

**Upper Rio Grande Deer Herd
Data Analysis Unit D-36
Game Management Units 76, 79, 791
July 2010**

Colorado Division of Wildlife
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Approved by the Colorado Wildlife Commission July 8, 2010

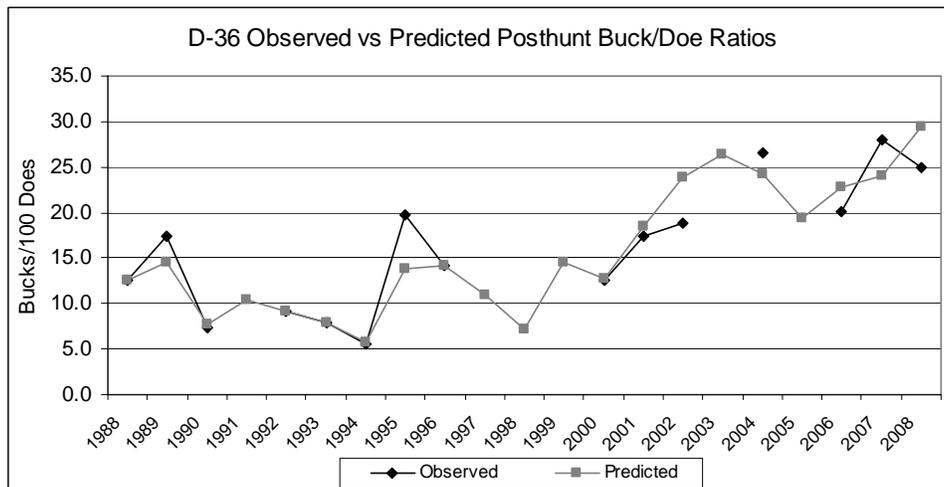
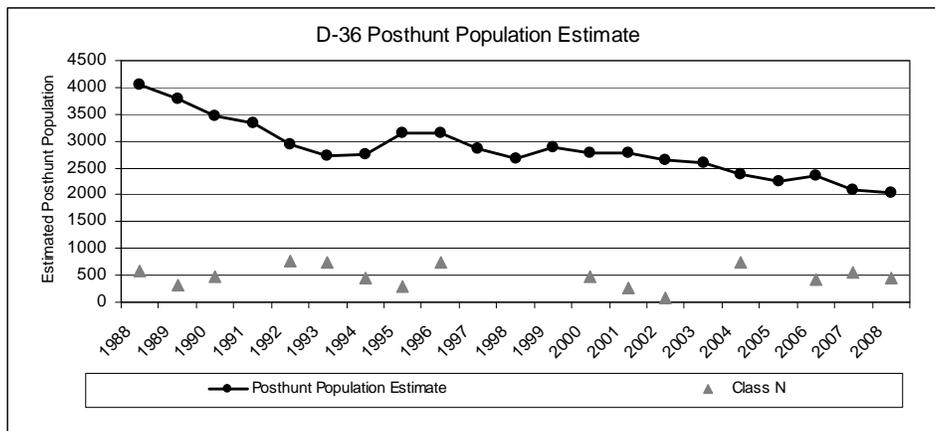
Upper Rio Grande Deer Herd
Data Analysis Unit D-36
Game Management Units 76, 79, and 791

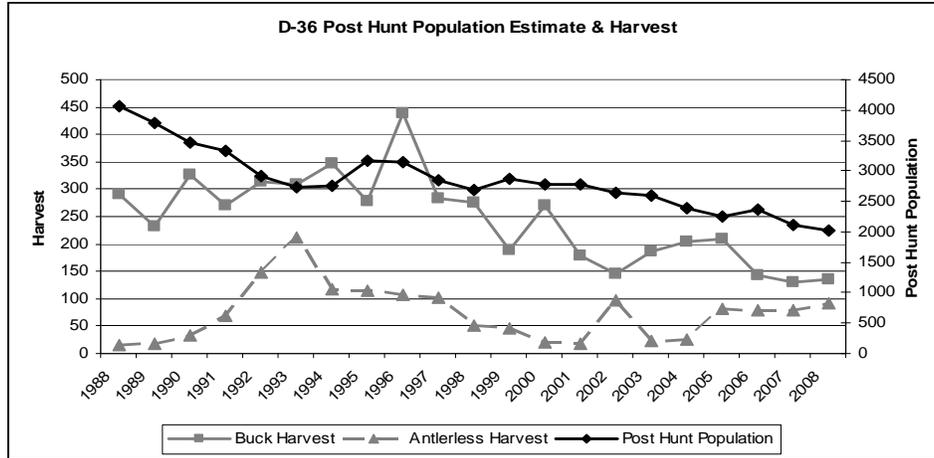
Executive Summary
May 2010

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

Sex Ratio: 2008 observed 25 bucks:100 does
 2010 Objective **20 to 25 bucks:100 does**

Landownership: 32% private, 66% U.S. Forest Service, 1 % BLM and 1% State





Data Analysis Unit (DAU) D-36, the Upper Rio Grande Deer Management Area, consist of Game Management Units (GMUs) 76, 79, and 791. It is located within the west central portion of the San Luis Valley in Colorado. All three GMUs have been managed with limited antlered deer licenses since the statewide mandate in 1999. Limited antlerless deer harvest has occurred with the focus on private, agricultural lands.

The current model indicates that the 2008 post season population was about 2,000 deer. The model shows that during the past 19 years the population reached a high of over 3500 in 1988. Since then the population has been steady or slowly decreasing to its current level. The current population objective of 4,000 appears unrealistically high for this population due mostly to habitat conditions and poor recruitment.

Sex ratios are at their highest level experienced due to the limiting of buck licenses in 1999. In 2008 the observed post season buck to doe ratio was 25 bucks:100 does. The average sex ratio since implementing limited licenses in 1999 has been 21 bucks:100 does. From 1988 to 1999, prior to limiting buck licenses, the average ratio was 12 bucks:100 does.

Buck harvest since 1999 when buck licenses became limited has ranged from 129 in 2007 to 270 in 2000. On average 179 bucks have been harvested per year since 1999. Antlerless harvest has averaged 56 animals per year for the past 10 years.

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

Three alternatives were considered for D-36 posthunt population size and three alternatives for sex ratio objectives. They are as follows:

Population Objective Alternatives:

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

Sex Ratio Objective Alternatives:

- 1) 20 to 25 bucks per 100 does
- 2) 25 to 30 bucks per 100 does
- 3) 30 to 35 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.

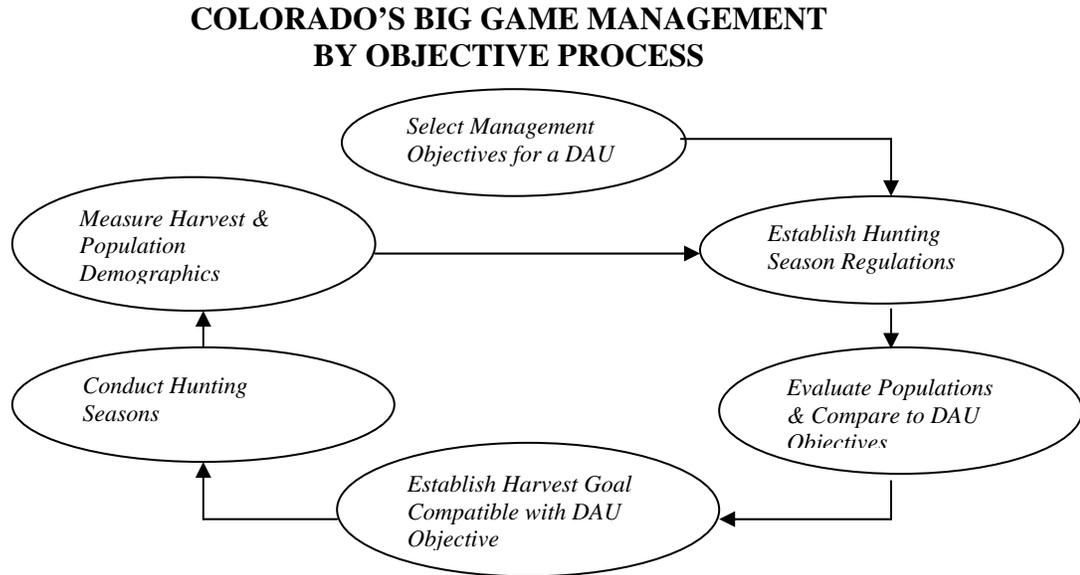


Figure 1. Management by objectives process used by the CDOW to manage big game populations on a DAU basis.

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 the Data Analysis Unit

2.1 Location

The Data Analysis Unit (DAU) for the Upper Rio Grande deer herd is located in southcentral Colorado, on the west side of the San Luis Valley. It is 1,801 square miles in size and encompasses portions of San Juan, Hinsdale, Mineral, Saguache, Alamosa and Rio Grande Counties. The DAU contains Game Management Unit (GMU) 76, 79, and 791. The DAU is bounded on the west by the Continental Divide, on the south by U.S. Highway 160, on the east by Colorado Highway 17 and on the north by the Continental Divide and the Rio Grande/Saguache Creek divide (Figure 2).

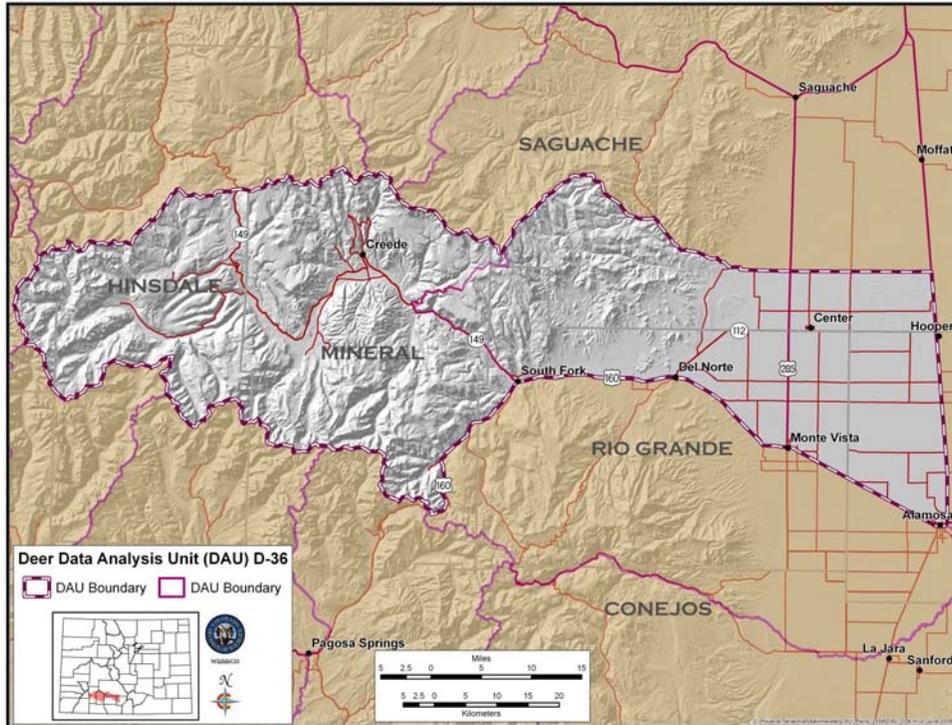


Figure 2. DAU D-36 boundary

Land ownership in the DAU is 32% private, 66% U.S. Forest Service (including portions of the Weminuche Wilderness and La Garita Wilderness), 1 % BLM and 1% State (Figure 3).

The main geographic features are the San Juan Mountains to the west which rise to nearly 14,000 feet along the Continental Divide, the LaGarita Mountains to the northeast and to the east the Rio Grande which is at 7,500 feet elevation in Alamosa.

The climate is highland or mountain climate with cool summers and very cold winters with heavy snows. The higher elevations of the San Juan Mountains receive 50 inches of precipitation yearly, while the foothills get 12 to 16 inches and the valley floor gets only 7 to 8 inches a year and is considered a high desert.

The lower elevations between 7,500 and 8,200 feet are grassland/shrub and agricultural lands, but as elevation and precipitation increase the vegetation changes to pinion-juniper, ponderosa pine, and then Douglas fir and white fir combined with extensive stands of aspen. Between 9,500 and 12,500 feet stands of Engleman spruce and subalpine fir are predominant. Extensive areas of alpine tundra occur above 12,500 feet.

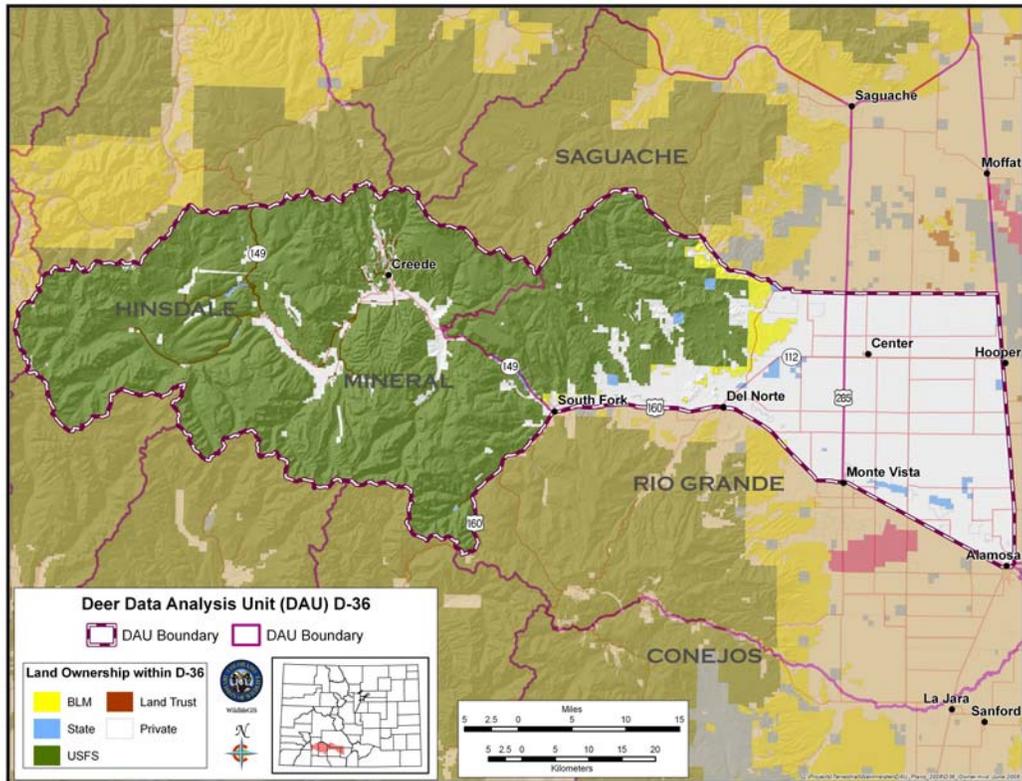


Figure 3. Landownership within DAU D-36

2.2 Deer Range and Movement

Deer generally occupy the DAU from the grassland/shrub and pinion/juniper areas of the foothills on the winter range through all vegetative zones up to the alpine tundra during the summer and early fall. Another distinct population of deer spend the majority of the year in the riparian and agricultural areas of the valley floor especially along the Rio Grande. It appears that the valley population of deer is increasing, while those occupying the higher elevation traditional ranges have decreased over the last ten years.

Deer movement to winter range is dictated by seasonal changes. This movement usually occurs during October. The migration of deer is usually elevational in most of the DAU. Some deer in the riparian areas west of Del Norte will move to higher elevations on traditional winter ranges if the snow depth in the river bottoms becomes too great. There is evidence that some deer that summer above Creede winter north in the Gunnison drainage and some that summer along the Continental Divide at the headwaters of the Rio Grande winter in the San Juan drainage.

3. Herd Management History

The Upper Rio Grande DAU has never been considered a good deer unit. GMU 79 has the majority of wintering deer because more browse is present on the winter range. GMU 76 has very limited browse on the winter range and is at a higher elevation making it marginal for wintering deer. The high elevation winter range, lack of abundant browse and hard winters combine to lower the quality of the entire DAU for deer. Management of the deer herd in the DAU has involved buck hunting only during the regular rifle seasons since the 1960's. The exceptions are PLO seasons in GMUS 79 and 791 which allow doe harvest to address deer on agricultural fields along the Rio Grande. There was also some doe harvest during the archery and muzzleloading seasons during the early '90s. In 1999 all buck licenses became limited licenses. A limited number of buck licenses were added to the fourth rifle season in 2008. Besides these management actions, little in terms of active management has been done to adjust the total herd size.

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.

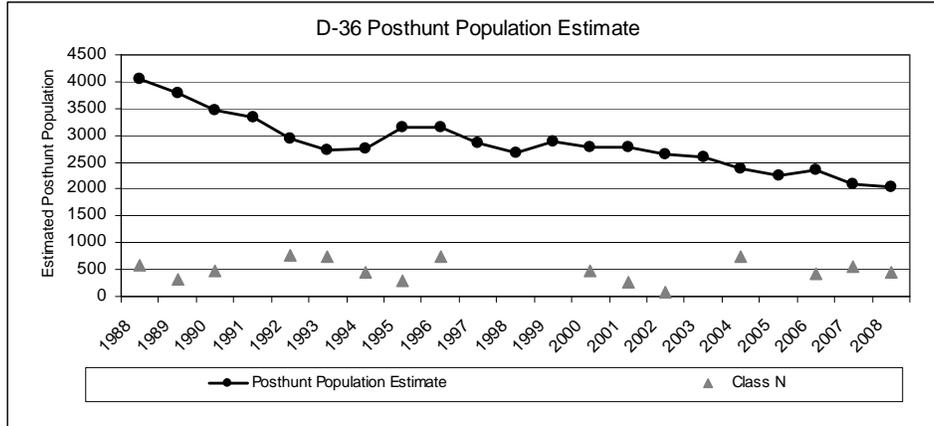


Figure 4. D-36 posthunt population estimate from 1988 to 2008

The long term population objective in the 1996 plan is 4,000 animals. The current model indicates that the 2008 population is about 2,000 animals (Figure 4). The model predicts that during the past 19 years the population reached a high of 3,800 in 1988 and has slowly decreased to its current size.

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.

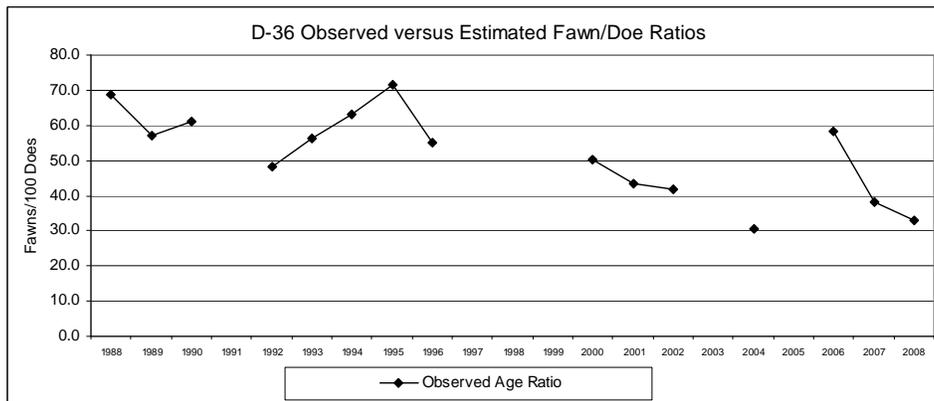


Figure 5. D-36 observes posthunt age ratios from 1988 to 2008

The average fawn:doe ratio observed from 1988 to 2008 was 52 fawns:100 does with a low of 30 in 2004 and a high of 109 in 1988 (Figure 5). The 2008 observed ratio was 33 fawns per 100 does which is

not enough recruitment to support a steady or increasing population. Classification flights were not done in 1991, 1997 to 1999, 2003, and 2005.

Sex ratios are at their highest level experienced by this herd due to the limiting of buck licenses in 1999. In 2008 the observed buck to doe ratio was 25 bucks:100 does (Figure 6). From 1988 to 1998, prior to limited buck licenses the average ratio was 13.4 bucks:100 does. In 1999 buck licenses were reduced to 988, 55% of the unlimited sales in previous years. The average sex ratio since then has been 21:100. Since 1999 buck licenses have continually decreased and a low of 270 buck licenses was reached in 2008.

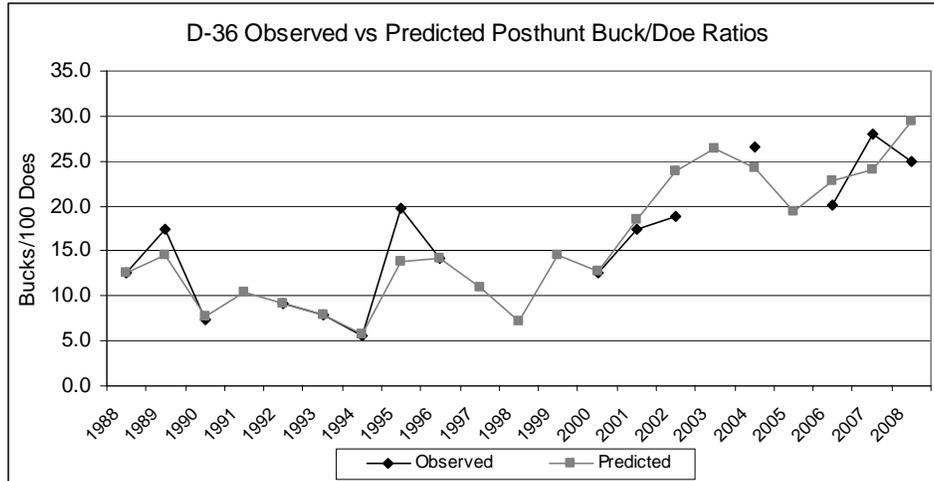


Figure 6. D-36 observed and modeled posthunt sex ratios from 1988 to 2008

3.3 Harvest

Harvest is affected by hunting pressure, season structure, weather, and population size. Buck harvest from 1971 to 2008 ranged from a low of 67 in 1976 to a high of 439 in 1996 and has averaged 219. Since 1999 when buck licenses became limited harvest has ranged from 129 in 2007 to 270 in 2000 (Figure 7). On average 179 bucks have been harvested per year since the implementation of limited licenses.

Doe harvest from 1971 to 2008 has fluctuated from 0 to 194 (in 1993) with an average harvest of 49. Private Land Only hunts that address game damage issues are the greatest factor in doe harvest.

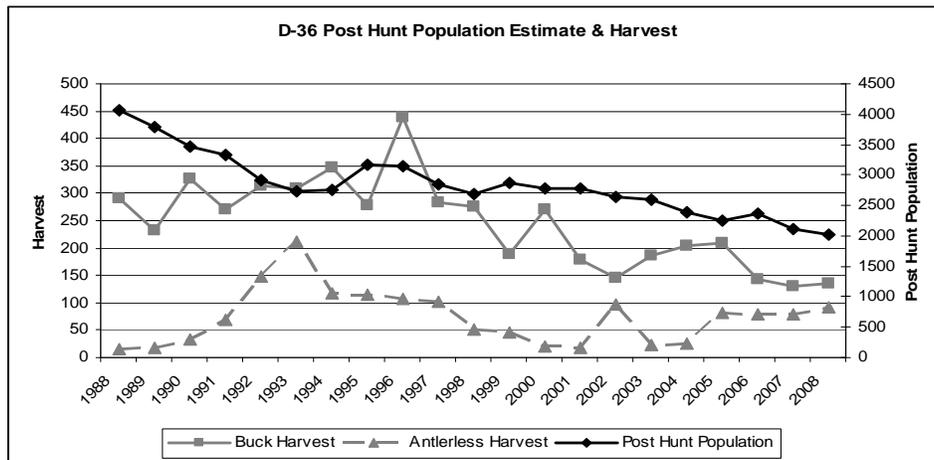


Figure 7. D-36 buck harvest, antlerless harvest and post hunt population from 1988 to 2008

3.4 Hunting Pressure

The number of hunters from 1984 to 1998, when buck licenses were unlimited, ranged from a low of 1013 in 1985 to a high of 2179 in 1995 averaging about 1868 hunters (Figure 8). During this same time period (1984 to 1998) the yearly success rate for the DAU averaged 19%, with a low of 10% in 1987 to a high of 28% in 1996.

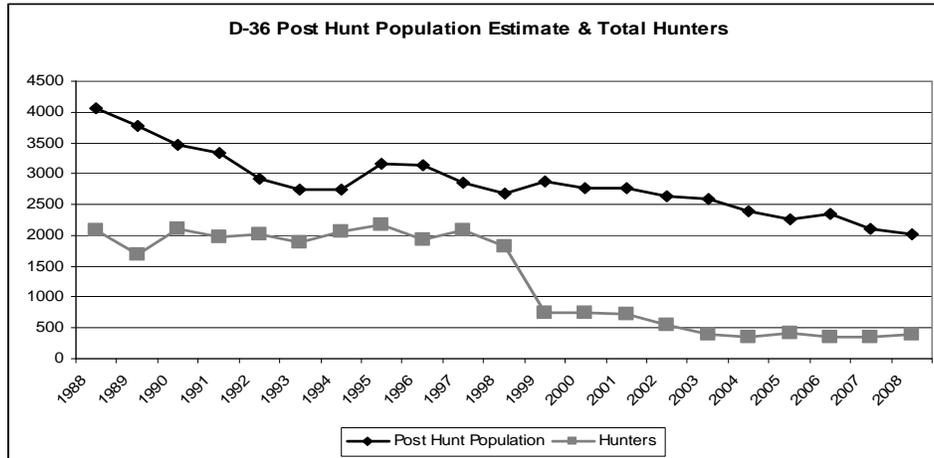


Figure 8. D-36 total hunters and population from 1998 to 2008

The number of hunters since limiting buck licenses in 1999 has been gradually decreasing from 749 to 341 in 2006. Since the implementation of limited buck licenses success rates in general have been increasing. The yearly success rate for the DAU has averaged 51% from 1999 to 2008, with a low of 27% in 2001 to a high of 68% in 2005.

4. Current Herd Status

4.1 Summary of Current Conditions

The current population size remains well below (45% below) the 1996 objective after several years of a steady decline. The sex ratios are at their highest levels since they began to be recorded in 1988. Individuals in the field have commented positively on this and hunters in general are receptive of seeing more mature bucks in the field at the cost of limiting licenses. Although age ratios have been extremely low, it is generally accepted that little can be done to control this through management. Variables such as weather conditions and habitat quality have a higher impact on reproduction than wildlife management techniques.

4.2 Current Management Issues

Game damage caused by deer is an issue in GMU 79 and 791 where deer are found adjacent to or on agricultural fields. These fields are mostly alfalfa or grass hay. Deer are common on the Rio Grande river bottom between South Fork and Alamosa where they are year round residents on private land.

Deer in the city of Alamosa, where hunting isn't allowed, is another management issue. Deer freely wander in people's yards and on city streets where they become nuisances to landowners and safety concerns for motorists. In February of 2007 an effort was made by the Division of Wildlife and the City of Alamosa to harvest does on City of Alamosa property outside city limits. Only a few animals were harvested and the effort hasn't been repeated since.

Winter Range degradation and loss is another concern. The South Fork area has seen a large conversion of private ranches to housing development and a golf course. Conversion of ranches from

Alamosa to Monte Vista to 35 acre home sites has fragmented the habitat. There is also an increased disturbance from people and domestic livestock. The development continues to creep east along the Rio Grande from South Fork and west from Alamosa.

Summer recreation continues to increase in this area. People primarily from Texas, New Mexico, Kansas, and Oklahoma as well as from the communities within the San Luis Valley make their way to higher elevations within this DAU to escape the summer heat and enjoy the mountain environment. Activities include camping, hiking, horseback riding, mountain biking, fishing, and use of off highway vehicles (OHVs). US Forest Service and BLM lands receive the majority of the use from these recreationalists. These same lands are also where most of the summer range within the DAU is located. The impacts by these various forms of recreation are unknown but are believed to disturb deer to some degree. This could possibly affect distribution of deer and more importantly reproduction in fawning areas.

Off highway vehicles continue to be a growing concern in the summer and during hunting seasons. Although OHVs are designed to travel in all but the most rugged terrain, Forest Service laws prohibit the use of OHVs off maintained roads and marked trails. Unfortunately these laws are often ignored and users go where they please, damaging the resource and creating new roads. Impacts on the deer herds during the summer are not known but it is expected that OHV traffic off roads put undue stress on animals. This is especially important to fawning or lactating does and new born fawns. During the hunting season, illegal OHV use often displaces deer, making them more difficult for hunters to find which in return decreases harvest and hunter satisfaction. Unfortunately only one person using an OHV illegally can have major negative impacts to the resource and other recreationalist's enjoyment.

Disease – Currently all areas in the San Luis Valley, including D36, are free of chronic wasting disease. In August 2001 at the Anta Grande Elk Farm west of Del Norte on Hwy 160 (adjacent to the DAU), a domestic cow elk was found dead and later determined to be infected with 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 second 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 and adjacent areas. To date, CWD has not been found in wild populations in D36 or adjacent DAUs.

A significant 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.

Creede was developed as a mining community in the 1890s. Since 1985 silver prices have been too low to make mining feasible and mining in the region had been suspended. Recently silver prices have increased enough (3 to 4 times that of 1985 prices) that Hecla Mining from Idaho is planning an exploration project in the area west and northwest of Creede. This project would be on private mining claims as well as US Forest Service property encompassing a 25 square mile area. The exploration will be done through the use of existing mining shafts and new test holes. The test holes will use drilling pads that are expected to run three to five acres in size. Mining will most likely be all underground. The short term and long term impacts of the exploration and the potential mining on the deer herd is not known. The area of activity is located in summer range.

A portion of GMU 76 falls within the boundary of the Brunot Treaty. The Brunot Treaty is a remnant from the 1874 Brunot Agreement between the United States government and the Southern Ute and Ute Mountain Ute tribes. The area that is involved in the Brunot Treaty was removed from the tribes' reservation lands in 1874 after the discovery of gold in the San Juan Mountains to allow mining and settlement in the region by US Citizens. Although no longer reservation land, the agreement included a provision that allowed the tribes to "hunt that area as long as the grass grew." The Ute Mountain Tribe is currently exercising these rights and the Southern Ute Tribe began to exercise their rights in 2009. Any hunting and harvest of deer by Tribal members falls outside of DOW management and management plans.

Spruce pine beetle is becoming a forest management issue. Several high elevation spruce stands are currently infected by the beetle of which the larva occupies mature trees. The infection can become great enough to kill the tree. Currently the US Forest Service has limited means to manage this. As a result the landscape at higher elevations is at its beginning stages of changing from the current dominate conifer habitat. The impacts on the deer herd as a result of this change are unknown.

5. Habitat Resources

The limiting factor for the deer herd in this DAU is the quality and composition of winter range (Figure 9).

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.

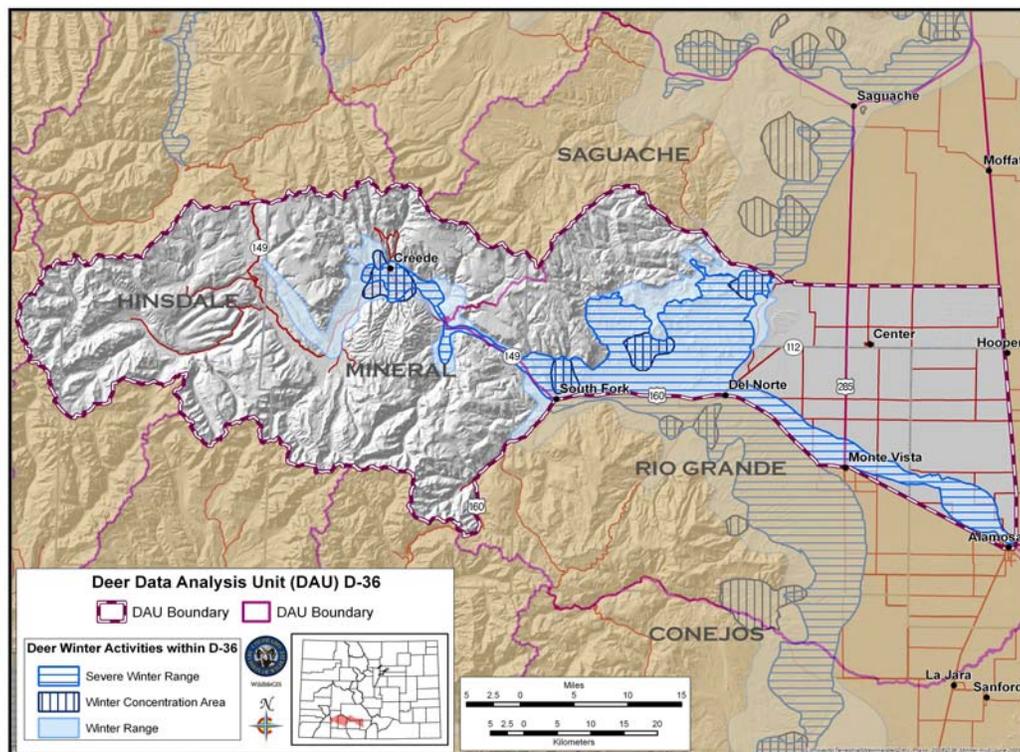


Figure 9. D-36 winter range, severe winter range, and winter concentration areas

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.

The Rio Grande Chapter of the Colorado Outfitters Associations provided comments through the completion of the public questionnaire form in Appendix A. Their preferred alternatives were the current population size (alternative 2) and a sex ratio of 20 to 25 bucks per 100 does (alternative 1).

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 – The majority of comments received on this plan supported maintaining the current population which this objective does.

Sex Ratio: 20 to 25 bucks per 100 does – This sex ratio offers maximize hunter opportunity and was the most supported alternative.

Appendix A: Public Questionnaire

DAU E-34 and D-36 plans Public Survey
GMU's 76 and 79 - Elk
GMU's 76, 79, and 791 - Deer

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

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

2) **Agriculture Producers** – Have you had problems with deer and/or elk 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 and elk?

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 76, 79, 791? Poor Good Excellent

What is your satisfaction with **elk** hunting in GMU 76 and 79? 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	<u>Population</u>	<u>Sex Ratio</u>
	15% decrease	20 to 25
	Current population	25 to 30
	25% increase	30 to 35

Elk Management Alternatives	<u>Population</u>	<u>Sex Ratio</u>
	15% decrease	20 to 25
	Current population	25 to 30
	15% increase	30 to 35

Additional Comments: _____

Return to:

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