

**Trinchera Deer Herd  
Data Analysis Unit D-31  
Game Management Unit 83  
July 2010**

Colorado Division of Wildlife  
0722 S Co Rd 1 E  
Monte Vista, CO 81144

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Terrestrial Biologist

*Approved by the Colorado Wildlife Commission July 8, 2010*

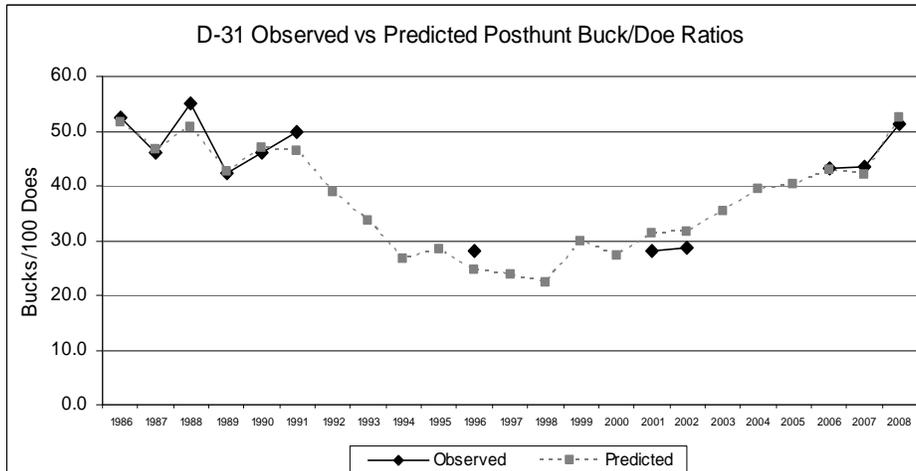
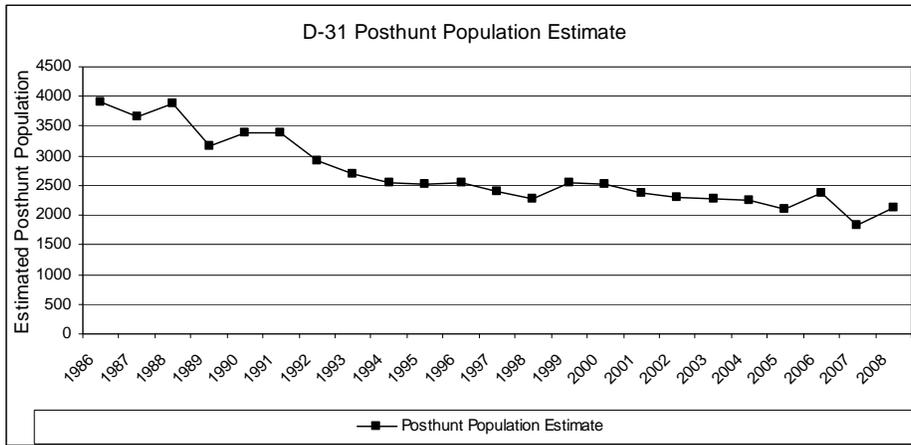
Trinchera Deer Herd  
Data Analysis Unit D-31  
Game Management Unit 83

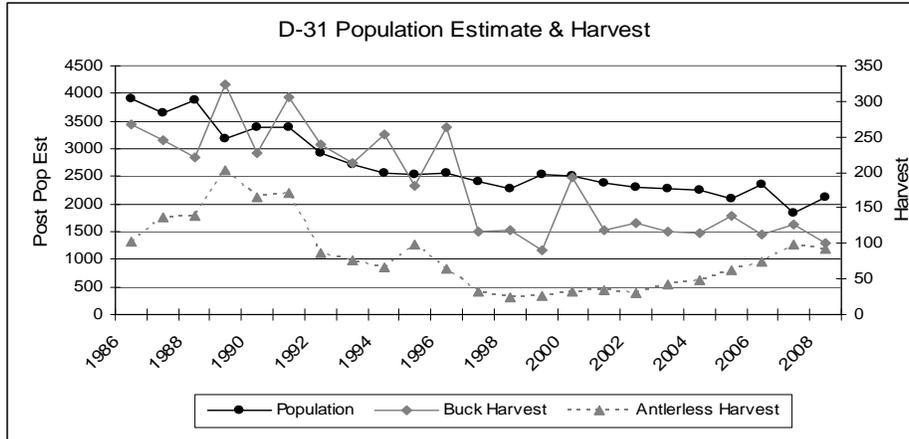
Executive Summary  
June 2010

Population:      2008 Estimate              2,100  
                         **2010 Objective**              **2,000 to 2,500**

Sex Ratio:        2008 Observed              51 bucks:100 does  
                         **2010 Objective**              **35 to 40 bucks:100**

Land Ownership: 97% private, 1.4% US Fish and Wildlife, 1% State, and 0.5% BLM





Data Analysis Unit (DAU) D-31, the Trinchera Deer Herd, is located in south-central Colorado, on the southeast side of the San Luis Valley and consists of Game Management Unit 83. There is one property, the Trinchera Ranch (formerly known as the Forbes Trinchera), located within the DAU which is enrolled in the Colorado Division of Wildlife’s Ranching for Wildlife program.

The DAU was managed with unlimited buck licenses until 1999 when all buck licenses became limited in the state. There is doe harvest on the Trinchera Ranch and on private lands through dispersal licenses which are used to address game damage issues.

The current model indicates that the 2008 post season population was about 2,100 deer. The model shows that during the past 22 years the population reached a high of 3,900 in 1986 and 1988. Since then the population has been steady or slowly decreasing to its current level. The current population objective of 6,000 appears unrealistically high for this population due mostly to habitat conditions and poor recruitment.

Sex ratios are returning to the upper 40’s, lower 50 bucks per 100 does since the limitation of buck licenses. During the 1990’s the sex ratio stayed in the upper 20’s.

Since 1999 when buck licenses became limited male harvest has ranged from 97 in 1999 to 194 in 2000. On average 125 bucks have been harvested per year since the implementation of limited licenses. Doe harvest from 1986 to 2008 has varied from 25 (1998) to 206 (in 1989) with an average harvest of 85.

The main limiting factor for this herd is the amount of winter range available. Overpopulation of deer and/or elk on the winter range can damage the habitat and can also force animals onto agricultural fields. This in turn could lead to game damage issues. Housing development on private lands continues to decrease winter range availability, further restricting this population.

**Management Alternatives**

Two alternatives for D-31 were considered for posthunt population size and three alternatives for sex ratio objectives.

Population Objective Alternatives:

- 1) 2,000 to 2,500 (current population)
- 2) 2,500 to 3,000 (increase in current population)

Sex Ratio Objective Alternatives:

- 1) 25 to 30 bucks per 100 does
- 2) 35 to 40 bucks per 100 does
- 3) 45 to 50 bucks per 100 does

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## 1. DAU Plans and Wildlife Management by Objectives

The growing human demand for a finite resource dictates wise management of Colorado's wildlife. The Colorado Division of Wildlife (DOW) employs a management by objectives approach to big game populations (Figure 1). The DOW's Long Range Plan provides direction and broad objectives for the DOW to meet a system of policies, objectives and management plans such as the Data Analysis Unit Plan. It also directs the actions the Division takes to meet the legislative and Wildlife Commission mandates.

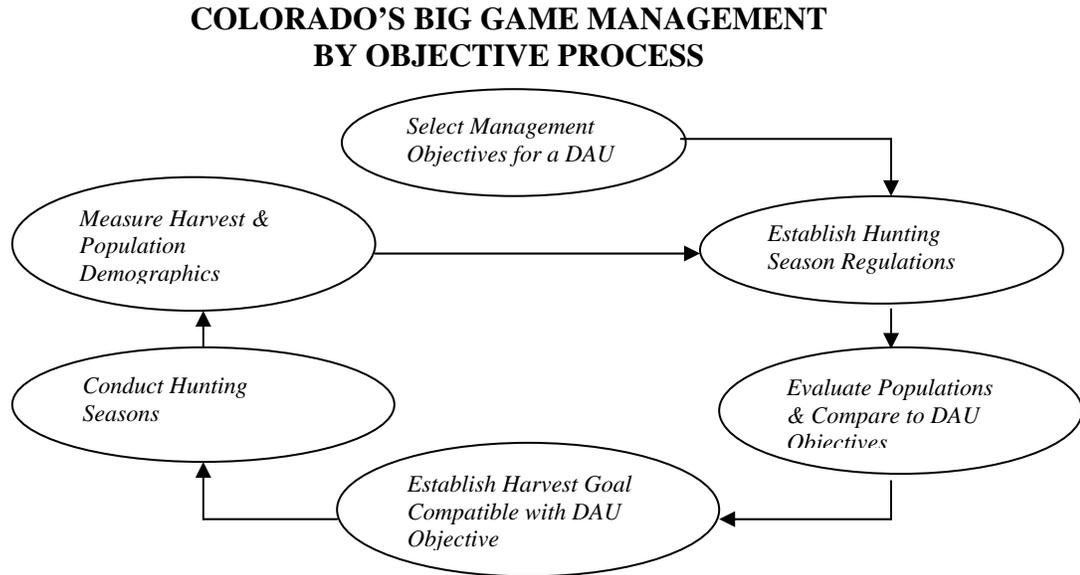


Figure 1. Management by objectives process used by the CDOW to manage big game populations on a DAU basis.

Data analysis units (DAUs) are used to manage herds of big game animals. The DAUs are generally geographically discrete big game populations. The Data Analysis Unit Plans are designed to support and accomplish the objectives of the Long Range Plan and meet the public's desires for big game. The DAU Plan establishes the short and long term herd objectives. The objective approach is the guiding direction to a long term cycle of information collection, information analysis, and decision making.

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

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

## 2. Description of Data Analysis Unit

### 2.1 Location

The Data Analysis Unit (DAU) for the Trinchera deer herd is located in south-central Colorado, on the southeast side of the San Luis Valley (Figure 2). It consists of Game Management Unit 83. It covers 1,251 square miles and encompasses portions of Alamosa and Costilla Counties. The main drainages are Ute, Trinchera, Rito Seco and Culebra Creeks.

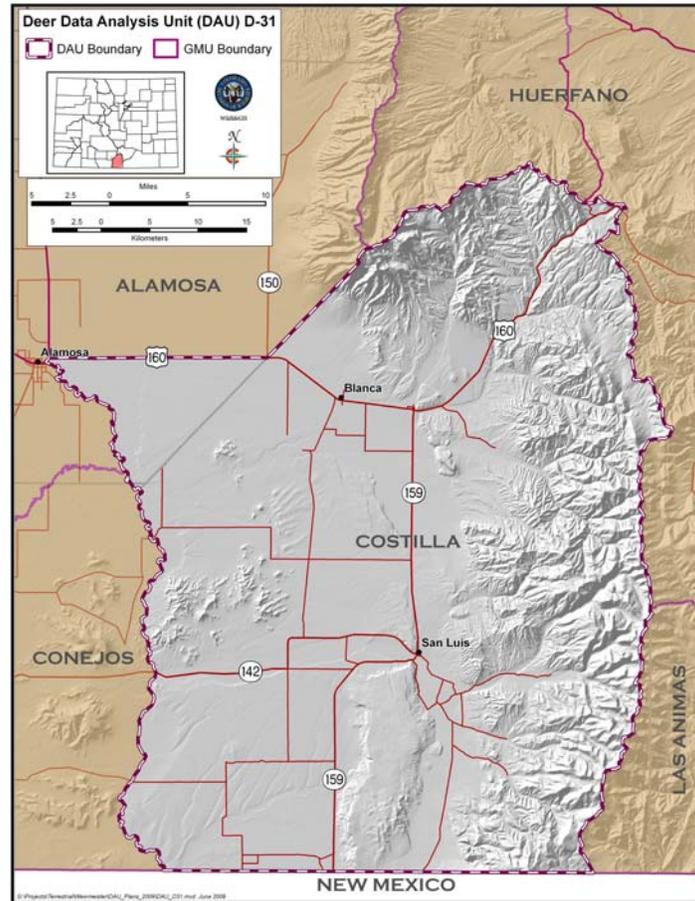


Figure 2. Map showing DAU D-31 boundaries

The DAU is bounded by U.S. Highway 160 and the Alamosa/Costilla county line to the Costilla/Huerfano county line on the north, by the Costilla/Huerfano county line and the Sangre de Cristo-Culebra range on the east, the New Mexico state line to the south and the Rio Grande on the west.

The main geographical features are the Sangre de Cristo and Culebra ranges which rise to over 14,000 feet in elevation and are located to the east. The Rio Grande is less than 7,500 feet at the New Mexico state line.

Ownership is 97% private in this DAU (Figure 3). US Fish and Wildlife Service (1.4%), State (1%), and BLM (0.5%) make up the remaining three percent.

The climate is highland or mountain climate with cool dry summers and very cold winters with heavy snow. The Sangre de Cristo mountain range is in the rain shadow of the San Juan Mountains and therefore somewhat drier. The higher elevation of the Sangre de Cristos receive 30 to 40 inches of precipitation a year mostly in the form of winter snow and to a lesser extent frequent afternoon showers in

the summer. The precipitation in the foothills is about 12 inches while the valley floor gets only 7 inches a year and is considered a high desert.

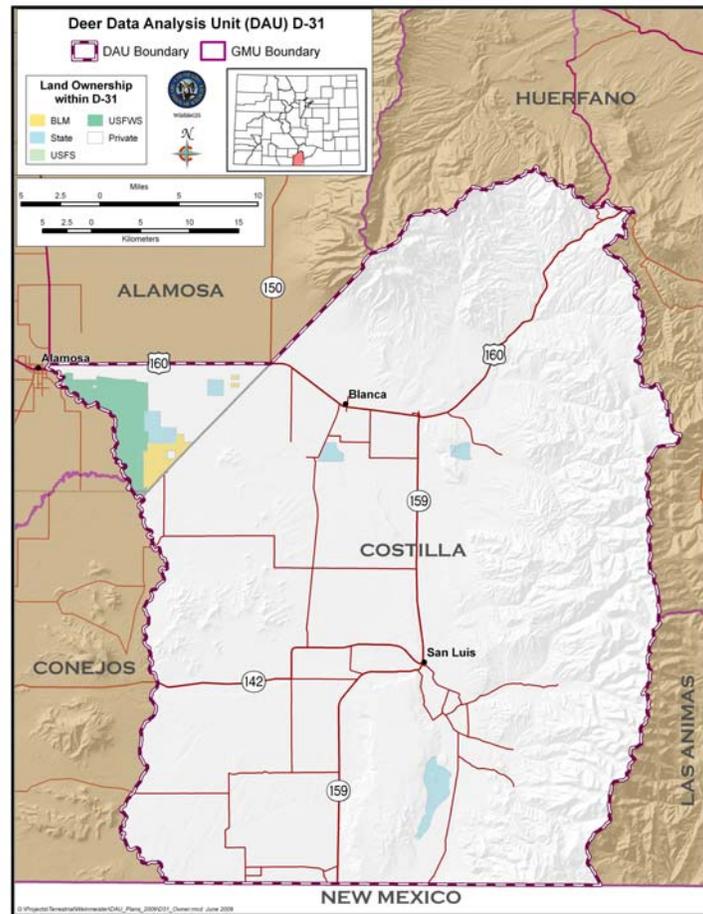


Figure 3. Landownership in DAU D-31

The vegetation varies from grassland/sagebrush shrub and agriculture at the lower elevations and with increasing elevation oak brush, pinion-juniper, ponderosa pine, Douglas fir/aspen, spruce/fir and an extensive alpine tundra zone above 12,000 feet elevation.

## 2.2 Deer Range and Movement

Deer generally occur from the grassland shrub winter range to the alpine during the summer. The overall range of deer is the entire DAU, but the majority of the population is in the north portion of the DAU. This becomes evident when looking at classification numbers. 562 deer were classified in January 2007. 93% or 525 deer were classified in the north half of the DAU. In January of 2008 a total of 1,208 deer were classified of which 95% (1,147) were in the north half. Of these deer, the majority are found on sagebrush hills located on or adjacent to the 266 square mile Trinchera Ranch. These same deer are typically found using summer range located on the Trinchera Ranch.

Deer movement to winter range is dictated by weather with snow and limited forage availability driving the deer to the winter range. This movement usually occurs during November and continues until January. The migration of deer is usually elevational for those animals that summer in the mountainous part of the DAU. Those deer in the agricultural areas are more sedentary.

### 3. Herd Management History

The Trinchera DAU historically has been considered a good deer unit. Good winter range conditions with abundant browse provides for a quality habitat. Development of subdivisions on the winter range has limited the potential of the deer herd. Almost the entire DAU is private and currently one of the major landowners in the DAU, the Trinchera Ranch, participates in the Ranching for Wildlife (RFW) program. Harvest of bucks and does occurs on the Trinchera Ranch. Areas outside the Trinchera Ranch provide deer hunting under GMU specific buck deer licenses. There is also some doe harvest through dispersal licenses on lands along Trinchera Creek south of Fort Garland and Blanca. In 1999 all buck licenses became limited licenses. A fourth season buck hunt was created in 2008 and a limited number of buck licenses were added to it. Because most of the GMU/DAU is private land, all deer licenses are Private Land Only (PLO).

#### 3.1 Post-Hunt Population Size

Post-hunt population size is determined using the best information available at the time in conjunction with a spreadsheet model as described in section one of this plan. Changes are made as new and better information becomes available. Computer modeling is not an exact science and may not produce a final number that is exactly correct. Population models do represent trends well and these trends are a tool used by biologists to make management decisions concerning big game herds. There has not been a lot of data gathered in this DAU which lessens the quality of the model.

The long term posthunt population objective established in 1996 was 6,000. The current population model estimates the 2008 post season population at 2,100, well below the objective (Figure 4). The same model predicts that during the past 22 years the population reached a high of 3,900 in 1988 and has slowly decreased to its current size. The population is stable with perhaps a slight decreasing trend.

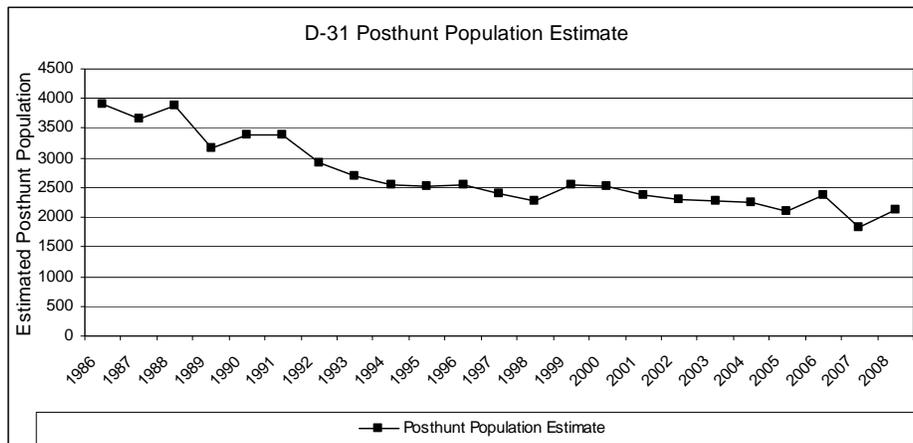


Figure 4. D-31 posthunt population estimate from 1986 to 2008

#### 3.2 Post-Hunt Herd Composition

Post hunt herd composition is acquired by aerial surveys usually done in December or January following the big game hunting seasons. These surveys are targeted mainly at elk populations with deer observations of secondary importance. It is generally accepted that buck:doe ratios and fawn:doe values are fairly accurate. Aerial surveys are subject to variability due to weather, snow cover, sample size and observers. In the 23 year span from 1986 to 2008 the Division of Wildlife has conducted five post season classification flights. Additionally the Forbes Trinchera Ranch performed 7 classification flights in the same time period. Because a large portion of deer within the DAU are found on the Trinchera Ranch, the data gathered from both sets of flights were used in this analysis.

The average fawn:doe ratio observed during post season classification flights from 1986 to 2008 was 55 fawns per 100 does (Figure 5). The low during the same time period was 31 in 2007 and the high was 77 in 2006.

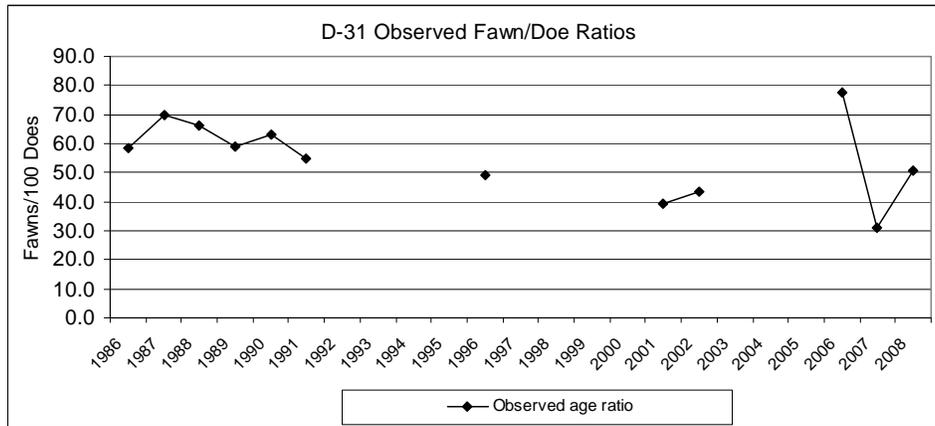


Figure 5. D-31 observed posthunt age ratios from 1986 to 2008

Buck ratios were around 50 bucks per 100 does in the 1980's but decreased to the upper 20's in the 1990's (Figure 6) with unlimited buck license available to hunters. In 1999 buck licenses became limited and since then sex ratios have increased to the current 51 bucks per 100 does. The highest observed post season buck ration was 55 bucks per 100 does in 1988 and the lowest was 28 observed in 1996, 2001, and 2002. The average since 1986 has been 43 bucks per 100 does which falls below the 1996 sex ratio objective of 55 bucks per 100 does.

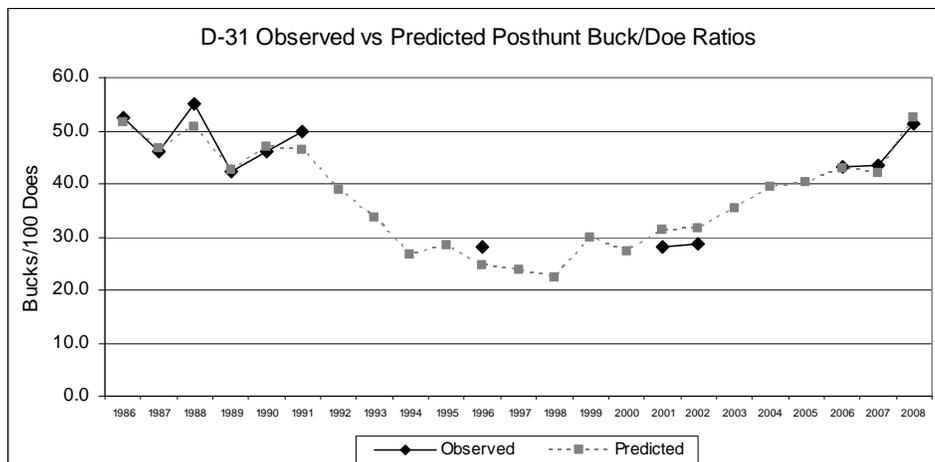


Figure 6. D-31 observed and modeled posthunt sex ratios from 1986 to 2008

### 3.3 Harvest

Harvest is affected by hunting pressure, season structure, weather, and population size. Buck harvest from 1986 to 2008 ranged from a low of 97 in 1999 to a high of 323 in 1989 and has averaged 184. Since 1999 when buck licenses became limited male harvest has ranged from 97 in 1999 to 194 in 2000 (Figure 7). On average 125 bucks have been harvested per year since the implementation of limited licenses.

Doe harvest from 1986 to 2008 has fluctuated from 25 (1998) to 206 (1989) with an average harvest of 85. Currently doe licenses on the Trincheria Ranch and dispersal licenses provide the only opportunity for doe harvest in the DAU.

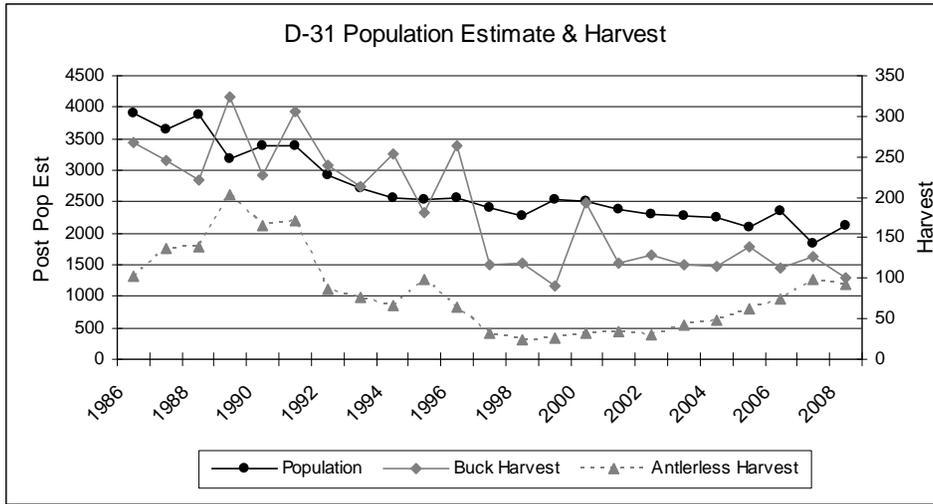


Figure 7. D-31 buck harvest, antlerless harvest and posthunt population from 1986 to 2008

Because of the high ratio of deer found on the Trincheria Ranch, the proportion of deer harvested through Ranching for Wildlife on the Ranch is high compared to the rest of the DAU. From 2000 to 2008 45% of the buck harvest and 86% of the doe harvest has occurred on the Trincheria Ranch (Figure 8). During the past two years doe hunting has increased off of the Trincheria Ranch because of game damage on agricultural lands along Trincheria Creek by Smith Reservoir. Prior to this 95% of the does harvested in the DAU came from the Trincheria Ranch.

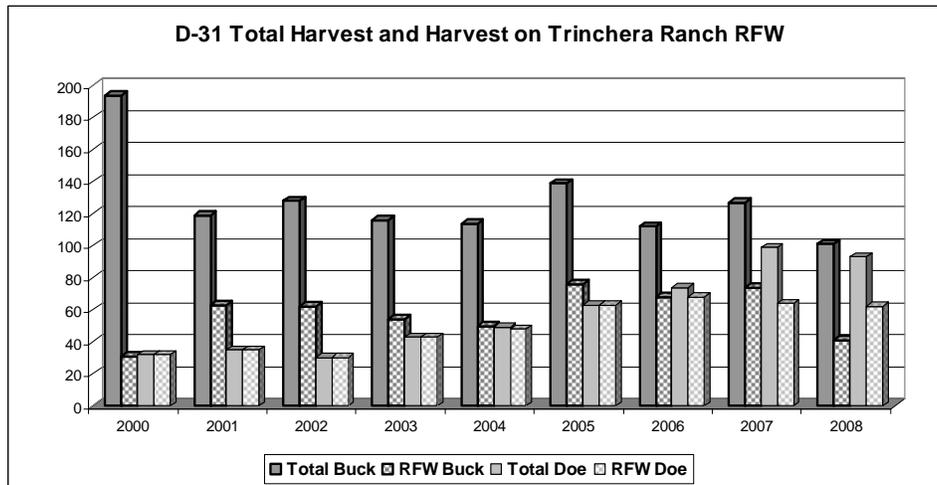


Figure 8. D-31 total harvest and harvest on Trincheria Ranch RFW from 2000 to 2008

### 3.4 Hunting Pressure

The number of hunters from 1986 to 1998, when buck licenses were unlimited, ranged from a low of 596 in 1986 to a high of 914 in 1991 averaging about 778 hunters (Figure 9). During this same time period (1986 to 1998) the yearly success rate for the DAU averaged 42%, with a low of 24% in 1998 to a high of 58% in 1989.

The number of hunters since limiting buck licenses in 1999 has been steady with an average of 242 per year. The low was 185 hunters in 2002 and the high was 466 in 2000. Since the implementation of limited buck licenses success rates in general have increased. The yearly success rate for the DAU has averaged 78% from 1999 to 2008, with a low of 47% in 1999 to a high of 89% in 2005 and 2007.

It currently requires two to three preference points for a resident hunter to draw a general buck license valid for GMU 83.

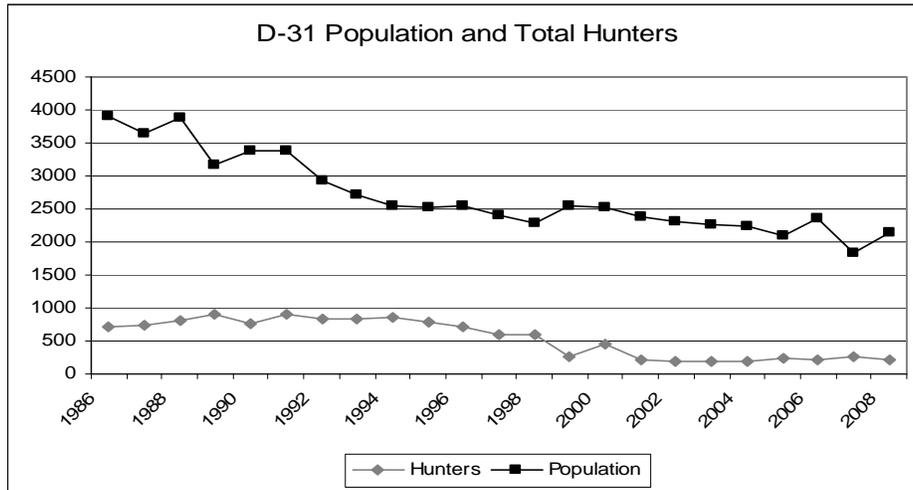


Figure 9. D-31 total harvest and population from 1986 to 2008

#### 4. Current Herd Status

##### 4.1 Summary of Current Conditions

The current posthunt population remains at 35% of the 1996 objective and population model indicates that the population was never at the '96 objective. Sex ratios however are just below the 55:100 objective. Although age ratios have been low, it is generally accepted that little can be done to control this through management. Variables such as weather and browse conditions have a higher impact on reproduction than population management.

##### 4.2 Current Management Issues

Game damage is an issue in GMU 83 where deer are found adjacent to or on agricultural fields which are mostly alfalfa or grass hay. Deer are common along Trinchera Creek from Fort Garland west past Smith Reservoir. This concern is currently being addressed by issuing dispersal licenses to landowners experiencing losses caused by deer.

Winter Range degradation and loss is another concern. There are several sub-divisions located throughout deer winter range within the DAU. The range continues to become fragmented as houses and roads are built within these sub-divisions.

Disease – Currently all areas in the San Luis Valley, including D31, are free of chronic wasting disease. In August 2001 at the Anta Grande Elk Farm west of Del Norte on Hwy 160, a domestic cow elk was found dead and later determined to be carrying CWD. After testing the remaining animals in the herd (approximately 200 elk) one other elk tested positive for CWD. Eventually the entire domestic elk population on the farm was depopulated. The fall of 2001 after CWD was detected, the DOW built a ten foot high fence around the perimeter of the elk holding pens to create a barrier between the domestic herd and wild animals. Efforts to monitor the chance of spread of CWD into wild populations were made

through culling and extensive testing of deer and elk in the immediate area. To date, CWD has not been found in wild populations in D31 or adjacent DAUs.

A management issue that could impact this population is the development of oil and gas. Currently there are not any large scale oil and gas exploration in the area. However, the possibility is real in the imminent future. Oil and gas leases and development could have significant negative impacts through loss of habitat, fragmentation of habitat, disturbance to deer, especially on winter range, and illegal harvest.

Similar to oil to gas development are solar farms. The San Luis Valley has been identified as an area having a high potential to harvest solar power. Solar farm companies are exploring these possibilities on private and public land. The area of focus on public land includes several parcels of BLM property in Conejos, Saguache, and Alamosa Counties. Most all of these areas provide winter range for big game. There are several major impacts on wildlife, similar to those seen with oil and gas development, which includes loss of habitat, habitat fragmentation, and disturbance, especially on winter range.

Although there is adequate habitat for deer in the southern portion of the DAU, the distribution of animals is heavily skewed to the northern part. The potential for the deer herd to expand is great if animals use the available habitat throughout the DAU. This has been an issue since before the 1996 plan was finalized.

As seen in the landowner section of this plan, 97% of the land is under private ownership. Within this there are several large areas that are residential subdivisions which are mostly undeveloped. This has created vast amounts of private, rural property easily accessible with a maintained road infrastructure. Many of the parcels that have been sold are owned by individuals who live in other parts of Colorado or out-of-state and therefore are not on their property during hunting seasons. A vast number of hunters in this unit have taken advantage of this by hunting on these properties without gaining landowner permission prior to doing so. Although this is illegal, hunters take the risk of the landowner not being present and consequently not pressing trespass charges. This has created considerable issues between hunters, landowners, and the DOW. This is a factor in increasing license numbers which directly increases hunters and others involved in this quandary.

## **5. Habitat Resources**

The limiting factor for the deer herd in this DAU is the quality and composition of winter range (Figure 10). Winter range is defined as that part of the overall range where 90% of the deer are located during the average five winters out of ten from the first heavy snowfall to spring green-up. Severe winter range is that part of the overall range where 90% of the individuals are located when the annual snow pack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten. Winter concentration area is that part of the winter range where deer densities are at least 200% greater than the surrounding winter range density.

### **5.1 Public Lands**

The overall range for D-31 is 1,251 square miles of which 97% is private. Winter range occupies about 23% of the overall range or 289 square miles. Basically all (99.6%) of the winter range occurs on private lands. Severe winter range is only 5% of the overall range or 63 square miles. 98% of this is found on private land with the remaining 2% located on Colorado Division of Wildlife property.

### **5.2 Private Lands**

Because the majority of the DAU and the important winter range is located on private lands, private lands and their management is key to the viability of this deer herd.

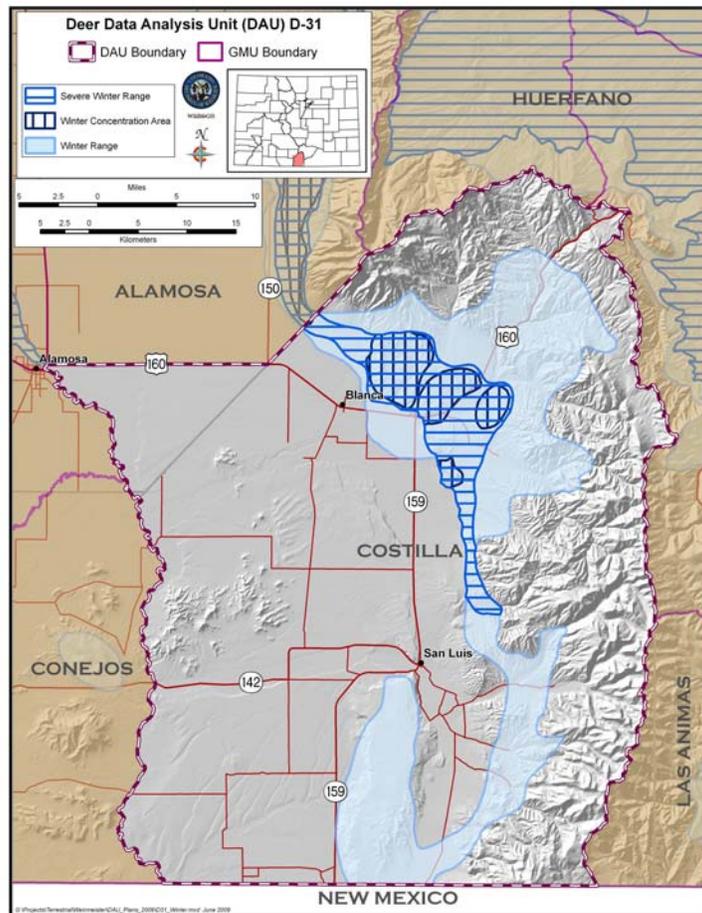


Figure 10. D31 winter range, severe winter range, and winter concentration areas

## 6. Development of Alternatives

The primary purpose of this DAU Plan is to determine the long term post-hunt population objective and herd composition objectives. Sex ratios (buck:doe ratios) are a management option and age ratios (fawn:doe ratios) are a product of environmental factors. The past DAU plan used a set number for each objective. For each alternative proposed for the new plan a number range is given for the objective. This is to allow more flexibility in management based on uncontrolled impacts to the population such as extreme weather events and other causes.

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

### 6.1 Population Objective

ALTERNATIVE 1            2,000 to 2,500 (current population)

The current population of 2,100 falls within this alternative. Doe hunting would be used to maintain the existing population size. Game damage caused by deer is presently minimal and would remain that way.

**ALTERNATIVE 2                    2,500 to 3,000 (increase in current population)**

This objective allows for an increase in the population before the objective would be met. Currently game damage by deer in the DAU has been minimal and this objective would most likely keep problems to a minimum. Game damage issues would be addressed through PLO licenses and/or dispersal hunts. Doe hunting would be implemented once the populations neared the objective. An increase in production within the herd would be needed to accomplish this objective.

**6.2 Herd Composition (buck:doe ratio)**

**ALTERNATIVE 1                    25 to 30 bucks per 100 does**

Buck licenses could be increased to approximately 260 licenses per year under this alternative. This is 44% increase in the current licenses available. This alternative would allow maximum harvest of bucks and hunting opportunity.

**ALTERNATIVE 2                    35 to 40 bucks per 100 does**

To reach this ratio buck licenses could be increased to around 220 licenses, 20% increase in the current level, for the first few years. This alternative provides the most balanced approach to hunter opportunity and quality hunting. Any greater sex ratio than this comes at a greater cost to hunter opportunity with little gained in the maturity or the “trophy size” of bucks taken by hunters.

**ALTERNATIVE 3                    45 to 50 bucks per 100 does**

This alternative would be the most restrictive on buck harvest, limiting hunting opportunity the most. Buck licenses would have to be maintained at the current numbers (180) to achieve this objective. This alternative has the greatest costs to hunters in terms of drawing a license with minimal returns in the type of animals harvested.

**7. Alternative Selection**

The preferred alternatives were selected after gathering input from public meetings, the Blanca HPP committee, local County Commissioners, written comments, and Division of Wildlife personnel. Also herd capabilities and other factors mentioned previously were considered.

A public meeting was held at the Inn of the Rio Grande in Alamosa on October 7, 2009. There were 13 individuals in attendance. Most of those in attendance were concerned about other wildlife issues than this DAU plan. The comments that were received supported attempting to increase the population and decreasing the sex ratio to either alternative 1 or 2.

On December 8, 2009 Terrestrial Biologist Weinmeister met with the Mount Blanca HPP Committee and asked for their comments on the plan. They supported alternative one (current population) for the population objective and alternative 2 (35-40 bucks:100 does) for the sex ratio objective. There are currently game damage issues caused by this population that the committee is dealing with and therefore they did not want to increase the population.

DWM Conrad Albert and Biologist Weinmeister met with Ty Ryland, Manager of the Trinchera Ranch which has a significant percent of the deer population in the DAU. Ty stated that he felt the current population estimate is about half of what is actually in the population based on his observation. He was supportive of maintaining the current population size in the future. He also supported a sex ratio objective of around 40 bucks per 100 does.

A copy of the draft DAU plan was posted on the Colorado Division of Wildlife website from October 29, 2009 to December 7, 2009 soliciting comments from the public. No responses were received from this effort.

### **7.1 Preferred Alternatives**

Based on the preceding information about the DAU and comments received from the variety of individuals and entities, the Colorado Division of Wildlife staff recommendation for herd objectives are:

**Population: 2,000 to 2,500** – This is where the majority of support fell from the comments received on the plan. If deer would be more evenly distributed throughout the DAU then a higher population objective could be adopted. This was something that was an issue when the 1996 DAU plan was created and will most likely not be resolved in the next 10 years.

**Sex Ratio: 35 to 40 bucks per 100 does** - It was agreed by those who commented on the plan that the 1996 sex ratio objective of 55 bucks per 100 does was too high. This sex ratio of 35 to 40 bucks per 100 does does a nice job of balancing quality bucks in the population and hunter opportunity.

Appendix A: Public Questionnaire

**DAU D-31 Plan- Public Survey  
GMU 83 - Deer**

1) What are your interests in deer and elk management in this area? Check all that apply

- agricultural
- hunting
- commercial (guide/outfitter)
- viewing opportunities/non-consumptive
- other (specify) \_\_\_\_\_

2) **Agriculture Producers** – Have you had problems with deer in the past five years?

Describe problem \_\_\_\_\_

What species were involved \_\_\_\_\_

Number of animals \_\_\_\_\_

Was DOW contacted? Yes / No

Actions taken by DOW \_\_\_\_\_

Is this a continued or growing problem?    No    Yes

3) **Non-consumptive Users/ watchable wildlife** – In what ways do you enjoy deer?

\_\_\_\_\_

\_\_\_\_\_

What is the general quality of your experiences?    Poor    Good    Excellent

Please explain your rating: \_\_\_\_\_

4) **Hunters**

What is your satisfaction with **deer** hunting in GMU 83? Poor Good Excellent

What is most important to you? Mark your **top two** choices.

- \_\_\_ hunting every year
- \_\_\_ hunting quality with fewer hunters
- \_\_\_ high harvest success rates
- \_\_\_ potential to harvest mature animals
- \_\_\_ seeing more animals
- \_\_\_ other \_\_\_\_\_

5) **ALL** (refer to presentation)

**Deer Management Alternatives**

**D31 (GMU 83)**

**Population**

Current population

25% increase

**Sex Ratio**

20 to 25

35 to 40

45 to 50

Additional Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Return to:

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