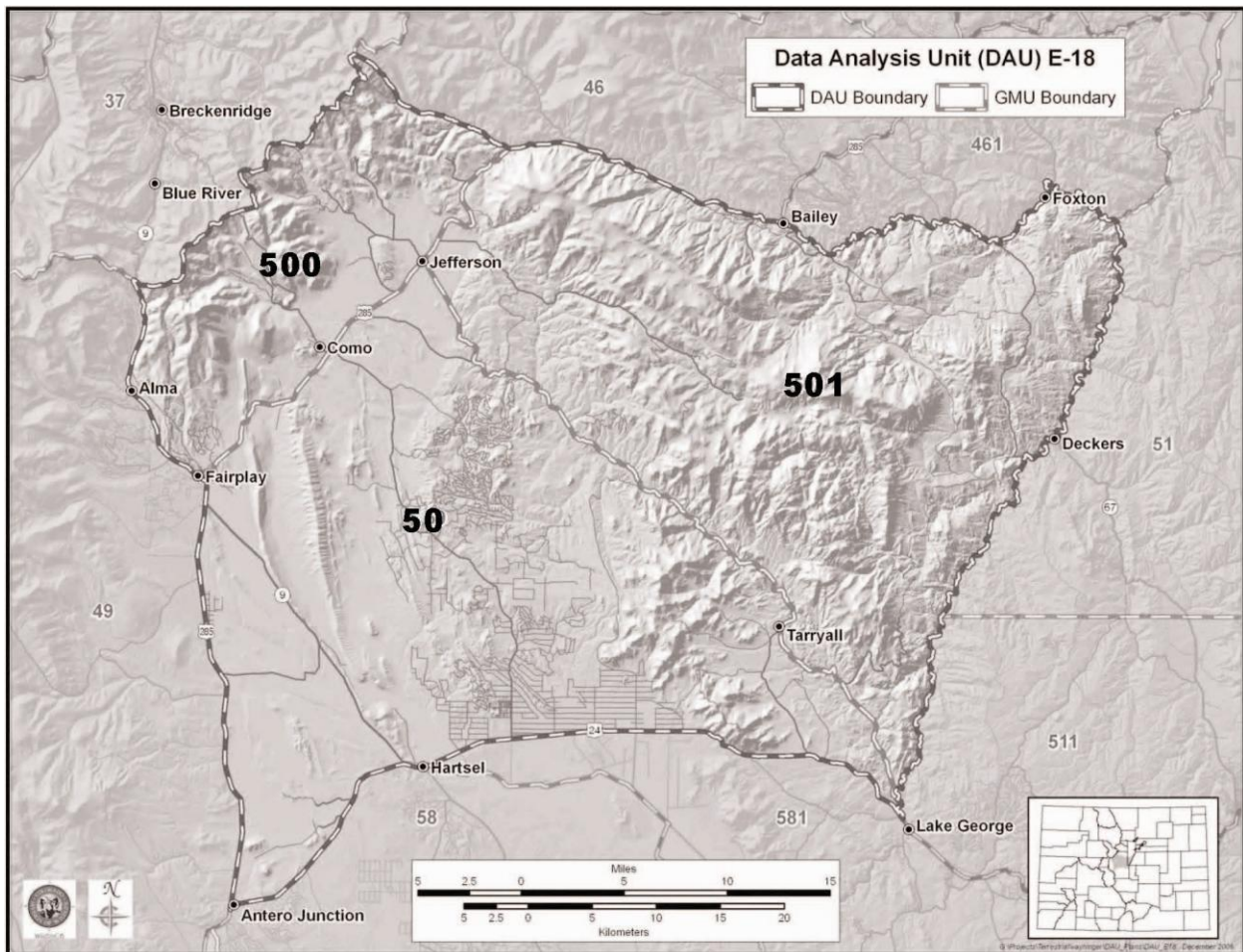
# DRAFT

## Description of Data Analysis Unit E-18

### Location

The Kenosha Pass elk DAU (Figure 5) encompasses an area of 1,163 square miles in central Colorado, beginning 12 miles southwest of Chatfield Dam in southwestern Denver, and 30 miles west of Colorado Springs. It includes game management units (GMUs) 50, 500, and 501. The DAU is bounded on the north by the Continental Divide and the North Fork of the South Platte River, on the east by the South Platte River, on the south by Colorado Highway 24, and on the west by U. S. Highway 285. The DAU includes the central and eastern portion of Park County and the south end of Jefferson County.

Figure 5. E-18 Map.



## Physiography

The area comprises the center and northern half of South Park, as well as the mountains making up the northern and eastern boundaries of the park. GMU 50 includes the flats of South Park east and south of Highway 285 to Highway 24. It also includes the Puma Hills which rise to make up the eastern boundary of the park itself. Unit 500 includes a small part of the flats of South Park north of Highway 285 and rises rapidly to the top of the Park Range of mountains which make up the northern boundary of the park. Unit 501 includes the Tarryall and Kenosha Mountain Ranges and descends to the South Platte River valley to the east. Elevations range from 13,822 feet at Mount Silverheels, north of Fairplay down to 6,100 feet at the confluence of the North Fork of the South Platte River with the main stem of the South Platte River where the river leaves the northeast corner of the DAU. The DAU includes much of the headwaters of the South Platte River drainage. The bottom of South Park ranges from 8,800' to 10,000' in elevation.

## Vegetation

The northern border of the DAU, along with portions of the Tarryall and Kenosha Mountains, is in the alpine tundra lifezone (above 11,500') and is characterized by sedges, forbs, and willows. As the elevation drops, subalpine forest is the next lifezone (9,000'-11,500') dominated by subalpine fir, Engelmann spruce, aspen and bristlecone pine forests with interspersed meadows. The montane forest (5,600'-9,000) contains primarily ponderosa pine, Douglas-fir, lodgepole pine, and aspen. Riparian areas along most rivers and streams include narrowleaf cottonwood, willow, cinquefoil, current and an understory of sedges, forbs and grasses. The shortgrass prairie of South Park supports grasses and forbs with fringed sage and rabbitbrush creating a low overstory. Agricultural cropland in the DAU is now very limited and what remains consists of native grass hay fields in South Park and along some tributaries of the South Platte River. Most historically irrigated croplands have been dried up by transfer of the water rights to municipal uses downstream along the Front Range.

## Climate

As with all of mountainous Colorado, the climate varies significantly with season, elevation and aspect. Elevations below 7,500 feet are typically warm in the summer and the south slopes generally remain snowfree during most of the winter. Elevations between 7,500 feet and 9,500 feet have somewhat cooler and wetter summers with persistent snow cover on north aspects during the winter. South-facing slopes normally remain open or have minimal snow cover throughout the winter. Above 9,500 feet elevation the climate is much cooler and wetter during the summers and north slopes are snowcovered all winter except for windswept ridges above timberline.

Annual precipitation is highly variable from site to site and ranges from ten inches per year in portions of South Park to over 25 inches at the highest elevations. Snowfall accounts for the majority of the precipitation in the DAU with thunderstorms adding significant localized volumes in the summer. The bottom of South Park generally receives much less moisture than the surrounding mountains because of the rain-shadow effect from the Mosquito Mountains. Summer thunderstorms created by thermals over the park generally travel to the east before releasing much precipitation.

Winter temperatures range from average daily lows of -3 degrees Fahrenheit at Hartsel to 9 degrees at Grant and Cheesman in January. Summer temperatures vary from average daily highs of 75 at Hartsel and Grant to 84 degrees at Cheesman and Pine in July and August.

## Land Status

The Kenosha Pass elk DAU encompasses 1,163 square miles (Table 1). Private lands total 367 square miles, or 32% of the DAU, while public lands total 793 square miles or 68%. The higher elevation portions of the DAU are in the Pike/San Isabel National Forest, divided between the South Park and South Platte Ranger Districts. National Forest lands total 671 square miles and comprise 58% of the DAU. Bureau of Land Management (BLM) lands are scattered across the bottom of South Park and are managed by the Royal Gorge field office. BLM lands total 53 square miles which is 5% of the DAU. Occasional parcels of State Trust Lands are dispersed through South Park totaling 27 square miles which is 2% of the DAU. The CDOW owns or manages 42 square miles, or 4% of the DAU. The primary purpose of several CDOW properties is fishing recreational access. The remainder provide big game habitat and hunting recreation. The Division, with the assistance of the South Park HPP Committee, manages the forage on several properties to attract and hold elk to reduce conflicts on nearby private land that is used for livestock grazing or hay production.

Table 1. Land ownership within E-18 (square miles, percent of GMU).

<b>GMU</b>	<b>Private</b>	<b>% Private</b>	<b>USFS</b>	<b>% USFS</b>	<b>BLM</b>	<b>% BLM</b>	<b>Colorado</b>	<b>% Colo.</b>
<b>50</b>	269.4	53.9%	112.1	22.4%	50.5	10.1%	66.1	13.2%
<b>500</b>	46.6	28.8%	110.7	68.4%	2.4	1.5%	2.1	1.3%
<b>501</b>	50.8	10.1%	447.7	89.3%	.1	.1%	1.1	.2%
<b>Total DAU</b>	366.8	31.5%	670.5	57.7%	53.0	4.6%	69.3	6.0%

## Land Use

Land use in this DAU has changed significantly in the last 25 years. The majority of water rights used to irrigate hay fields that provided winter feed for the local livestock producers have been sold to downstream municipalities along the Front Range. Land on the ranches those water rights supported was then often sold for subdivision. As

residential use expanded through Jefferson County and into Park County, significant volumes of the most critical habitat types for elk and deer, all types of winter ranges, were severely impacted because those areas are more desirable for residential development than the open bottom of the park or the heavily forested hillsides. A significant portion of the privately owned lands in the DAU have now been subdivided to provide seasonal and year-round residential developments. Construction densities vary from one building per acre to one building per 40 acres.

Multiple uses of the public lands in the DAU include heavy recreational use of both National Forest and BLM lands throughout the year. Recreational activities include hiking, camping, horseback riding, mountain biking, ATV and snowmobile riding, four wheeling, wildlife watching, hunting and fishing. Additionally, most of the public lands have seasonal grazing allotments. There is only a small amount of logging, primarily for disease control or salvage timber sales of beetle killed trees or for habitat improvement for deer and elk. Mining has been a significant historic use of public and private lands but has decreased to a very low level of activity at the current time.

Non subdivided private lands are generally in agricultural production, either by livestock grazing or hay production, however, there has been a steady and accelerating rate of conversion from agricultural status to subdivision for residential development. A significant portion of the important winter ranges for this elk herd has already been converted or is vulnerable to this change in land use.

## Forage Production

The Natural Resource Ecology Lab at Colorado State University analyzed current forage production levels in this DAU utilizing the Habitat Assessment Model developed for the Colorado HPP program. Current habitat use maps for this DAU and adjacent units within the South Park HPP committee's area (GMUs 50, 500, 501, 46, 461 and the east half of 49) were used to determine the extent of elk winter range. Average forage production volumes were established by soil type for the current precipitation conditions based on estimates from the Natural Resource Conservation Service, U.S. Department of Agriculture. A total forage production volume was calculated using these values. Because this volume is not totally palatable or physically available, this total was reduced by 10% to 30% to arrive at an available and useable forage total.

The effective and available forage volume was then reduced by 50% to provide for maintenance of landscape sustainability, basically, the "take half-leave half" range management principle. All domestic livestock forage requirements, based on the 10 year average of livestock numbers in the DAU, were then subtracted to arrive at the amount of forage available to sustain elk and deer. As a result of that analysis the winter range was estimated to be able to support approximately 4,500 elk and 4,500 deer (range 2,700 to 6,400 of each species) in GMUs 50, 500 and 501 during average precipitation years. The current deer and elk population estimates for these units are

2,500 and 2,400 respectively, which is considerably below current estimated forage capacity.

## Elk Distribution

Elk occupy all habitats and areas of the DAU at some time of the year (Appendix 1). Densities are low in the open portions of South Park elevation habitats year-round, but especially during the summer when most elk move up to traditional calving and summering areas at higher elevations. During the winter, most elk move to lower elevation winter ranges as snow accumulates on the higher elevations and northern aspects. Because of the relatively mild and dry winters, winter ranges often extend to above 10,000 feet in elevation. Some elk, especially bulls, will use windswept ridges at even higher elevations during the winter. Approximately 40% of the DAU can and does serve as winter range in normal winters with some concentration occurring in preferred habitats. During severe winter periods, which are unusual in this DAU, habitat utilization can be reduced to approximately five percent of the overall range.

Radio collar studies over the last 10 years, funded by the South Park HPP committee and the CDOW, have shown significant immigrations of elk from adjacent GMUs outside of this DAU. Recent estimates range from 200 to 300 elk (10% to 15% of the population) entering the DAU each winter with historical estimates reaching as high as 700 elk (30%). Deeper snow conditions during the 2006/2007 winter may have increased immigration to levels above recent norms. In 2004 approximately 500 additional elk entered the DAU from GMU 49, to the west, for the first time, but returned to 49 in late winter. Elk from GMU 37, south of Interstate 70, and GMU 46 east of Kenosha Pass join herds originating in the DAU during the winter. Normally, this immigration occurs after the four regular rifle hunting seasons. Since 1997 the winter population estimate for this DAU has included these migrants with the exception of the one time immigration from GMU 49.

Wintering herds of elk can number 200 to 400 animals with these groups occasionally aggregating into a herd exceeding 1000 elk for short periods of time. The largest herds routinely break up into the smaller 200 to 400 animal groups within a few days as they disperse into different areas of winter range. The groups of 200 to 400 are often short lived, as well, since smaller groups of elk are continuously joining and separating from these herds.

The large groups of elk that develop in this DAU, however, tend to create more concern and conflicts than if they were distributed over larger areas in smaller sized groups. If large groups utilize or even pass through private agricultural lands, they can impact fences and residual forage to an increased extent. If these groups stay in an area they can cause even more concern. The South Park HPP committee has hired a hunt coordinator/elk hazer who, in coordination with CDOW personnel, either direct

distribution hunters if those hunts are established, or haze elk away from established conflict areas.

These wintering groups of elk often move into the bottom of South Park and adjacent winter ranges in response to forage quality. Forage in the portions of the winter range supporting grazing by domestic livestock, as well as higher use by the elk herd itself, is of higher palatability and digestibility than ungrazed areas (Stoddart and Smith 1955, Savory 1988). Thus, the private and public lands supporting domestic livestock tend to attract elk use at a higher rate than those portions not providing grazing use (Anderson and Scherzinger 1975, Heitschmidt 1990, Grover and Thompson 1986). The areas without grazing, primarily private lands in subdivision or non-agricultural use, and portions of the public lands without grazing allotments, tend to have larger standing biomass of unused forage but often this has accumulated over the preceding five years and has poor nutritional value. Hence it is less attractive to elk when they have a choice (Frisina and Morin 1991, Frisina 1992, Severson and Urness 1994).

GMU 501 tends to have lower elk densities than the remainder of the forested habitats in the DAU, especially during the winter. Large scale wildfires in GMU 501 in the recent past, including the Hayman, Buffalo Creek and Meadow Creek fires, show increased elk use due to the improved forage conditions.

The mosaic of land ownership and land use in this DAU presents unique challenges to managing the elk herd. The interspersed mountain subdivisions and private ranch lands that are closed to hunting create refuges which elk seek out during hunting seasons.

Appendix 1 has elk distribution maps for summer activity areas, three levels of winter activity areas, and areas where conflicts exist with the elk herd. Conflicts from both perspectives are indicated, where elk cause conflicts with agricultural producers and areas where the conflict is inadequate opportunity for elk harvest because of land use conditions and hunting access restrictions.

Table 2. E-18 habitat categories (square miles).

<b>GMU</b>	<b>Overall Range</b>	<b>Winter Range</b>	<b>Severe Winter Range</b>	<b>Winter Concentration Area</b>
<b>50</b>	500.0	216.0	40.8	38.1
<b>500</b>	162.0	54.0	16.6	0.0
<b>501</b>	501.0	179.0	1.3	5.2
<b>DAU Total</b>	1,163.0	449.0	58.7	43.3

## Herd Management

The post-season population size is estimated each winter from computer simulations utilizing annual elk harvest data gathered by the CDOW, age and sex ratio sample surveys conducted by CDOW personnel, and population trend estimates based on all of the above information. Estimating numbers of free ranging elk over this large of a geographic area is an extremely difficult and approximate science. Thus the population objectives considered in this plan are designated as ranges to reflect the fact that each year's population estimate may vary according to changes in hunting and counting conditions, survival rates, and winter snow conditions.

Initially, this DAU consisted of one large GMU designated as unit 50. In 1972 GMU 50 was subdivided into GMUs 50 and 501 and in 1975 the DAU was further subdivided into the current arrangement of GMUs 50, 500, and 501. Elk hunting started with 30 antlered only licenses, in the portion of the DAU that is now GMU 500, in 1958. Hunting in the portion of the DAU that is now GMU 501 started with 20 bull licenses and 20 cow licenses in 1961. Elk hunting in the portion that is now GMU 50 started with unlimited antlered-only hunting in 1962 and shifted to "specified" with totally limited bull and cow licenses, in 1983.

The entire DAU was established as a "quality" elk hunting unit in 1990 when that terminology was initiated. While not impacting the population size, this management regime has kept the bull/cow ratio higher than unlimited bull hunting would have allowed. Additionally, managing the DAU as a "specified" and later, "quality," and "limited opportunity" area has limited hunter crowding during the hunting seasons. Initially, the DAU's proximity to the large pool of hunters on Colorado's Front Range caused the limitation in bull hunter numbers to reduce the possibility of over-harvest of the male segment of the population.

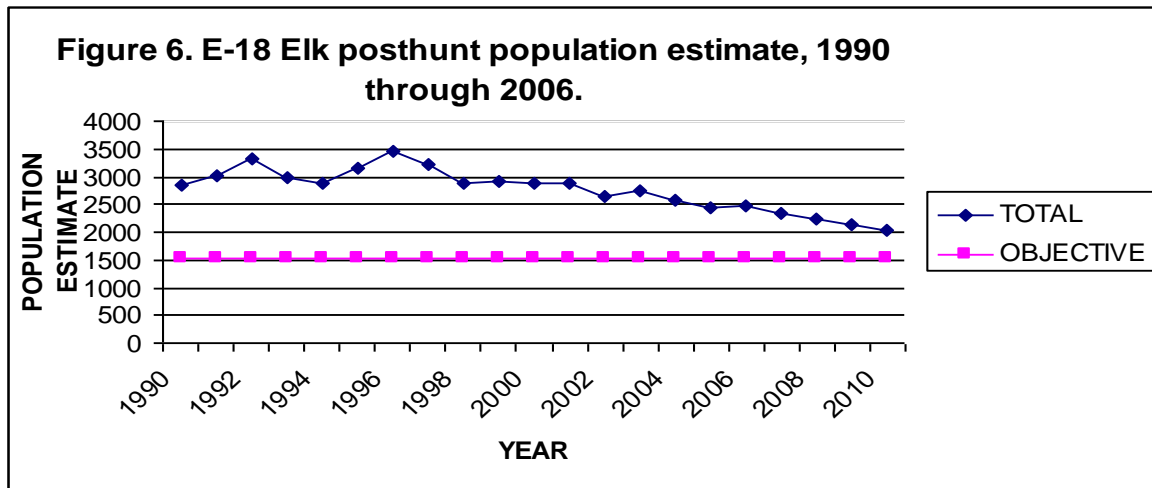
Since 1990 management of the population has been directed at a slow reduction of total numbers with a preponderance of the harvest on the female segment of the population to reduce the reproductive potential of the herd. Annual harvest levels are directly influenced by weather and snow conditions during the hunting seasons. Experience has also shown that the law of diminishing returns applies to hunter numbers and density compared to total harvest. As hunter numbers increase, total harvest tends to decrease. This is believed to be a result of more elk being moved to areas where they are not available for harvest, earlier in the hunting seasons as hunter density increases, thus resulting in a decrease in total harvest. In response to this situation, the CDOW added first one and now two late cow-only seasons to increase harvest levels without increasing hunter densities and direct that harvest at the reproductive segment of the population as well as at the immigrating portion of the population which are not in the DAU during the four regular rifle hunting seasons.



Further, the 2007 hunting season will see the addition of a Private-Land-Only cow season that will direct hunter efforts at the portion of the population that is causing conflicts with livestock operators on their private lands. This hunting season will be open from September 1<sup>st</sup> through January 31<sup>st</sup> so hunters can harvest, and their hunting activity can move, elk from specific private lands where landowners so desire at the time conflict exists.

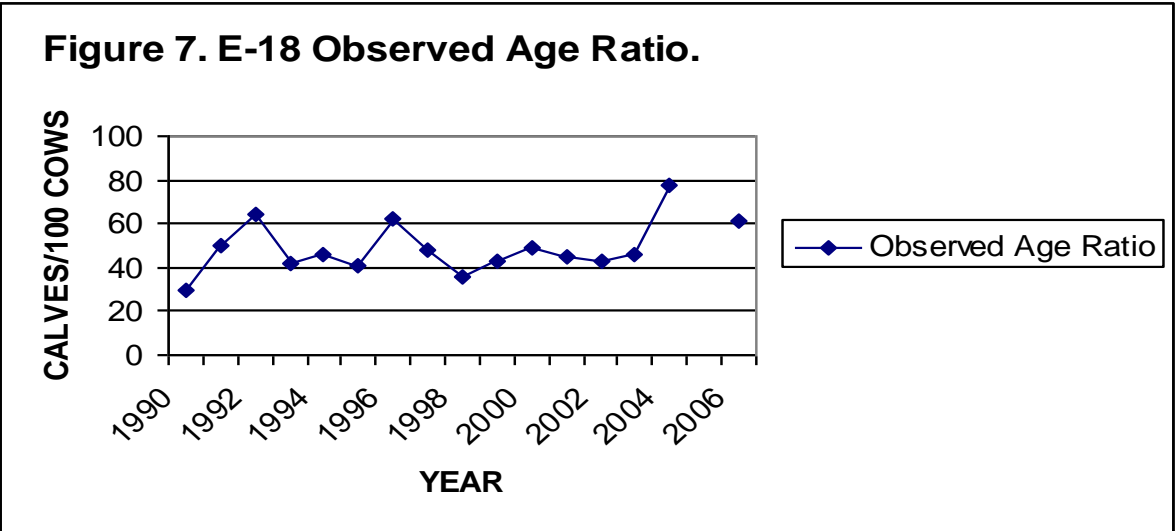
## Post-Hunt Population Size

The estimated post-hunt population size (Figure 6) has decreased over the last 10 years. As a result of an intensive aerial survey conducted in early 2007 when 1,990 elk were classified, the current estimate for this DAU is now 2,400 elk at posthunt 2006.



## Post Season Herd Composition

Herd composition data has been acquired with a combination of helicopter and limited ground surveys by DOW personnel from the end of November to mid February of each year. Aerial surveys have occurred in 16 of the last 17 years with sample sizes ranging from 877 elk classified in 2003 to 1,990 classified in 2007, with a ten year average sample size of 1,540 elk classified from 1995 through 2004. Figure 7 shows the age ratio data from the combined counts. Age ratios have averaged 49.4 calves per 100 cows over the last ten surveys. The majority of calf classifications in posthunt 2004 and 2006 (no aerial survey in 2005) were done by a different observer under difficult aerial counting conditions in 2004 and from the ground in 2006 and resulted in higher age ratios than most previous years' aerial counts.

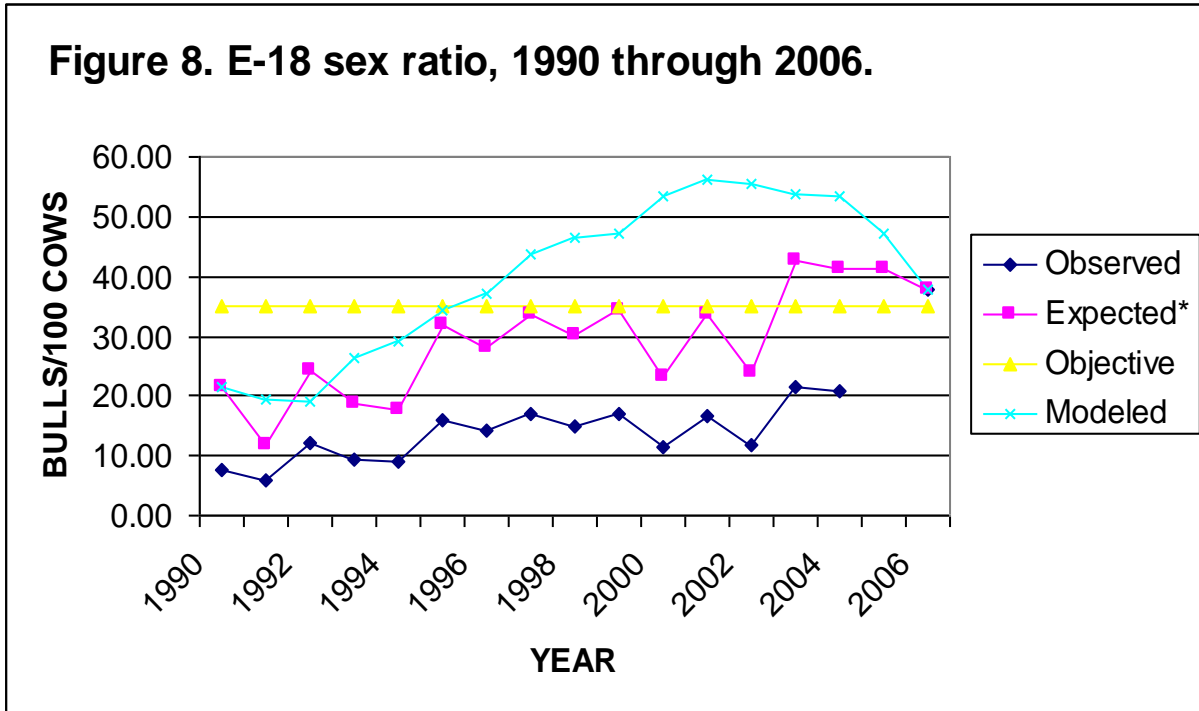


Sex ratios are obtained in the same aerial surveys as age ratios. Both ground and aerial surveys favor the classification of larger groups of elk and groups in more open habitats. These groups typically are made up of cows, calves and younger bulls. Due to the limited amount of snow most years in this DAU and the tendency of mature bulls to winter in heavier cover and at higher altitudes, bulls are harder to find and are under-represented in classification surveys. Population models and harvest success rates indicate that the typical aerial surveys identify 50%, or less, of the bulls in this habitat type. Harvest calculations and population models both suggest the actual ratios are at least in the range of 35 to 45 bulls per 100 cows.

In an effort to obtain a more representative sex ratio for the herd, a random point aerial survey technique was used in February, 2007. Additionally, flight hours were doubled from normal levels. That survey found 36.5 bulls per 100 cows in a classification of 1,816 elk throughout the DAU. Even with this technique, there is a tendency to miss a higher proportion of bulls than cows. Therefore, the 36.5 bulls per 100 cows should be considered a minimum value for the sex ratio in E-18.

Figure 8 shows the observed sex ratio in E-18 from aerial surveys, the expected sex ratio (\*) based on 50% bull sightability, the current objective of 35 bulls per 100 cows, and the modeled sex ratio for the DAU. Bulls tend to be more mobile than cows and have greater movements during their yearling year. This contributes to their leaving a DAU with higher sex ratio to emigrate to adjacent DAUs with lower sex ratios. Computer simulations do not account for this movement over DAU boundaries, however, which leads to higher predicted sex ratios than actually occur.

**Figure 8. E-18 sex ratio, 1990 through 2006.**



## Harvest

Harvest in E-18 varies through the years, primarily due to weather and snow conditions during the hunting seasons (Figure 9). However, in an effort to achieve the current long term population objective of 1,530, average annual hunter numbers have almost tripled since 1990 as compared to the previous 16 years (Figure 10). Total hunter numbers averaged 2,248 per year from 1990 through 2006. From 1974 through 1989 annual hunter numbers averaged 842.

During that same time period, total annual harvest has also tripled from an average of 175 elk harvested per year from 1974 through 1989, up to an average of 514 elk harvested per year from 1990 through 2006. Antlerless permits have made up the bulk of the increase in the effort to reduce the population to the current goal. Harvest in 1995 was exceptionally low, primarily as a result of very low hunter success (11% for all methods) due to a warm and dry fall with no snow. Total elk licenses were also reduced by 350 that year in response to complaints about hunter crowding. Success rates averaged over 28% for the three years before and three years after 1995.

Figure 9 shows the total harvest with each age and sex component since 1985. Antlerless harvest has exceeded antlered harvest for all but one of the last eighteen years. As a result of increased harvest, the population estimate has been in a steady decline.

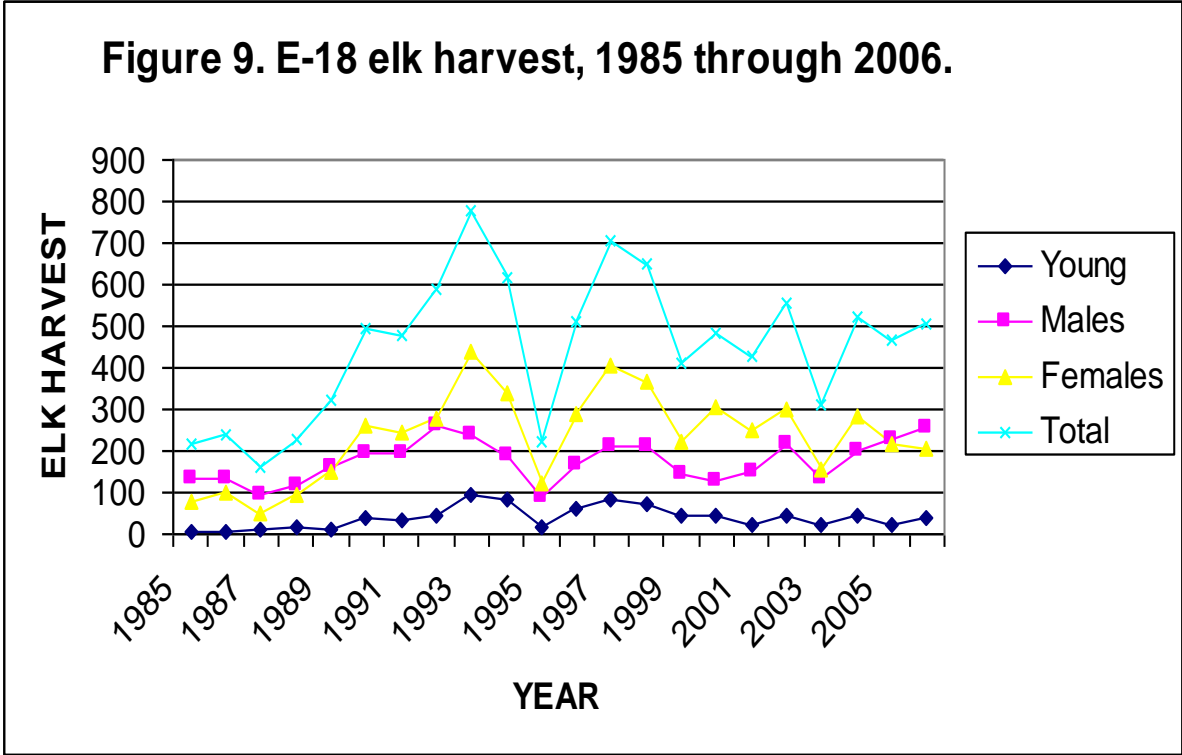
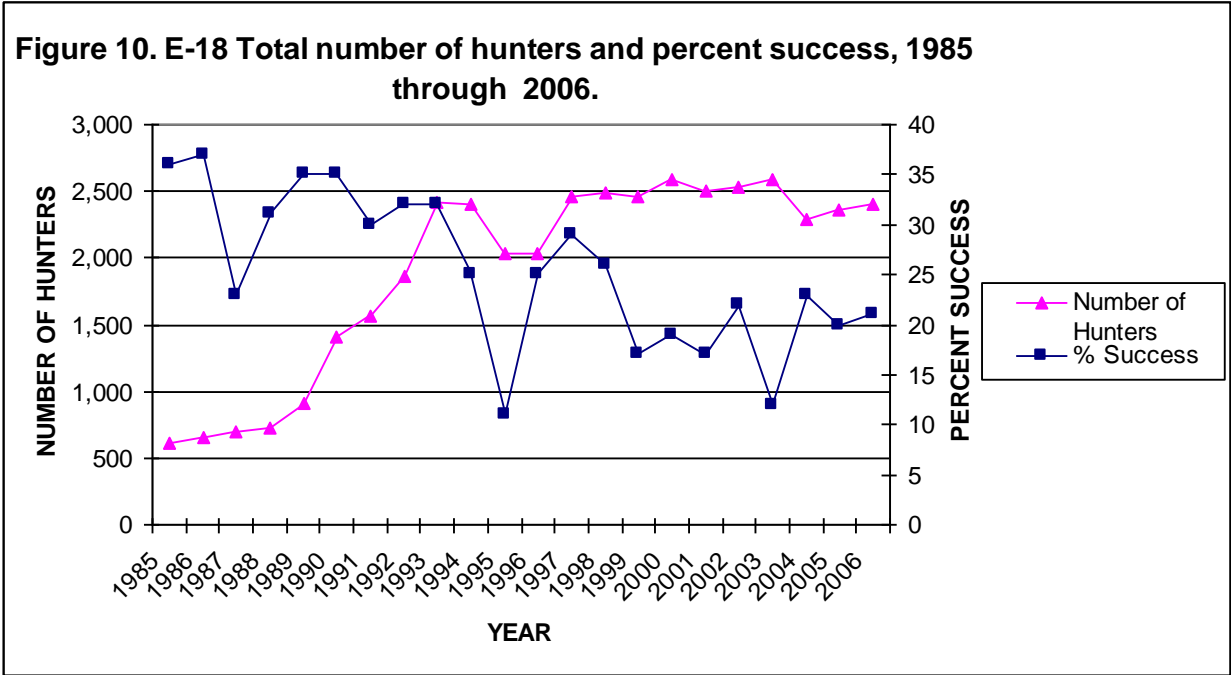


Figure 10 shows the total number of hunters and hunter success rates for the same time period. As the number of licenses increased, hunter success has decreased from an average of 32% from 1985 through 1989, to 20% for the last five years.



## Current Management Issues

E-18 contains adequate habitat to support the current elk population. However, significant portions of the DAU are under utilized by elk much of the year and elk use in GMU 501 is well below what the public lands in that unit historically supported.

There has been a significant loss of elk habitat due to changes in land use. Much of the conversion from agricultural to residential use has occurred in winter and transitional ranges which are critical in determining the carrying capacity of the area. Impacts from development include direct loss of habitat capability as well as the loss of the ability to hunt those lands for elk population control. Elk quickly learn to take advantage of areas closed to hunting. Future conversions of agricultural and open lands to residential uses will further reduce the ability of this DAU to support elk.

Over the last century wild fire control has led to landscape scale conversion of meadow and grasslands, as well as open forests, to denser forests with closed canopy covers reducing the amount of palatable forage for elk and deer. Elk use patterns have responded with an increasing use of the open areas of the DAU, including South Park. Coupled with the land use conversion of habitats to residential development, habitat changes have focused elk use in smaller and smaller areas of the DAU. The attractive forage on public and privately owned areas of the park having livestock grazing has drawn more elk use. This has contributed to conflicts with some agricultural producers.

While there have been no game damage claims paid in this DAU, the South Park HPP committee has seen an increase in concern about elk use in the last two years as a result of this long term habitat change, exacerbated by the last 5 years of drought. In addition to providing fence repair materials and assisting with range management seminars for landowners, the HPP committee has undertaken habitat enhancement projects to attract elk to areas where their presence does not cause conflicts. The committee has also partnered with land trusts and other organizations to assist landowners with conservation easements to protect the long-term habitat values of their lands

Historically, the South Park HPP committee has joined with the CDOW and USFS in improving traditional winter range areas in an effort to attract wintering elk to public lands from adjacent private lands. In the last few years, however, drought conditions and fuel reduction efforts adjacent to mountain subdivisions have precluded most efforts for habitat improvement on the National Forest as federal fire management resources were redirected.

Because of the relatively small amount of hay production remaining in this DAU, there has been very little "game damage" conflict. Most complaints involve competition for forage and fence damage. Following the recent drought, when elk use patterns changed in response to reduced amounts of green forage, there has been an increase

in complaints about elk use of the remaining grass hay fields. The attractiveness of these fields lured elk away from available native ranges. While there is adequate forage to support a larger elk population, the concentration of elk in these conflict areas has become a management problem. The creation of the private land only cow hunting licenses, future habitat enhancement projects and use of distribution hunts initiated by the HPP committee are expected to reduce those conflicts to an acceptable level.

For the last 12 years, the CDOW has successfully managed the 12,000 acre James Mark Jones State Wildlife Area to attract more winter use by elk. The recent drought, however, has reduced water availability and consequently the ability to utilize cattle grazing to maintain the attractiveness of forage on that property. While large numbers of elk continue to use that property, the use has been declining since livestock grazing was removed. Current water system improvements will hopefully allow forage management by cattle in the near future and increases in attractiveness of that forage for elk.

While one long term objective for this DAU is maintaining a sex ratio of at least 35 bulls per 100 cows, there has not been an effective way to monitor the actual bull/cow ratios. Thanks to the relative mild climate on the lee side of the Mosquito and Park Mountain Ranges, bull elk are able to spend the winter in areas where they are difficult to find. For that reason observed sex ratios have traditionally ranged from 6 to 21 bulls per 100 cows. Harvest calculations and population models both indicate the actual ratios are at least in the range of 35 to 45 bulls per 100 cows. Prior to the implementation of a random point aerial classification survey technique in 2007 neither ground nor aerial surveys were able to verify that estimate. The 2007 survey, however, did confirm a higher sex ratio of 36.5 bulls per 100 cows at the minimum. There continues to be a sightability bias for sex ratios but that bias is much less with the new technique.

The South Park area has a significant amount of locoweed which can impact this elk herd. During years with low precipitation in early spring, elk can develop symptoms of locoism with minor increases in mortality.

## Development of Alternatives

Three alternatives for the long term population objective and three sex ratio alternatives were considered for long term objectives for E-18 for the next ten years. The population alternatives included: 1) 1,600 to 2,000 elk which is a 25% reduction from the current estimate; 2) 2,200 to 2,600 which is the current estimate; and 3) 2,800 to 3,200, a 25% increase from the current estimate. Sex ratio alternatives included: 1) 25 to 30 bulls/100 cows; 2) 35 to 40 bulls/100 cows; and 3) 45 to 50 bulls/100 cows.

Two public meetings were held to discuss this plan in October and November 2006 in Denver and Fairplay. Survey forms were provided for participants to indicate their preferences for long term objectives. Additionally, the survey was available over the internet and by mail to sportsmen and landowners. 267 questionnaires were completed and returned. The complete questionnaire, with responses totaled, and evaluation of the responses is in Appendix 2.

Of the 267 surveys returned, 147 (55%) indicated they desired an increase in population ranging from "slight" (25%), to "moderate" (23%), to "great increase" (7%). Seventy seven respondents (29%) indicated they preferred no change in population level. Twenty eight surveys (11%) indicated they preferred a decrease in population ranging from "slight" (5%), to "moderate decrease" (5%), to "great decrease" (1%). Fifteen surveys didn't have a preference or didn't answer that question.

Of the 267 returned surveys, 78 (29%) indicated they owned land in the DAU. Of those 78 surveys, 26 (10% of all respondents) said they farmed or ranched on their land and 47 said they did not. Of the 26 engaged in ranching, 6 (24%) preferred no change from current population levels, 6 (24%) preferred a "slight decrease," 2 (8%) preferred a "moderate decrease," and 1 (4%) desired a "great decrease" in elk population. Five responses (20%) identifying themselves as ranchers desired a "slight increase," 2 (8%) preferred a "moderate increase," and 1 (4%) preferred the population "increase greatly." Three indicated no preference or didn't answer that question.

## Population Alternative Discussion

Alternative 1) Decrease the current population estimate by 25%, to a range of 1,600 to 2,000 elk.

This objective range would result in a density of 1.4 to 1.7 elk per square mile of overall habitat or 3.6 to 4.5 elk per square mile of winter range. The current number of antlerless licenses would continue until the population reaches the lower range. Once the population reached the desired level, licenses for both antlered and antlerless animals would decrease because of the smaller population available to support hunting. Since the current level of conflicts results from localized concentrations of elk in privately owned attractive habitats, some of which are hay fields, the reduced population objective would have little effect on the number of complaints. Site specific management such as extended private land only cow licenses, distribution hunts, hazing and habitat enhancement in alternate habitats will still be needed to reduce those complaints no matter which population objective is chosen.

Available winter forage levels in average and above average precipitation years would exceed the needs for this population level. During dry years, however, this elk population would be at the high threshold of sustainable forage levels.

Alternative 2) Maintain 2,200 to 2,600 elk. This alternative contains the current population estimate of 2,400.

This objective range would result in a density of 2.1 to 2.2 elk per square mile of overall habitat and 4.9 to 5.8 elk per square mile of winter range. The current level of cow licenses would be reduced to maintain the population at its current level and bull licenses would not be changed. There would be more harvest opportunity available in future years than in alternative 1 to maintain the population within the objective range. Like alternative 1, site specific conflicts would not be affected by the selection of this population objective but there would be the potential for increases in conflicts.

Winter forage levels in average and above average precipitation years would far exceed the needs of this sized population. In dry years, however, available forage production may not be adequate to leave one half of production untouched for range sustainability purposes after meeting the needs of livestock and deer and elk populations, according to the CSU forage model. The potential for long-term impacts to winter forage could exist in long term drought periods, depending on elk distribution and moisture patterns.

Alternative 3) Increase of 25% from the current population estimate, to a range of 2,800 to 3,200 elk.

This objective range would result in a density of 2.4 to 2.8 elk per square mile of overall habitat or 6.2 to 7.1 elk per square mile of winter range. E-18 is currently estimated to be below this level so cow licenses would initially decrease from current levels. This objective would support more antlered and antlerless licenses than either of the first two alternatives once the population increased to objective. More aggressive use of private-land-only and distribution hunts, would be needed to reduce elk conflicts involving forage competition and hay-field impacts.

Like alternative 1 and 2, there would be adequate winter forage available in years with normal or above average precipitation. In dry years forage utilization could exceed the high use threshold resulting in an increased risk of soil loss, habitat degradation and decreased ability of the habitat to cope with unforeseen changes or impacts.

## Sex Ratio Alternative Discussion

Alternative 1) Reduce the post-hunt objective to 25 to 30 bulls per 100 cows.

This objective range would initially allow higher numbers of bull licenses and a higher bull harvest. There would be a corresponding increase in hunter crowding



and decrease in hunter success and age of bulls harvested with the lower sex ratio objective. This objective would not meet the minimum objective for a "limited opportunity" elk herd.

Alternative 2) Maintain the current objective at 35 to 40 bulls per 100 cows.

The "limited opportunity" designation of this DAU suggests a minimum sex ratio of 35 bulls per 100 cows. The DAU would provide higher hunter success levels and numbers of mature bulls in the harvest with this sex ratio. This objective will not allow as large of an annual harvest and hunter participation as alternative 1 and hunter crowding would not increase.

Alternative 3) Increase the post-hunt objective to 45 to 50 bulls per 100 cows.

This objective range would exceed the requirement for a "limited opportunity" unit. This range would be expected to provide higher success levels and more mature bulls in the harvest than the previous two alternatives. Bull hunter numbers, however, would be reduced which would reduce hunter densities below current levels. Recreational opportunity would be more limited. It could be difficult to maintain this sex ratio due to movement of bulls into GMUs northwest of the DAU that have lower sex ratios and greater bull elk hunting pressure.

## Recommended Objectives

The CDOW recommends a population objective of 2,200-2,600 (Alternative 2) which will maintain the current elk population numbers.

This population is below the middle range of habitat capability based on current forage conditions in South Park according to the habitat assessment model from the Natural Resource Ecology Lab at Colorado State University. Current conflicts occurring in South Park are due to distributional problems of elk, rather than an overabundance of elk. Public land management personnel have indicated they see no evidence of over utilization of habitats with the current elk population and believe publicly owned habitats can support more animals.

Site specific responses to those current conflicts include: 1) an extended private land only cow elk season (beginning in fall, 2007), 2) distribution hunts, 3) a hunt coordinator provided by the HPP committee, and 4) provision of a game damage fence at one conflict location.

Decreases in elk numbers consistent with Alternative 1 was not supported by the majority of respondents to the CDOW's public survey where 56% favored an increase, 29% favored no change and only 11% favored a decrease in elk numbers. In the same

survey, 56% of landowners who considered themselves ranchers preferred either no change or an increase in elk numbers, while 36% of these respondents preferred a decrease.

Although public opinion may support an increase in elk numbers consistent with Alternative 3, the trend in increasing residential development which will lead to lower elk carrying capacity and hunting access for elk population control will result in more serious conflicts in future years.

The CDOW recommends a sex ratio alternative of 35-40 bulls:100 cows (Alternative 2). This alternative represents no change from the previous objective and the 2007 post season estimate. Survey results were 77% in favor of staying with the current sex ratio or up to 40 bulls:100 cows. There is overwhelming support (81%) among hunters and landowners for continuing the current management option of limiting bull hunter opportunity with bull licenses being available only through the drawing.

## Final Management Objectives

The wildlife commission decision is to manage this herd with a post hunt population objective of 1,800 to 2,200 and a post hunt sex ratio objective of 35 to 40.

## Literature Cited

Anderson, E. W. and R. J. Scherzinger. 1975. Improving Quality of Winter Forage for Elk by Cattle Grazing. *Journal of Range Management* 28(2): 120-125.

Frisina, M.R. and F. G. Morin. 1991. Grazing Private and Public Land to Improve the Fleece Elk Winter Range. *Rangelands* 13(6): 291-294.

Frisina, M.R. 1992. Elk Habitat Use Within a Rest-Rotation Grazing System. *Rangelands* 14(2): 93-96.

Grover, K. E. and M. J. Thompson. 1986. Factors Influencing Spring Feeding Site Selection by Elk in the Elkhorn Mountains, Montana. *Journal of Wildlife Management* 50(3): 466-470.

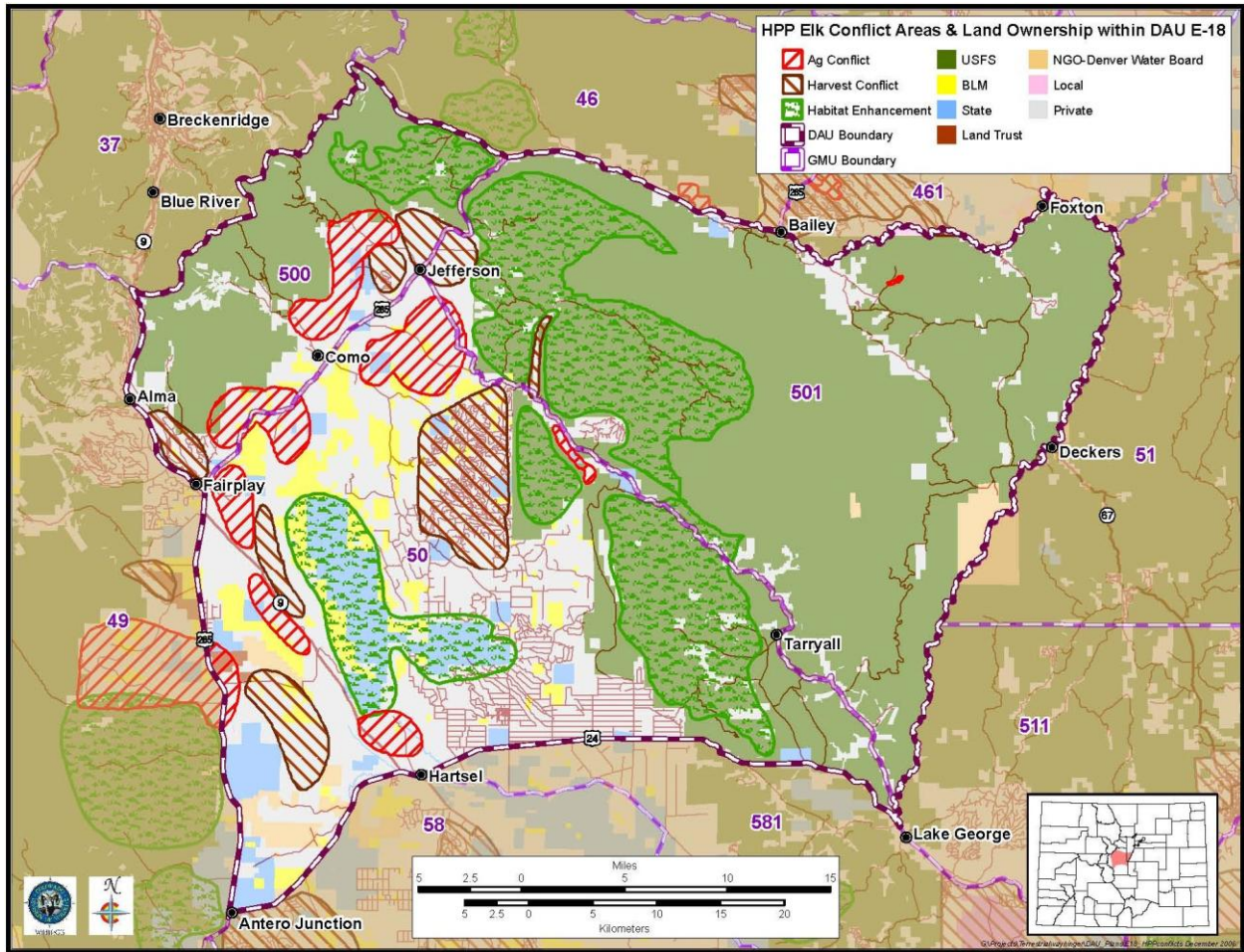
Heitschmidt, R. K. 1990. The Role of Livestock and Other Herbivores in Improving Rangeland Vegetation. *Rangelands* 12(2): 112-115.

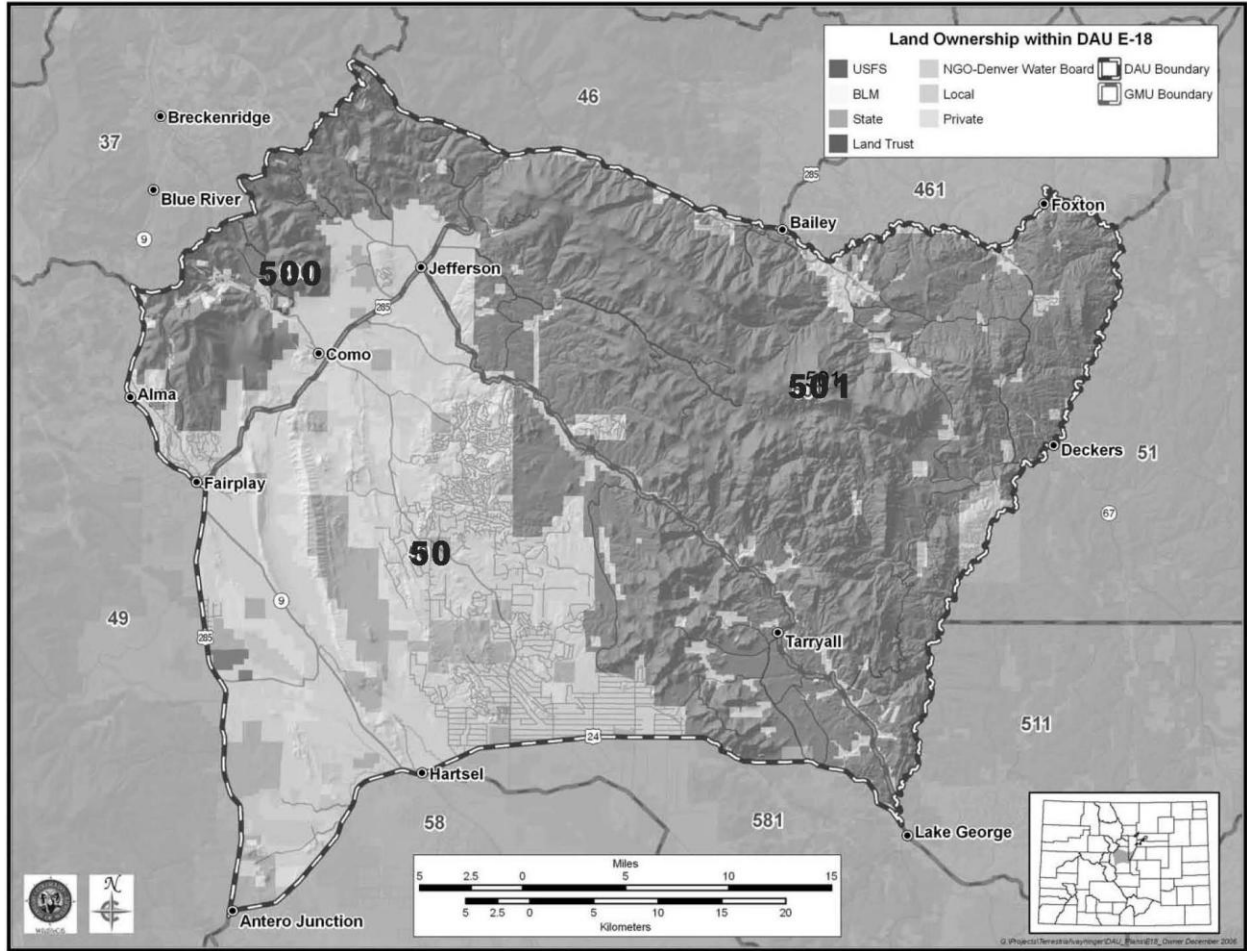
Savory, Allen. 1988. *Holistic Resource Management*. Island Press. Washington D.C.

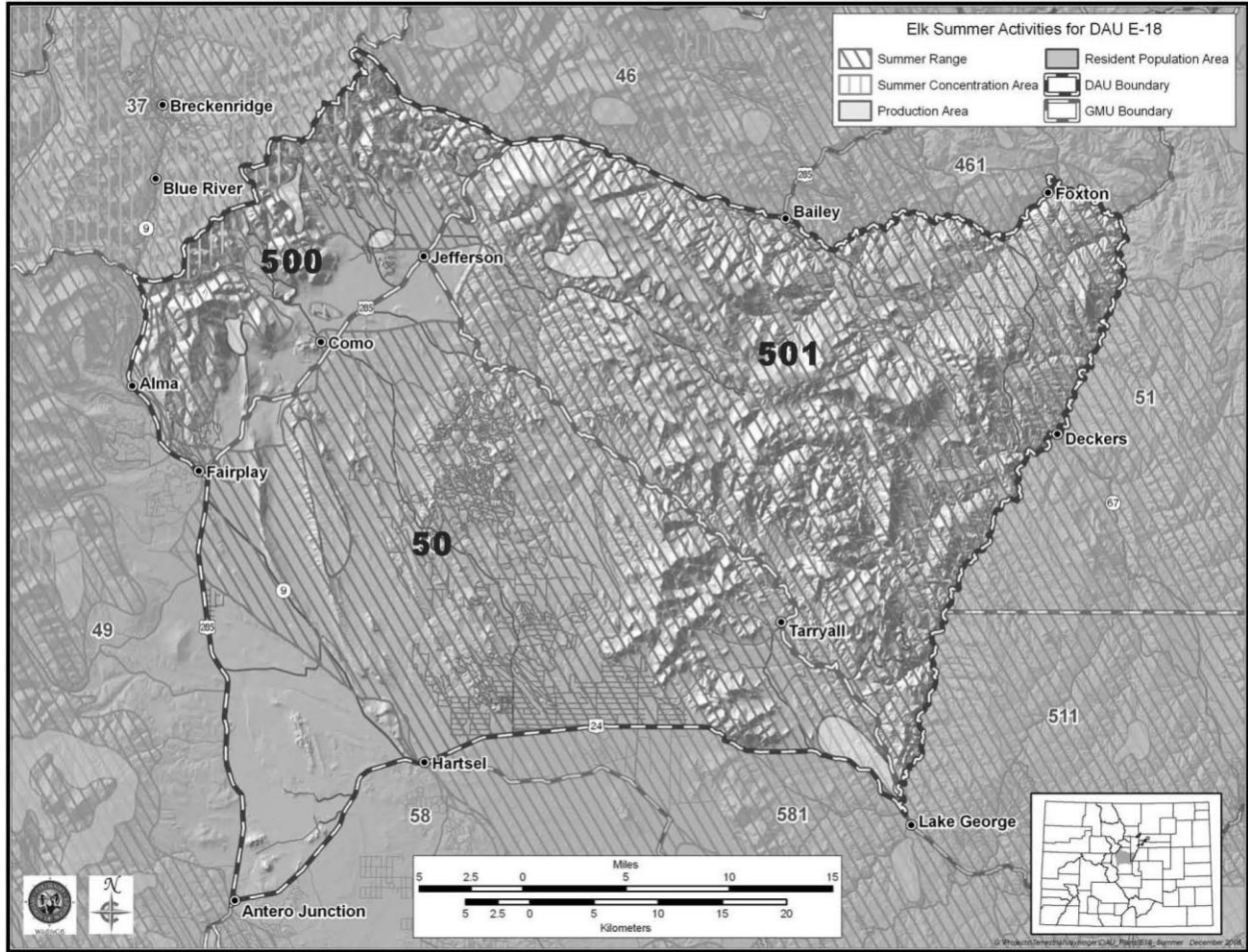
Severson, K. E. and Philip J. Urness. 1994. Livestock grazing: a tool to improve wildlife habitat. pp. 232-249 In: M. Vavra, W. A. Laycock and R. D. Pieper (eds.). *Ecological Implications of Livestock Herbivory in the West*. Soc. Range Management. Denver, CO.

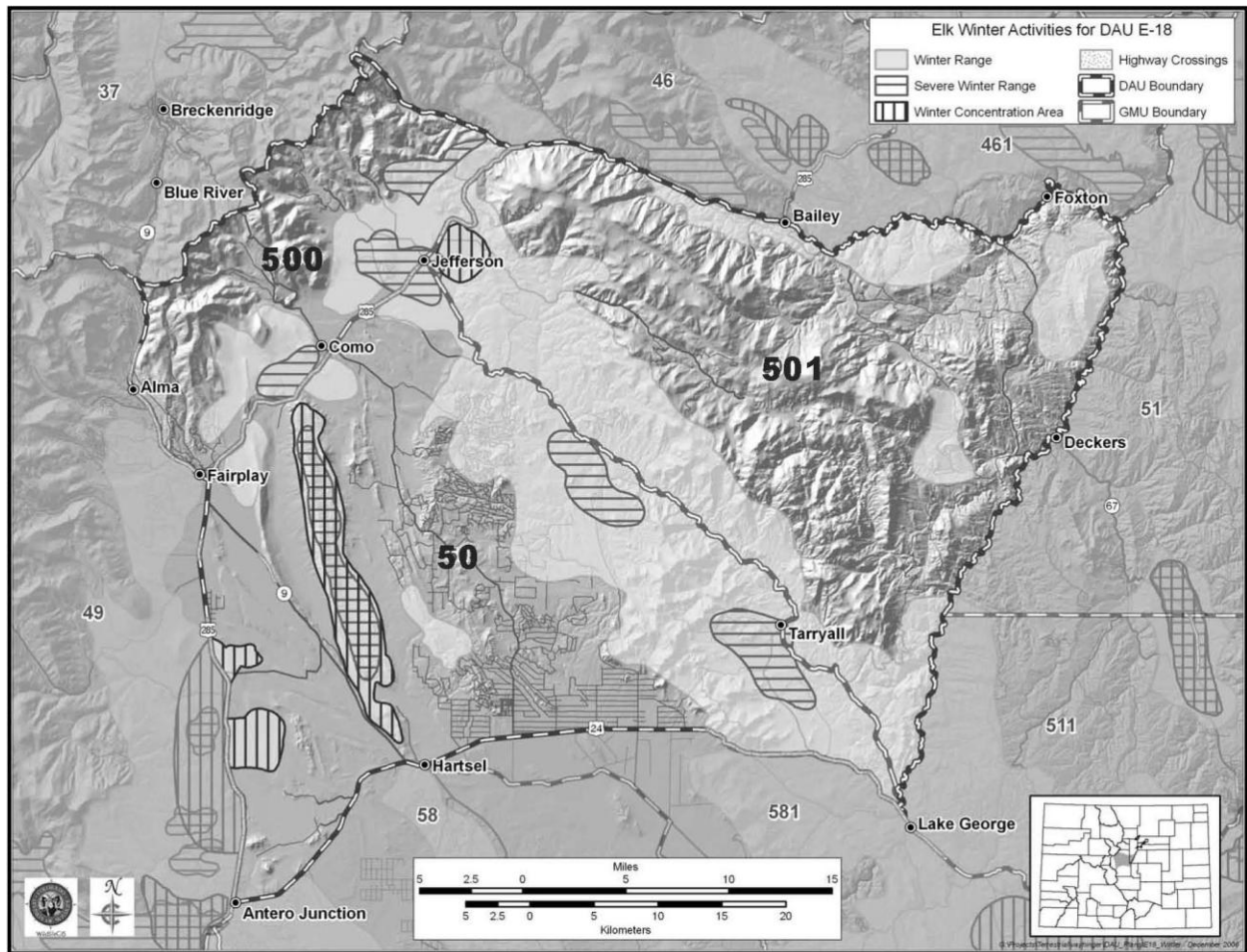
Stoddard, L. A. and A. D. Smith. 1955. *Range Management*. McGraw-Hill Book Co., New York, NY.

Appendix 1. Landownership, elk conflict, and elk distribution maps.









Appendix 2. Survey questionnaire.

267 completed and submitted, actual response totals for each category in brackets [ ]

## **ELK E-18**

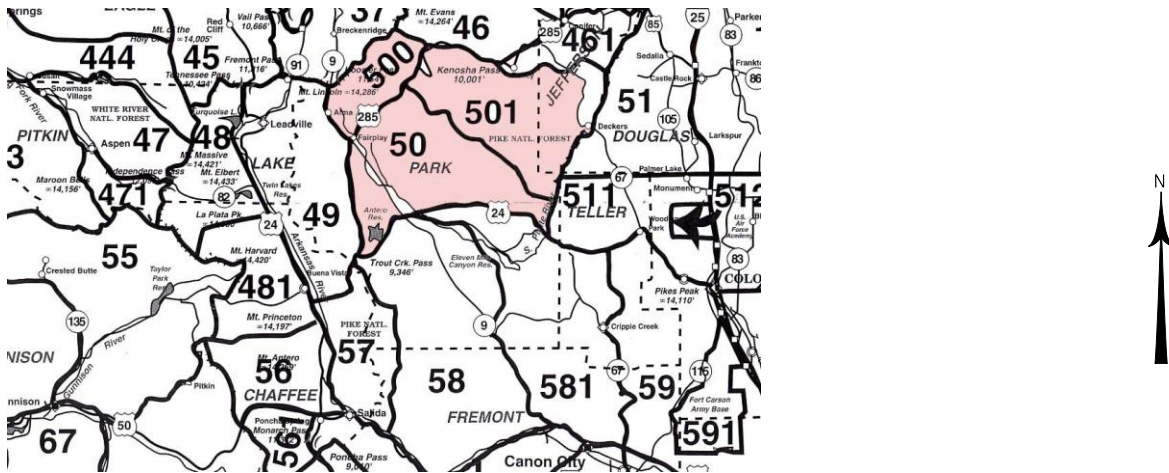
### **ABOUT THIS QUESTIONNAIRE**

- The primary purpose of this questionnaire is to gather public input that will be used by the Colorado Division of Wildlife in the development of elk management plans for Game Management Units (GMUs) 50, 500 & 501. Your input will be used by wildlife managers to help establish long-term objectives for the age and sex structure and the size of the elk population.
- Your input is important to us. Please take a few minutes to complete and return this questionnaire at your earliest convenience. We would appreciate receiving all public comments by **November 15, 2006**.
- Your responses will remain confidential.
- **In this questionnaire, Game Management Units (GMUs) 50, 500 & 501 will be referred to as “the designated area”.**
- When completed, please insert the questionnaire in the attached, postage-paid envelope and drop it in the mail. Return postage has been provided.

**Thanks again for your input!**



First, please examine the map and written description of Game Management Units (GMUs) 50, 500, & 501 located in central Colorado, then go to Question 1.



**Description of GMU 50:** Those shaded portions of Park county bounded on the north by US 285; on the east by Park Co Rd 77; on the south by US 24; and on the west by US 285.

**Description of GMU 500:** That shaded portion of Park county bounded on the north by the Continental Divide; on the east by the North Fork of the South Platte River; on the south by US 285; and on the west by Colo 9.

**Description of GMU 501:** That shaded portion of Park and Jefferson counties bounded on the north by US 285 and the North Fork of the South Platte River; on the east by the South Platte River; on the south by US 24; and on the west by Park Co Rd 77.

**BACKGROUND INFORMATION**

1. Are you...   [223]   a resident of Colorado  
  [42]   a non-resident of Colorado
  
2. Do you live in the designated area (GMUs 50, 500 & 501)?  
 [216]   No  
  [47]   Yes If yes, how many years? \_\_\_\_\_ years
  
3. Do you own or lease property in the designated area (GMUs 50, 500 & 501)?  
 [185]   No [Ranch or Farm = 31,456 A.]  
  [78]   Yes If yes, how many acres? \_\_\_\_\_ Acres [Don't Ranch or Farm = 1,156 A.]  
Do you ranch or farm on the property you own or lease in the designated area?  
  [47]   No   [26]   Yes
  
4. Do you own a business in the designated area (GMUs 50, 500 & 501)?  
 [251]   No  
  [14]   Yes
  
5. Do you guide or outfit for big game hunters in the designated area (GMUs 50, 500 & 501)?  
 [265]   No  
  [0]   Yes
  
6. Are you .....  [253]   Male  [11]   Female
  
7. What is your age?  
  [4]   20 and under  [39]   21-40  [155]   41-60  
 [65]   61-80   [3]   over 80
  
8. Do you hunt?   [6]   No  [258]   Yes
  
9. Do you fish?   [21]   No  [242]   Yes

**PEOPLE AND ELK**

1. Please indicate how interested you are in doing each of the following in the designated area (GMUs 50, 500 & 501).  
(Circle one number for each item)

How interested are you in . . . .	Not at all Interested				Very Interested	Don't Know
seeing elk?	[2] 1	[7] 2	[11] 3	[17] 4	[225] 5	[0] 6
hunting elk?	[9] 1	[2] 2	[4] 3	[9] 4	[241] 5	[0] 6
learning more about elk management?	[3] 1	[5] 2	[29] 3	[65] 4	[160] 5	[1] 6
providing input for decisions about elk management ?	[3] 1	[8] 2	[25] 3	[61] 4	[164] 5	[1] 6

2. Please indicate how concerned you are about each of the following possible problems in the designated area (GMUs 50, 500 & 501).  
(Circle one number for each item)

How concerned are you about . . . .	Not at all Concerned				Very Concerned	Don't Know
a) elk-auto accidents	[32] 1	[44] 2	[70] 3	[47] 4	[61] 5	[9] 6
b) economic losses to ranchers/farmers from elk damage to rangelands/hay/crops/fences	[20] 1	[39] 2	[92] 3	[57] 4	[51] 5	[6] 6
c) damage from elk to homeowners' trees, shrubs and gardens	[70] 1	[59] 2	[74] 3	[32] 4	[27] 5	[3] 6
d) predation on the elk population from coyotes, bears and mountain lions	[41] 1	[53] 2	[67] 3	[53] 4	[48] 5	[2] 6
e) the reduction of elk habitat due to increased human population and development	[3] 1	[6] 2	[29] 3	[50] 4	[177] 5	[0] 6
f) the potential of starvation of elk during the winter	[6] 1	[15] 2	[35] 3	[72] 4	[135] 5	[2] 6
g) elk spreading diseases to livestock, pets or humans	[26] 1	[40] 2	[52] 3	[58] 4	[85] 5	[4] 6
h) elk competing with livestock for forage	[26] 1	[40] 2	[69] 3	[69] 4	[58] 5	[3] 6
i) the revenue that elk hunting and elk viewing provides for local business	[11] 1	[30] 2	[64] 3	[77] 4	[79] 5	[4] 6

3. How do you personally feel about elk in the designated area (GMUs 50, 500 & 501)? (Check one)

[3] I do not enjoy the presence of elk in the designated area and regard them as nuisances.

[61] I enjoy the presence of elk in the designated area, BUT I worry about problems elk may cause.

[191] I enjoy the presence of elk in the designated area, BUT I do not worry about problems elk may cause.

[8] I have no particular feelings about elk in the designated area.

**ELK MANAGEMENT**

1. How would you like the elk population in the designated area (GMUs 50, 500 & 501) to change, if at all? *(Check one)*

- 3   decrease greatly (over 50%)
- 12  decrease moderately (26-50%)
- 23  decrease slightly (1-25%)
- 53  no change
- 70  increase slightly (1-25%)
- 71  increase moderately (26-50%)
- 27  increase greatly (over 50%)
- 5  don't know

2. How would you like the number of bull (male) elk in the designated area (GMUs 50, 500 & 501) to change, if at all? *(Check one)*

- 3  decrease greatly (15 bulls/100 cows)
- 12  decrease moderately (20 bulls/100 cows)
- 15  decrease slightly (25 bulls/100 cows)
- 76  no change (30 bulls/100 cows)
- 68  increase slightly (35 bulls/100 cows)
- 62  increase moderately (40 bulls/100 cows)
- 18  increase greatly (45 or over bulls/100 cows)
- 10  don't know

3. How would you rate the overall success of the Colorado Division of Wildlife's elk management in the designated area (GMUs 50, 500 & 501)? *(Circle one)*

poor	fair	good	very good	excellent	no opinion
[20]	[35]	[87]	[68]	[28]	[26]

4. Overall, how would you rate the quality of elk hunting opportunities available in the designated area (GMUs 50, 500 & 501)? *(Circle one)*

poor	fair	good	very good	excellent	no opinion
[21]	[58]	[78]	[74]	[23]	[11]

5. Current regulations in the designated area (GMUs 50, 500 & 501) limit the number of bull and cow elk hunting licenses. This means that any hunter interested in getting a bull or cow elk hunting license for these GMUs must apply through a public drawing process. Limiting the number of hunters in these GMUs has been done to maintain a higher ratio of bulls in the herd and to reduce hunter crowding during hunting seasons.

Do you support or oppose the current regulation that limits the number of bull and cow elk hunting licenses in the designated area (GMUs 50, 500 & 501)?

<i>(Circle one)</i> [7]	[11]	[10]	[20]	[19]	[51]	[135]
strongly oppose	somewhat oppose	slightly oppose	neutral	slightly support	somewhat Support	strongly Support

Why do you feel that way? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

---



---



---

**ELK HUNTING**

1. Have you ever hunted elk in Colorado?  
[6] No (Please go to the next page)  
[256] Yes - how many years?  
       \_\_\_ years
  
2. Have you ever hunted elk in the designated area (GMUs 50, 500 & 501)?  
[25] No (Please go to the next page)  
[237] Yes - how many years?  
       \_\_\_ years
  
3. Overall, how satisfied or dissatisfied have you been with your past elk hunting experiences in the designated area (GMUs 50, 500 & 501)? (Circle one)  

very dissatisfied	somewhat dissatisfied	slightly dissatisfied	neutral	slightly satisfied	somewhat satisfied	very satisfied
[17]	[19]	[13]	[21]	[33]	[68]	[72]
  
4. Overall, to what extent have you felt crowded by other hunters while elk hunting in the designated area (GMUs 50, 500 & 501)? (Circle one)  

extremely crowded	moderately crowded	slightly crowded	not at all crowded
[11]	[31]	[109]	[89]
  
5. Which ONE factor is the MOST important to you when elk hunting in the designated area (GMUs 50, 500 & 501): (Check one)  
[64] few contacts with other hunters  
[152] obtaining meat  
[29] to get a trophy elk
  
6. In the past 5 years (2001-2005), indicate the number of years you have hunted elk in the following units: (please refer to map on page 2)  
       Unit 50 [334] # of years                      Unit 500 [379] # of years  
       Unit 501 [194] # of years



**elk population change desired \* How survey received Crosstabulation**

			How survey received				Total
			meeting	business reply	own postage	electr.	
elk population change desired	decrease greatly	Count % within How survey received	0 .0%	1 .5%	1 1.9%	0 .0%	2 .8%
	decrease moderately	Count % within How survey received	1 16.7%	11 5.4%	0 .0%	0 .0%	12 4.6%
	decrease slightly	Count % within How survey received	1 16.7%	9 4.4%	4 7.7%	0 .0%	14 5.3%
	no change	Count % within How survey received	2 33.3%	56 27.6%	18 34.6%	1 100.0%	77 29.4%
	increase slightly	Count % within How survey received	1 16.7%	53 26.1%	13 25.0%	0 .0%	67 25.6%
	increase moderately	Count % within How survey received	0 .0%	49 24.1%	12 23.1%	0 .0%	61 23.3%
	increase greatly	Count % within How survey received	1 16.7%	15 7.4%	3 5.8%	0 .0%	19 7.3%
	Don't know	Count % within How survey received	0 .0%	9 4.4%	1 1.9%	0 .0%	10 3.8%
	Total	Count % within How survey received	6 100.0%	203 100.0%	52 100.0%	1 100.0%	262 100.0%

**elk population change desired \* landowner type Crosstabulation**

			landowner type			Total
			farmer	landowner not farmer	non-landowner	
elk population Change Desired	decrease greatly	Count % within landowner type	1 4.0%	0 .0%	1 .5%	2 .8%
	decrease moderately	Count % within landowner type	2 8.0%	3 6.0%	6 3.3%	11 4.3%
	decrease slightly	Count % within landowner type	6 24.0%	4 8.0%	4 2.2%	14 5.4%
	no change	Count % within landowner type	6 24.0%	20 40.0%	49 26.9%	75 29.2%
	increase slightly	Count % within landowner type	5 20.0%	7 14.0%	54 29.7%	66 25.7%
	increase moderately	Count % within landowner type	2 8.0%	10 20.0%	48 26.4%	60 23.3%
	increase greatly	Count % within landowner type	1 4.0%	5 10.0%	13 7.1%	19 7.4%
	don't know	Count % within landowner type	2 8.0%	1 2.0%	7 3.8%	10 3.9%
	Total	Count % within landowner type	25 100.0%	50 100.0%	182 100.0%	257 100.0%



**change in number of bulls in area \* How survey received Crosstabulation**

			How survey received				Total
			meeting	business reply	own postage	electr.	
change in number of bulls in area	decrease greatly	Count % within How survey received	0 .0%	17 8.4%	2 3.8%	0 .0%	19 7.3%
	decrease moderately	Count % within How survey received	0 .0%	29 14.3%	6 11.5%	0 .0%	35 13.4%
	decrease slightly	Count % within How survey received	5 83.3%	59 29.1%	22 42.3%	0 .0%	86 32.8%
	no change	Count % within How survey received	1 16.7%	55 27.1%	12 23.1%	0 .0%	68 26.0%
	increase slightly	Count % within How survey received	0 .0%	22 10.8%	5 9.6%	1 100.0%	28 10.7%
	increase moderately	Count % within How survey received	0 .0%	21 10.3%	5 9.6%	0 .0%	26 9.9%
	Total	Count % within How survey received	6 100.0%	203 100.0%	52 100.0%	1 100.0%	262 100.0%

**change in number of bulls in area \* landowner type Crosstabulation**

			landowner type			Total
			farmer	landowner not farmer	non-landowner	
change in number of bulls in area	decrease greatly	Count % within landowner type	4 16.0%	6 12.0%	8 4.4%	18 7.0%
	decrease moderately	Count % within landowner type	5 20.0%	7 14.0%	23 12.6%	35 13.6%
	decrease slightly	Count % within landowner type	7 28.0%	15 30.0%	62 34.1%	84 32.7%
	no change	Count % within landowner type	7 28.0%	15 30.0%	45 24.7%	67 26.1%
	increase slightly	Count % within landowner type	1 4.0%	2 4.0%	24 13.2%	27 10.5%
	increase moderately	Count % within landowner type	1 4.0%	5 10.0%	20 11.0%	26 10.1%
	Total	Count % within landowner type	25 100.0%	50 100.0%	111 100.0%	257 100.0%

**overall success of CDOW elk mgmt. in area \* How survey received Crosstabulation**

			How survey received				Total
			meeting	business reply	own postage	electr.	
overall success of CDOW elk mgmt in area	poor	Count	0	17	4	0	21
		% within How survey received	.0%	8.3%	7.5%	.0%	8.0%
	fair	Count	0	41	16	0	57
		% within How survey received	.0%	20.1%	30.2%	.0%	21.6%
	good	Count	4	59	16	0	79
		% within How survey received	66.7%	28.9%	30.2%	.0%	29.9%
	very good	Count	2	60	12	1	75
	% within How survey received	33.3%	29.4%	22.6%	100.0%	28.4%	
	excellent	Count	0	20	2	0	22
		% within How survey received	.0%	9.8%	3.8%	.0%	8.3%
	no opinion	Count	0	7	3	0	10
		% within How survey received	.0%	3.4%	5.7%	.0%	3.8%
Total		Count	6	204	53	1	264
		% within How survey received	100.0%	100.0%	100.0%	100.0%	100.0%

**overall success of CDOW elk mgmt. in area \* landowner type Crosstabulation**

			landowner type			Total
			farmer	landowner not farmer	non-landowner	
overall success of CDOW elk mgmt in area	poor	Count	1	7	13	21
		% within landowner type	3.8%	14.0%	7.1%	8.1%
	fair	Count	6	12	38	56
		% within landowner type	23.1%	24.0%	20.8%	21.6%
	good	Count	4	16	57	77
		% within landowner type	15.4%	32.0%	31.1%	29.7%
	very good	Count	11	10	52	73
	% within landowner type	42.3%	20.0%	28.4%	28.2%	
	excellent	Count	3	3	16	22
		% within landowner type	11.5%	6.0%	8.7%	8.5%
	no opinion	Count	1	2	7	10
		% within landowner type	3.8%	4.0%	3.8%	3.9%
Total		Count	26	50	183	259
		% within landowner type	100.0%	100.0%	100.0%	100.0%

quality of elk hunting in area \* How survey received Crosstabulation

			How survey received			Total
			meeting	business reply	own postage	
quality of elk hunting in area	poor	Count % within How survey received	0 .0%	5 5.3%	2 9.1%	7 6.0%
	fair	Count % within How survey received	0 .0%	7 7.4%	4 18.2%	11 9.4%
	good	Count % within How survey received	0 .0%	6 6.4%	4 18.2%	10 8.5%
	very good	Count % within How survey received	0 .0%	16 17.0%	3 13.6%	19 16.2%
	excellent	Count % within How survey received	1 100.0%	14 14.9%	4 18.2%	19 16.2%
	no opinion	Count % within How survey received	0 .0%	46 48.9%	5 22.7%	51 43.6%
	Total	Count % within How survey received	1 100.0%	94 100.0%	22 100.0%	117 100.0%

quality of elk huting in area \* landowner type Crosstabulation

			landowner type			Total
			farmer	landowner not farmer	non-lando wner	
quality of elk hunting in area	poor	Count % within landowner type	0 .0%	1 4.2%	6 7.7%	7 6.1%
	fair	Count % within landowner type	4 33.3%	2 8.3%	3 3.8%	9 7.9%
	good	Count % within landowner type	0 .0%	3 12.5%	7 9.0%	10 8.8%
	very good	Count % within landowner type	0 .0%	6 25.0%	13 16.7%	19 16.7%
	excellent	Count % within landowner type	1 8.3%	5 20.8%	12 15.4%	18 15.8%
	no opinion	Count % within landowner type	7 58.3%	7 29.2%	37 47.4%	51 44.7%
	Total	Count % within landowner type	12 100.0%	24 100.0%	78 100.0%	114 100.0%

**Regulation opinion \* How survey received Crosstabulation**

			How survey received				Total
			meeting	business reply	own postage	electr.	
Regulation opinion	strongly oppose	Count % within How survey received	0 .0%	5 2.5%	2 4.3%	0 .0%	7 2.8%
	somewhat oppose	Count % within How survey received	0 .0%	7 3.5%	4 8.7%	0 .0%	11 4.4%
	slightly oppose	Count % within How survey received	0 .0%	6 3.0%	4 8.7%	0 .0%	10 4.0%
	neutral	Count % within How survey received	0 .0%	16 8.0%	3 6.5%	0 .0%	19 7.5%
	slightly support	Count % within How survey received	1 25.0%	14 7.0%	4 8.7%	0 .0%	19 7.5%
	somewhat support	Count % within How survey received	0 .0%	46 22.9%	5 10.9%	0 .0%	51 20.2%
	strongly support	Count % within How survey received	3 75.0%	107 53.2%	24 52.2%	1 100.0%	135 53.6%
	Total	Count % within How survey received	4 100.0%	201 100.0%	46 100.0%	1 100.0%	252 100.0%

**Regulation opinion \* landowner type Crosstabulation**

			landowner type			Total
			farmer	landowner not farmer	non-lando wner	
Regulation opinion	strongly oppose	Count % within landowner type	0 .0%	1 2.1%	6 3.4%	7 2.8%
	somewhat oppose	Count % within landowner type	4 16.7%	2 4.3%	3 1.7%	9 3.6%
	slightly oppose	Count % within landowner type	0 .0%	3 6.4%	7 4.0%	10 4.0%
	neutral	Count % within landowner type	0 .0%	6 12.8%	13 7.4%	19 7.7%
	slightly support	Count % within landowner type	1 4.2%	5 10.6%	12 6.8%	18 7.3%
	somewhat support	Count % within landowner type	7 29.2%	7 14.9%	37 21.0%	51 20.6%
	strongly support	Count % within landowner type	12 50.0%	23 48.9%	98 55.7%	133 53.8%
	Total	Count % within landowner type	24 100.0%	47 100.0%	176 100.0%	247 100.0%

level of satisfaction with elk hunting in area \* How survey received Crosstabulation

			How survey received				Total
			meeting	business reply	own postage	electr.	
level of satisfaction with elk hunting in area	very dissatisfied	Count % within How survey received	0 .0%	13 6.3%	4 7.5%	0 .0%	17 6.4%
	somewhat dissatisfied	Count % within How survey received	0 .0%	16 7.8%	3 5.7%	0 .0%	19 7.1%
	slightly dissatisfied	Count % within How survey received	1 16.7%	10 4.9%	2 3.8%	0 .0%	13 4.9%
	neutral	Count % within How survey received	0 .0%	16 7.8%	5 9.4%	0 .0%	21 7.9%
	slightly satisfied	Count % within How survey received	0 .0%	25 12.1%	7 13.2%	0 .0%	32 12.0%
	somewhat satisfied	Count % within How survey received	1 16.7%	52 25.2%	15 28.3%	0 .0%	68 25.6%
	very satisfied	Count % within How survey received	2 33.3%	58 28.2%	11 20.8%	1 100.0%	72 27.1%
		Count % within How survey received	2 33.3%	16 7.8%	6 11.3%	0 .0%	24 9.0%
Total	Count % within How survey received	6 100.0%	206 100.0%	53 100.0%	1 100.0%	266 100.0%	

level of satisfaction with elk hunting in area \* landowner type Crosstabulation

			landowner type			Total
			farmer	landowner not farmer	non-lando wner	
level of satisfaction with elk hunting in area	very dissatisfied	Count % within landowner type	1 3.8%	7 14.0%	9 4.9%	17 6.5%
	somewhat dissatisfied	Count % within landowner type	2 7.7%	2 4.0%	14 7.6%	18 6.9%
	slightly dissatisfied	Count % within landowner type	0 .0%	2 4.0%	11 5.9%	13 5.0%
	neutral	Count % within landowner type	3 11.5%	3 6.0%	15 8.1%	21 8.0%
	slightly satisfied	Count % within landowner type	4 15.4%	9 18.0%	19 10.3%	32 12.3%
	somewhat satisfied	Count % within landowner type	2 7.7%	17 34.0%	48 25.9%	67 25.7%
	very satisfied	Count % within landowner type	8 30.8%	8 16.0%	53 28.6%	69 26.4%
		Count % within landowner type	6 23.1%	2 4.0%	16 8.6%	24 9.2%
Total	Count % within landowner type	26 100.0%	50 100.0%	185 100.0%	261 100.0%	

level of crowding \* How survey received Crosstabulation

			How survey received				Total
			meeting	business reply	own postage	electr.	
level of crowding	extremely crowded	Count	0	8	3	0	11
		% within How survey received	.0%	3.9%	5.7%	.0%	4.1%
	moderately crowded	Count	0	23	8	0	31
		% within How survey received	.0%	11.2%	15.1%	.0%	11.7%
	slightly crowded	Count	2	82	22	0	106
	% within How survey received	33.3%	39.8%	41.5%	.0%	39.8%	
	not at all crowded	Count	2	75	13	1	91
		% within How survey received	33.3%	36.4%	24.5%	100.0%	34.2%
		Count	2	18	7	0	27
		% within How survey received	33.3%	8.7%	13.2%	.0%	10.2%
Total		Count	6	206	53	1	266
		% within How survey received	100.0%	100.0%	100.0%	100.0%	100.0%

level of crowding \* landowner type Crosstabulation

			landowner type			Total
			farmer	landowner not farmer	non-landowner	
level of crowding	extremely crowded	Count	3	4	3	10
		% within landowner type	11.5%	8.0%	1.6%	3.8%
	moderately crowded	Count	3	5	22	30
		% within landowner type	11.5%	10.0%	11.9%	11.5%
	slightly crowded	Count	7	23	74	104
	% within landowner type	26.9%	46.0%	40.0%	39.8%	
	not at all crowded	Count	8	16	66	90
		% within landowner type	30.8%	32.0%	35.7%	34.5%
		Count	5	2	20	27
		% within landowner type	19.2%	4.0%	10.8%	10.3%
Total		Count	26	50	185	261
		% within landowner type	100.0%	100.0%	100.0%	100.0%

**Most important reason for hunting elk \* How survey received Crosstabulation**

			How survey received				Total
			meeting	business reply	own postage	electr.	
Most important reason for hunting elk	few contacts with other hunters	Count % within How survey received	1 25.0%	51 26.4%	12 26.1%	0 .0%	64 26.2%
	meat	Count % within How survey received	3 75.0%	115 59.6%	31 67.4%	1 100.0%	150 61.5%
	trophy elk	Count % within How survey received	0 .0%	27 14.0%	3 6.5%	0 .0%	30 12.3%
Total	Count % within How survey received	4 100.0%	193 100.0%	46 100.0%	1 100.0%	244 100.0%	

**Most important reason for hunting elk \* landowner type Crosstabulation**

			landowner type			Total
			farmer	landowner not farmer	non-landowner	
Most important reason for hunting elk	few contacts with other hunters	Count % within landowner type	9 42.9%	11 22.9%	44 25.9%	64 26.8%
	meat	Count % within landowner type	9 42.9%	33 68.8%	104 61.2%	146 61.1%
	trophy elk	Count % within landowner type	3 14.3%	4 8.3%	22 12.9%	29 12.1%
Total	Count % within landowner type	21 100.0%	48 100.0%	170 100.0%	239 100.0%	

## Vayhinger ELK data Analysis

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
elk population change desired * How survey received	262	98.1%	5	1.9%	267	100.0%
elk population change desired * landowner type	257	96.3%	10	3.7%	267	100.0%
change in number of bulls in area * How survey received	262	98.1%	5	1.9%	267	100.0%
change in number of bulls in area * landowner type	257	96.3%	10	3.7%	267	100.0%
overall success of CDOW elk mgt in area * How survey received	264	98.9%	3	1.1%	267	100.0%
overall success of CDOW elk mgt in area * landowner type	259	97.0%	8	3.0%	267	100.0%
quality of elk hunting in area * How survey received	117	43.8%	150	56.2%	267	100.0%
quality of elk hunting in area * landowner type	114	42.7%	153	57.3%	267	100.0%
Regulation opinion * How survey received	252	94.4%	15	5.6%	267	100.0%
Regulation opinion * landowner type	247	92.5%	20	7.5%	267	100.0%
level of satisfaction with elk hunting in area * How survey received	266	99.6%	1	.4%	267	100.0%
level of satisfaction with elk hunting in area * landowner type	261	97.8%	6	2.2%	267	100.0%
level of crowding * How survey received	266	99.6%	1	.4%	267	100.0%
level of crowding * landowner type	261	97.8%	6	2.2%	267	100.0%
Most important reason for hunting elk * How survey received	244	91.4%	23	8.6%	267	100.0%
Most important reason for hunting elk * landowner type	239	89.5%	28	10.5%	267	100.0%



### Appendix 3. Comments received on the draft DAU plan.

Date: July 8, 2007

To: Colorado Division of Wildlife  
Jack Vayhinger

From: Myron Anduri  
Park County Resident

RE: Elk Planning

I would like to express my strong opposition to any plan that reduces the number of Elk in the upper South Park area. I am an avid hunter and I also own agricultural land in GMU 500 that is used for livestock grazing. I have lived in the area for 27 years and have made tracking elk one of my year round hobbies. It is clear to me that the area can support significantly more elk than we currently carry. The significant amount of ungrazed land clearly shows that the problems the DOW is facing is an elk distribution problem not an over population problem.

I have talked with Mark Lamb at length a number of times about this issue and we agree that there are some ways to get the elk back on land that they used to winter on. More active grazing of ungrazed private land combined with working with the Forest Service to open up lands to limited grazing should help significantly. There are a number of citizens that are willing to help with this effort.

Finally I would ask that the DOW understand clearly that they are being badgered by a very few voices that quite frankly don't know what they are talking about and complain possibly because it is their nature. No one wants to say it, but it needs to be said. I have discussed this issue with other ranchers in the area and they tell me the same thing. One fellow in particular has a large elk herd on his land for several months at a time. He told me straight out that he can not see any damage from the elk. He commented specifically at how light the animals are on the land. By contrast some ranchers in the area overgraze their land to the point that it would not be possible to tell if the elk are having an impact or not. My agricultural land is 160 acres and will see from 40 to 70 head of elk during the late winter. They have never impacted the summer cattle grazing.

The non agricultural residents that I have discussed this issue with have never attended a DOW meeting and are not hunters. When I explained the situation they were aghast at the thought of reducing the herd. I understand how difficult it is to get citizen involvement and comments. Please be aware that if the entire population of the region was polled your numbers would be so lop sided in favor of the elk that your decisions would be easier. Elk are very important to the citizens of South Park.

For the record I support increasing the herd. Thank you for the opportunity to provide my input.

Myron Anduri  
Fairpaly, Co  
719-836-2852

Dear Mr. Vayhinger,

Thank you for extending the effort and taking the time to prepare this plan. I also appreciate the opportunity to provide my comments.

As a resident, business owner and hunter within **GMU 501** I would support a move by the DOW to keep the current elk populations the same or to slightly increase their numbers with the accompanying ripple affects your draft plan outlines. My reasoning for my position is to keep the unit(s) designated as quality units for hunting purposes and it would seem, if I've read your report correctly, that the available natural resources would support an elk population accordingly.

I respect the position of the cattleman, however, I believe it's a fine line, which unfortunately the DOW is forced to manage between the interests of hunters and area ranchers. In my opinion, cattle play a role in negatively affecting the very resources the gentlemen is trying to protect. For example, many of my favorite fishing areas have been damaged to the point of unusable due to the presence of grazing cattle in those areas when they urinate and defecate in those streams to eventually end up in small ponds and lakes.

Additionally, a more aggressive policy of forest thinning would seem to be the best solution for all involved. Your plan sites the benefits of recent burn areas in providing more food for elk, which in turn would alleviate the pressure on privately-owned ranches and land and significantly reduce the threat of out-of-control wildfires that tap already extended resources. This is the area that would take the most time to sway the most parties involved but would in the long run, provide the most benefits without penalizing one group over another.

Again, thank you for your time and effort.

Best regards,  
Bryan Leist

Jack

I have hunted this area for the last 12 years when I could draw a license (muzzleloader & archery) and was very satisfied with the results. If you hunt hard and get off the roads you will see elk. We have killed a number of bulls. We have seen a number of Pope & Young bulls, especially last year. I am satisfied with it the way it is.

Chuck Metz

**Chuck Metz**  
Stone Valley Construction, Inc.  
P. O. Box 369  
253 Pine Grove Road  
Pine Grove Mills, PA 16868  
(814) 237-8757

(814) 234-7327 Fax

I have no specific comments to the Mgt plan for E-18 as it only merely presents the statistics and options you are considering. I've been archery hunting in Area 501 for nearly 10 years. Even when I don't draw a license, I take a two week trip to scout the elk out for others in our group who have a license. I have no problem with the current elk populations or bull to cow ratio but would not be against either of those being increased.

The biggest change that has occurred over the last 10 years has been the increased recreational use of state lands for camping and ATV use. This has caused the elk to migrate away from the "busy" areas and either stay on remote forest or private lands during hunting seasons. We used to always have elk around our camp and hear them bugling all night long. We see less and less of this now as the elk don't hang around the lower aspen/meadow areas where the forest land roads are. Therefore, my recommendation would be for limited recreational use during the hunting seasons. Camping would still be permitted but no ATVs (motorcycles and 4-wheelers) or recreational shooting. All you see on weekends is RVs with trailers full of ATVs and they ride everywhere, including where they are not permitted, all day long.

Thanks for you time and you guys are doing a great job.

Chuck

**Charles Metz**

Environmental Engineer

**TETRA TECH NUS, Inc.**

8640 Philips Highway, Suite 16

Jacksonville, Florida 32256

Telephone: (904) 730-4669 ext.220

FAX: (904) 636-6165

charles.metz@ttnus.com

[<http://www.ttnus.com/>](http://www.ttnus.com/)

[<http://www.tetrattech.com>](http://www.tetrattech.com)

HI:

Sorry it has taken me so long to get back to you. Yes I did receive my copy of the draft elk management plan and have read it. My feelings and I believe the majority of CCCA members feel that there are too many elk and the numbers need to be reduced somewhat. I think around the 1500 would be a good long range number to have. It will be hard to hold to that number because the wild animals are migratory and will come to this area because of the large numbers of subdivisions and houses as they (wild animals) learn there is less hunting pressure in these areas. Because of this it puts more pressure on the cattlemen as they are the ones with the large areas of grazing, I would hope that DOW becomes more agreeable to compensating the cattleman when he loses grazing to wildlife.

What is the date & time of the August meeting for the wildlife commission and where is it being held. I don't know if I can attend but will if possible.

Thank you  
Lark Harvey

NATURAL RESOURCES  
CONSERVATION SERVICE

Voice: 719 686-9405

TELLER-PARK CONSERVATION  
DISTRICT OFFICE

Fax: 719 686-9403

800 Research Dr, Suite 100  
Woodland Park CO 80863

---

July 9, 2007

Colorado Division of Wildlife  
7405 Highway 50  
Salida, CO 81201  
Attn: Jack Vayhinger

This letter is in response to your request for public comments on the Draft Management Plan for the Kenosha Pass elk herd in Game Management Units 50, 500 and 501 in northern Park and southwestern Jefferson counties.

Based on my knowledge of the local elk herd numbers and movements, and after consulting a private wildlife biologist who has knowledge of the situation regarding the elk herd in GMUs 50, 500 and 501, I have the following comments.

1. Out of the three possible herd population objectives and bull/cow ratios, I would prefer the option of reducing the current population estimate 25 percent, and retaining the quality designation of 35 bulls per 100 cows. This conservative approach is a proactive attempt to manage the herd without resorting to fairly extreme actions that may not be justified in light of the variabilities of the actual population numbers. See comment No. 2, below.
2. The elk herd in these GMUs seems to become transient and therefore the high numbers during the most recent survey may not actually indicate a long term population trend; likewise a lower count in the future may not mean a definite long term trend. Therefore the 25 percent reduction option is a prudent one that, although a compromise, allows for greater flexibility in adjusting future elk numbers up or down. In spite of the recent long term drought the elk numbers appeared to have substantially increased, so the overall habitat and forage availability did not become a limiting factor during this period. And this indicates to me that putting on the brakes gently, so to speak, so that the herd doesn't continue to increase, is a preferred alternative to letting the current herd size remain the same or allow it to increase.
3. Land use makeup, game damage and elk conflicts with the local livestock industry have made for a difficult situation in these GMUs and solutions will not be easy. Trying to shift the elk herd to public land will be hard because of the heavy off road vehicle use on the US Forest Service land for example; and the prohibition on hunting on private subdivisions in the area effectively makes them elk sanctuaries. However, I would recommend continuing to use the established HPP Committee policies concerning game damage, and trying to foster an awareness of the need for large private landowners to allow elk harvest as a tool to maintain a healthy elk herd, while the 25 percent herd reduction option is being implemented.

If you have questions or need clarifications, please contact me.

Sincerely,

Leon S. Kot  
District Conservationist

Jack Vayhinger,  
C/O Policy and Regulations Section, Colorado Division of Wildlife,  
6060 Broadway, Denver, CO 80216-9983 November 9,2006

Dear Jack:

At the outset I would like to thank you for extending the deadline to November 22, 2006, for responses to the questionnaire to gather public input that will be used by the Colorado Division of Wildlife in the development of elk management plans for Game Management Units (GMUs) 50, 500 and 501. As you know the snowstorm had delayed the public meeting until this evening, November 9, 2006.

Jack, of particular concern is the fact that we do not want the Department of Wildlife to loose sight of the fact that we are still in a drought condition, despite good summer rains.

Of particular note is the position paper prepared by the Teller Park Conservation Board dated July 6th 2006. The paper notes that according to Colorado State Climatologist, the past six years have seen precipitation levels below average statewide. South Park is no exception where we have experienced an extended period of drought conditions. The position paper is important in many respects and notes that: 'As a rule of thumb, for every year of drought, it takes a year of for plant life to continue". This view was also expressed by Sheila Lamb, US Forest Service Ranger, who was quoted in the Ute Pass Courier on August 9, 2006 as saying: "The rule of thumb is for each year of drought you need a good year of rain-we need seven years of good rains for plant life to completely recover."

In determining the appropriate size of the elk herd we consider that account must be taken of the drought conditions experienced over the past six or seven years in South Park. That has a huge impact on the forage available to sustain livestock and elk. Of particular importance is our view that in the same way that winter elk habitat is a limiting factor in determining the appropriate size of the elk herd, we consider that the size of the elk herd should be determined taking into account the amount of forage available in dry years. If this is not done, it puts both ranchers and the elk herd at risk.

Attached to this letter are a number of exhibits related to this matter. These are as follows:

- 1: The Position Paper dated July 6, 2006 prepared by the Teller Park Soil Conservation Board
- 2: The article from the Ute Pass Courier of August 9 2006 related to the meeting of the Teller Park Soil Conservation Board

3: The article from the Flume on July 14, 2006 related to the meeting of the Teller Park Soil Conservation Board.

4: Three articles from the Flume on the subject of drought in South Park dated June 23, June 30, and July 7th of 2006

I would further request that the Commission be made aware of the fact that approximately 60% of elk winter range is on private land. This factor should have an important bearing in the determination of the appropriate size of the target herd.

Further, I would request that the relevant output from the "The Habitat Assessment Model: A Tool to Improve Wildlife Habitat Management" prepared by the Natural Resource Ecology Lab, Colorado State University" for South Park be made part of the record and provided to the DOW Commission so that it may be taken into account in the determination of the appropriate size of the elk herd in E-18.

Also attached to this letter is an extract from the South Park Habitat Management Plan which documents the conflicts between ranchers and big game. As you know this survey was conducted in 2005. On page 5 of the South Park Habitat Management Plan, under item 4: Annual Report it is noted that" The Committee will produce and send an annual report to stakeholders, reviewing **HPP** activities and accomplishments, providing hunting license numbers and harvest results, and surveying for additional conflicts. The committee will also maintain an updated list of conflict areas" As we see it the committee has failed to survey for additional conflicts and the questionnaire by the DOW is by no means a substitute for the failure of the committee to meet its obligations, particularly as the survey is designed to be anonymous.

I would request that this letter and the exhibits described above in their entirety be made part of the record for the Department of Wildlife Commission as part of their consideration in determining the appropriate size of the Elk herd in E-18 (GMUs 50,500 and 501)

Respectfully submitted at the public meeting in South Park on November 9,2006.

Lawlor Wakem,  
President, Central Colorado Cattlemen's Association.  
Eagle Rock Ranch,  
14709 County Road 77,  
Jefferson, CO 80456  
Phone: 719-836-0673

JULY 6<sup>TH</sup> 2006

POSITION PAPER PREPARED BY TELLER PARK SOIL CONSERVATION BOARD

BACKGROUND

The Colorado State Conservation Board (CSCB) is a Division of the Department of Agriculture.

The Colorado Department of Agriculture's Conservation Services Division administers programs designed to protect Colorado's natural resources.

The division's programs offer direct financial and technical support to the state's 77 local conservation districts.

The Teller Park district is involved in matters such as noxious weed control, pest control as well as the prevention of agricultural chemicals entering ground water, but is also concerned with the conservation of our resource base, which essentially is the grasses and palatable plants available to support both livestock and wildlife.

The district also provides advice to individual ranchers to improve their pastures and is also involved in community educational programs, including one for school teachers, so that they gain an appreciation of the many aspects involved in operating a ranch.

Drought

Large sections of Colorado including Park and Teller Counties have experienced drought conditions for a number of years. According to Colorado State Climatologist at the Colorado Climate Center, the past six years have seen precipitation levels below average statewide. In addition, temperatures have been above average for the past six years. Stream flows are below normal levels, springs and wells are drying up, and local drillers are drilling deeper to find water.

Why drought is important.

Drought has a profound influence on rangeland resources.

Essentially it reduces the amount of grass and other palatable plants available for livestock and wildlife. Certain more fragile grasses die off, there is less ground cover and a risk of severe erosion. , Importantly it impacts what we call "animal performance" or the general health of both livestock and wildlife. In windy

conditions, which we often experience, there is the added risk of the complete loss of topsoil which is necessary to sustain plant life.

The longer drought conditions persist, the longer it takes plant life to recover. As a rule of thumb, for every year of drought, it takes a year for plant life to recover. So good rains in a single year do not "break" a drought. Plant life takes years to recover.

### What can be done to manage drought conditions

One of the most critical actions we can take to preserve our rangeland during drought conditions is to reduce the "intensity" of grazing.

In any given year there is a certain amount of grass and other palatable plants available for livestock and wildlife. We call this "forage".

What we need to do in drought years is to allow only a certain amount of the available forage to be eaten by livestock and to leave some of the palatable forage so that the plants and roots have an opportunity to recover when precipitation occurs. The remaining leaves on plants take in light, protect the ground so that precipitation can be taken into the ground, and allow the root systems to recover. If plants get eaten down to their crowns (just above the ground), the plants will die and we will eventually be left with bare ground.

Ranchers not only have to reduce the number of livestock, but have to minimize repeated use of the same pasture in the same year. What this means is that they have to break up their ranches into several pastures and allow livestock in those pastures for only a limited period of time each year.

### How do we manage our pastures

The first thing we need to understand is that a cow eats a certain amount of forage each day which is equivalent to 2.65% of her body weight. So if we know the weight of a cow we know how much forage she will consume in a day. If we know that, we know how much she consumes in a month or in a year. For example a cow that weighs 1000 lbs will eat about 26.5 pounds of forage per day.

The next thing we need to measure is the amount of forage that is available from any pasture or all the pastures in a ranch. There is in fact a scientific way for us to measure this. We can actually go into a pasture, throw out a hoop of wire in the pasture, take a cutting of the palatable forage, weigh the cutting, and then using a formula we can determine the amount of palatable forage ( in pounds) in each acre. If we know the number of, acres in each pasture we therefore know the amount of palatable forage in pounds in that pasture.



Of critical importance, is that we cannot then assume that all of the forage in a pasture is available to be eaten. And this is the most important thing to understand; in drought conditions, if we want to preserve our pastures, we have to reduce the intensity of grazing. What this means is that we not only have to reduce the number of livestock on our pastures, we can only allow the livestock to eat about one third of the palatable forage. We need to leave about two-thirds of the forage to maintain plant life and avoid the destruction of the pasture by overgrazing. We also want to be sure that once one third of available forage has been eaten, that livestock do not go back into that pasture until the next growing season, about a year later.

In normal rainfall years when we have recovered from the drought, we can allow grazing intensity to increase. Not only can we increase the number of livestock but instead of allowing livestock to eat only one third of the forage, we could allow them to eat 50% of the palatable forage.

#### How we determine our stocking rates

See attached spreadsheets.

#### The impact of elk on overgrazing

Historically, elk were seen in relatively small numbers on ranching pastures. They ate some of the forage and ranchers generally did not object. In the late 1980's elk had started to compete with livestock for available forage and legislation was passed in an effort to reduce conflicts.

In recent years elk have relied increasingly on private land to meet their forage needs and are now increasingly competing with livestock for available forage. (To put this in perspective, 2.65 elk eat as much as one cow). In drought conditions the situation becomes almost intolerable for those ranchers where elk are concentrated in the winter months. Not only are elk impacting the livelihood of those ranchers dependent on making a living off the land, but they are endangering the rangeland by overgrazing pastures that are becoming increasingly stressed.

The attached example is designed to illustrate the potential impact of elk on overgrazing. In the example shown, elk resulted in a 22.5% increase in overgrazing. While it is not possible from available sources to determine the average amount of overgrazing caused by elk; in certain pastures overgrazing could well exceed the 22.5% number used in the example. In other pastures, the impact could be minimal. What we do know, is that a number of ranchers have reported conflicts with elk and that elk numbers in the South Park area are above the long term objectives established by the Division of Wildlife

## Conclusion

In a thesis covering the period 1859 to 1994 about the South Park water transfers, Cathy Kindquist noted: "Since 1968 municipalities along the Colorado Front Range have acquired approximately 75% of the water rights once used for irrigation in South Park. Close to 40,000 acres of haylands have been retired from production in rural Park County"

In describing the climate of South Park she wrote: "Precipitation is concentrated in the summer months, and is derived largely from thunderstorms that sweep violently across the park almost every afternoon."

Clearly, South Park has changed dramatically. The loss of irrigated land has continued in the decade since her thesis was written. What it means to us, is that if we want to preserve some of our rich historical legacy and the character of the park, we have a collective responsibility to protect the ranchlands that remain.

While ranchers must resort to reducing the number of livestock they carry during the current drought conditions, unless the number and concentrations of elk are brought under control, the continued overgrazing of our rangeland could threaten its very existence. We are losing plants and grasses, the risk of soil erosion is increasing and the complete loss of private rangeland pastures has become a very real risk.

Also, and not to be overlooked, there is a very severe risk that the wildlife population will eventually be put at risk, in that there will not be sufficient forage to sustain healthy herds. Under these conditions elk could increasingly move into more populated areas where they could result in a risk for the community at large. For example, elk, unlike livestock, deplete the forage and migrate to a new area. This relatively frequent movement increases the probability of highway accidents and consequently the risk of harm to the public.

These are hard times for ranchers, and while overgrazing by ranchers is still taking place, they cannot bear the entire burden. The Division of Wildlife shares a responsibility to protect our rangelands. If we do not see an increased level of cooperation between the Division of Wildlife and the ranching community we could see a disaster of unprecedented proportions unfolding. This would include the loss of productive rangeland, and a deteriorating financial condition for the ranching community.