

**Lower Rio Grande Elk Herd
Data Analysis Unit E-32
Game Management Units 80 and 81
January 2007**

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Approved by the Colorado Wildlife Commission January 2007

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 August 2006

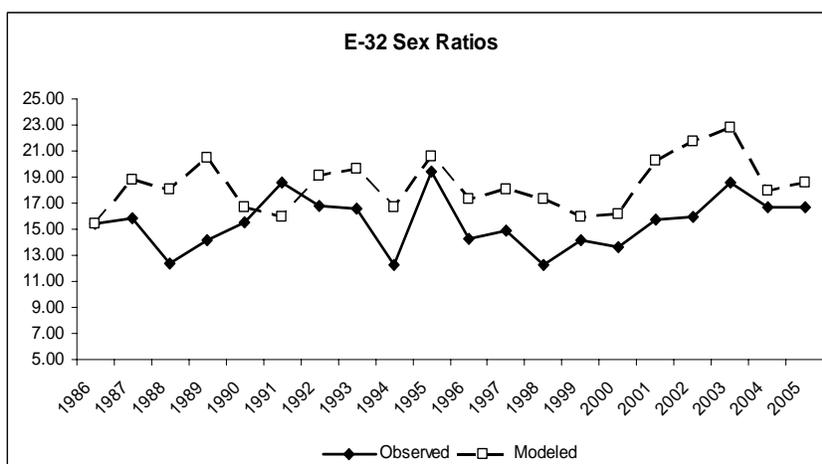
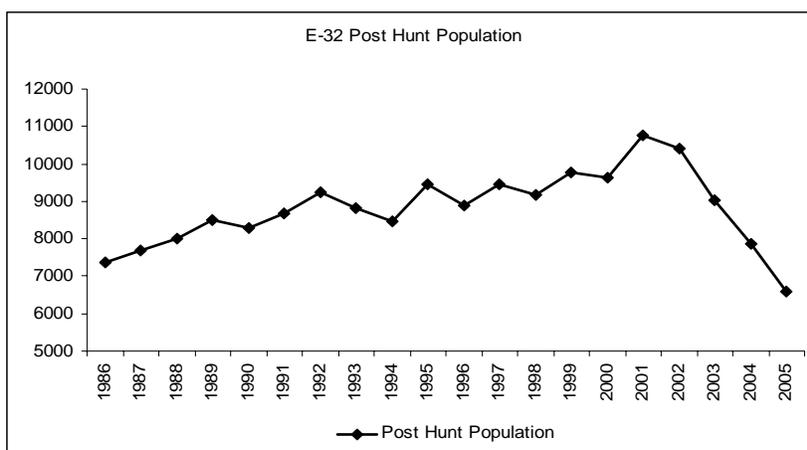
Executive Summary

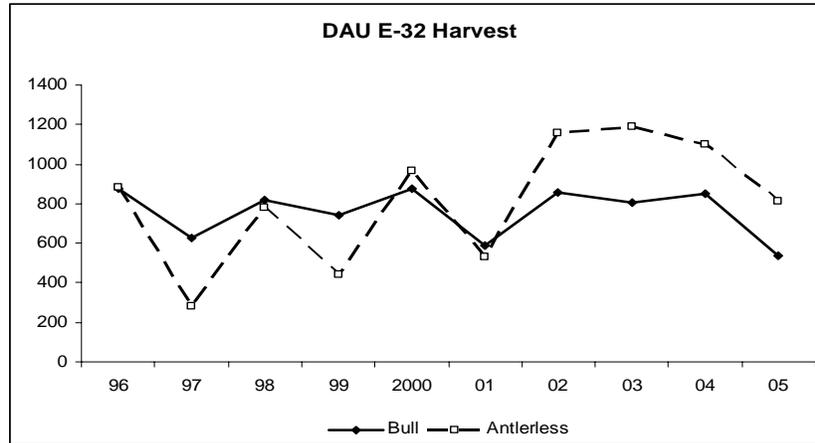
Game Management Units 80 and 81

Population: Previous Objective 5000
 2005 Estimate 6500
Current Objective 6000 - 7000

Sex Ratio Previous Objective 20 bulls: 100 cows
 2005 observed 17 bulls: 100 cows
 2005 modeled 22 bulls: 100 cows
Current Objective 15-18 bulls:100 cows

Land Ownership: 35% Private, 41% USFS, 18% BLM, 1% NWR, 5% other





Data Analysis Unit (DAU) E-32, the Lower Rio Grande Elk Management Area, consist of Game Management Units (GMUs) 80 and 81. It's located in the southwest portion of the San Luis Valley in Colorado. Both GMUs have been managed similarly as over-the-counter (OTC) bull hunting units. In addition all units have had generous numbers of antlerless licenses since the early 1990's and private land only (PLO) seasons. Either sex tags have been employed in the first rifle season since 2003.

The E-32 population started increasing during the early 1980s. In 1990 wildlife managers began efforts to control the growth by increasing the number of antlerless elk licenses. The herd continued to grow and became the largest in 2001 with an estimated 10,700 elk, post season. Since then the population has been decreasing and is currently estimated at 6500 animals, still above the objective of 5000 set in 1996. The current DAU plan for E-32 was adopted in 1996 based on early population models that underestimated the population. Because of this the population objective of 5000 is low.

Observed post hunt sex ratios have varied in the past ten years form 12 to 18 bulls per hundred cows, with an average of 15. This has remained below the current objective of 20 bulls per 100 cows. Modeled ratios are higher for the same period with a low of 15 and a high of 22, average of 18. Sex ratios most likely have reached their peak and in the upcoming years will decrease slightly under current management with unlimited bull licenses.

Harvest in the DAU is most influenced by weather and in the case of cows, the number of limited licenses available. Bull harvest for the past 10 years has averaged 757 with a high of 876 in 1996 and a low of 537 in 2005. Antlerless harvest has ranged from 282 in 1997 to 1191 in 2003 with a ten year average of 814.

The main limiting factor on 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 into lower elevations where agricultural fields are located. This in return could lead to game damage issues which the Division of Wildlife could be held responsible for.

Management Alternatives

Three alternatives for E-32 were considered for posthunt population size and sex ratio objectives.

Population Objective Alternatives:

- 1) 5000 to 6000 (15% decrease in current population)
- 2) 6000 to 7000 (current population size)
- 3) 7000 to 8000 (15% increase in current population)

Sex Ratio Alternatives:

- 1) 15 to 18 bulls: 100 cows
- 2) 25 to 30 bulls: 100 cows (require public nomination to become limited bull units)
- 3) 32 to 38 bulls: 100 cows (require public nomination to become limited bull units)

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1. DAU Plans and Wildlife Management by Objectives

The growing human demand for a finite wildlife resource dictates wise management of Colorado's resources. 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.

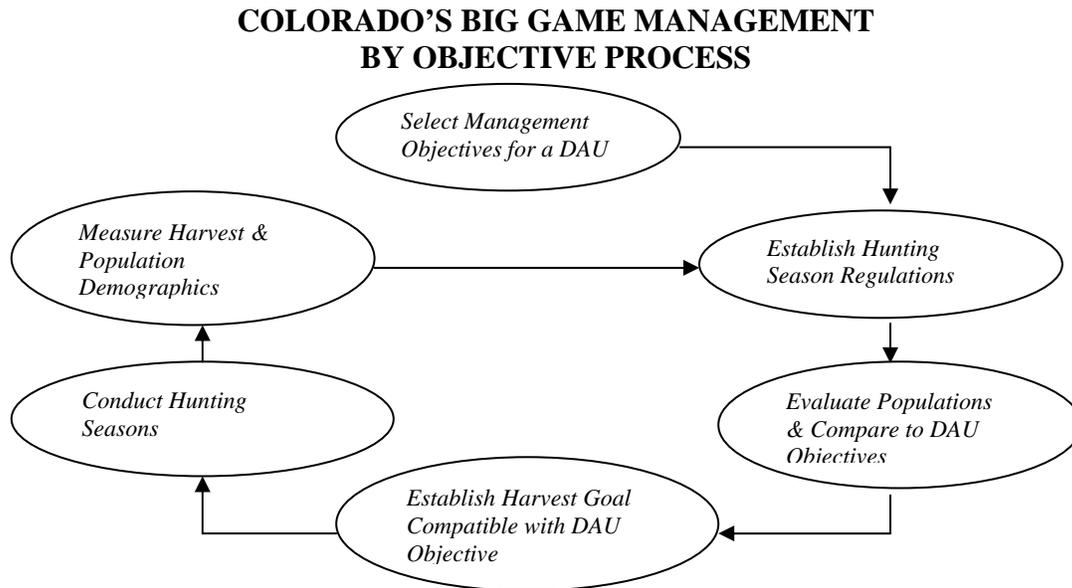


Figure 1. Management by objectives process used by the CDOW to manage big game populations on a DAU basis.

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 objective of the Long Range Plan and meet the public's objectives 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. One of the products of this process is hunting seasons for big game.

The DAU Plan 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, and agricultural interests 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 lower Rio Grande elk herd is located in south central Colorado, on the southwest side of the San Luis Valley. It consists of Game Management Units (GMU) 80 and 81 (Figure 2). The DAU is bounded by U.S. Highway 160 on the north, the continental divide on the west, the New Mexico state line to the south and the Rio Grande to the east. It has an area of 2,100 square miles and encompasses portions of Alamosa, Rio Grande, Conejos, Mineral, and Archuleta Counties. Its main drainages are the Rio Grande, Conejos, and Alamosa Rivers.

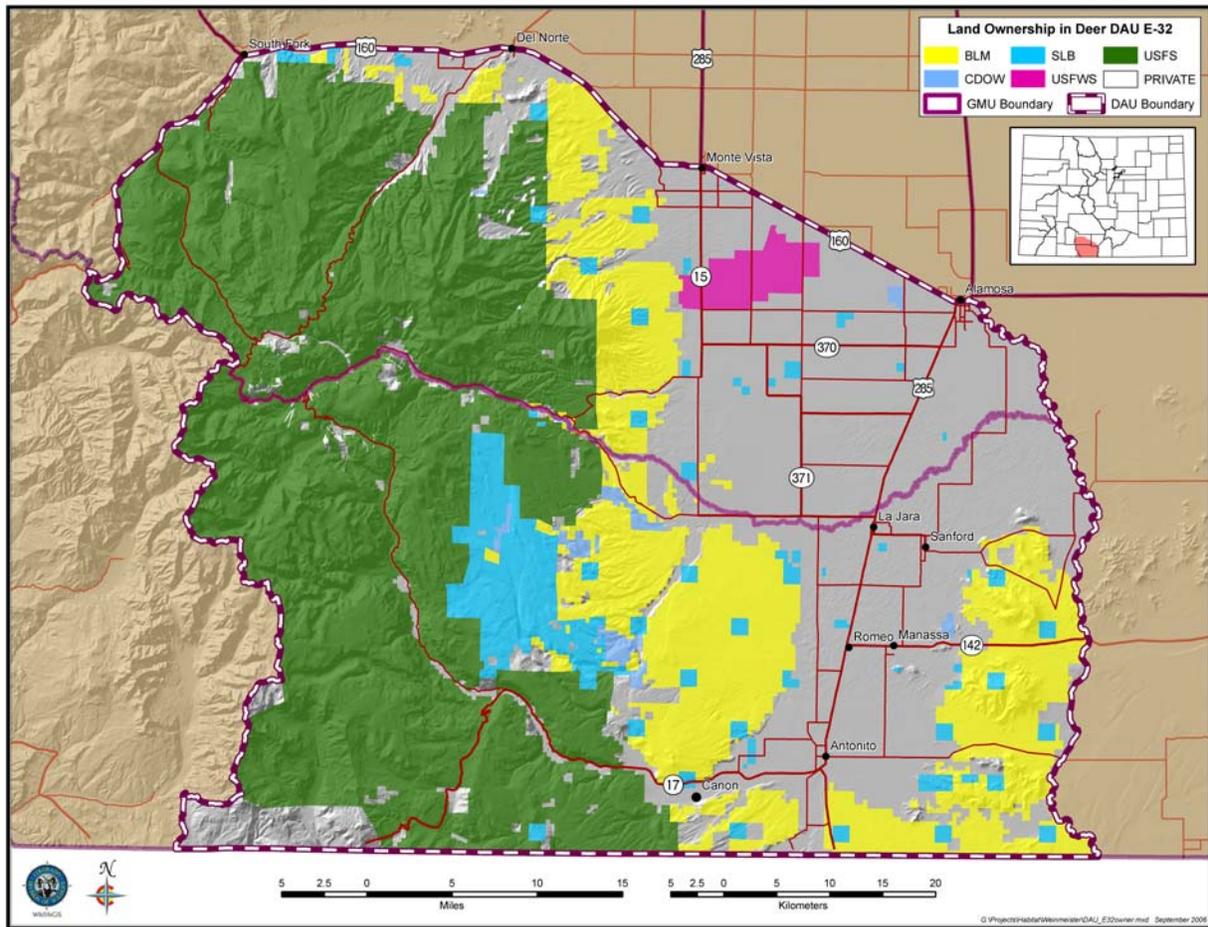


Figure 2. DAU map with landownership

Land ownership composition in the DAU is 35% private, 41% U.S. Forest Service (of which 88,000 acres is within the South San Juan Wilderness Area), 18% Bureau of Land Management, 1% National Wildlife Refuge, and 5% other (Figure 2).

The main geographic features are the San Juan Mountains which rise to over 13,000 feet elevation to the west along the continental divide and the Rio Grande which is less than 7500 feet elevation at the New Mexico state line.

The climate is termed highland or mountain climate with cool summers and 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 and is considered high desert.

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

3. Herd History and Management

Elk generally occupy the western portion of the DAU from the grassland/shrub winter range adjacent to the foothills to above timberline on the alpine in the summer. The overall range for elk in the DAU is about 1270 square miles or 61% of the DAU.

Elk movement to the winter range is usually initiated by increasing snow cover and decreasing forage availability, along with hunting pressure. This movement generally begins in November and continues until January. In the northern part of the DAU the movement to winter range is elevational and in an easterly direction. In the southern part of the DAU the elk movement is elevational and southerly. It is believed that many elk migrate out of Colorado and winter in New Mexico. The amount of migrational movement is dependent on the severity of the winter and perhaps hunting pressure.

Migration back to the summer range usually follows the snowline with the elk dispersing into the overall range of the DAU in summer and fall.

DAU E-32 is open to over-the-counter, or unlimited, bull hunting in second and third season as well as unlimited either sex archery licenses. Because of this harvest numbers on bulls is difficult to manage. A four point antler restriction was implemented in 1986. All rifle antlerless licenses and either sex licenses are limited. Limited statewide muzzleloader antler and antlerless elk licenses are valid in GMUs within this DAU.

3.1 Post-hunt population size

Post-hunt population size is determined through the use of 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 biologist to make management decisions concerning big game herds.

Elk numbers in the Lower Rio Grande DAU increased from about 7300 in 1986 to an estimated high of 10,700 in 2001 (Figure 3). Since then the population has decreased and the herd is currently estimated to be about 6500 after the 2005 hunting season. The population has been over the herd objective of 5,000 since prior to 1986.

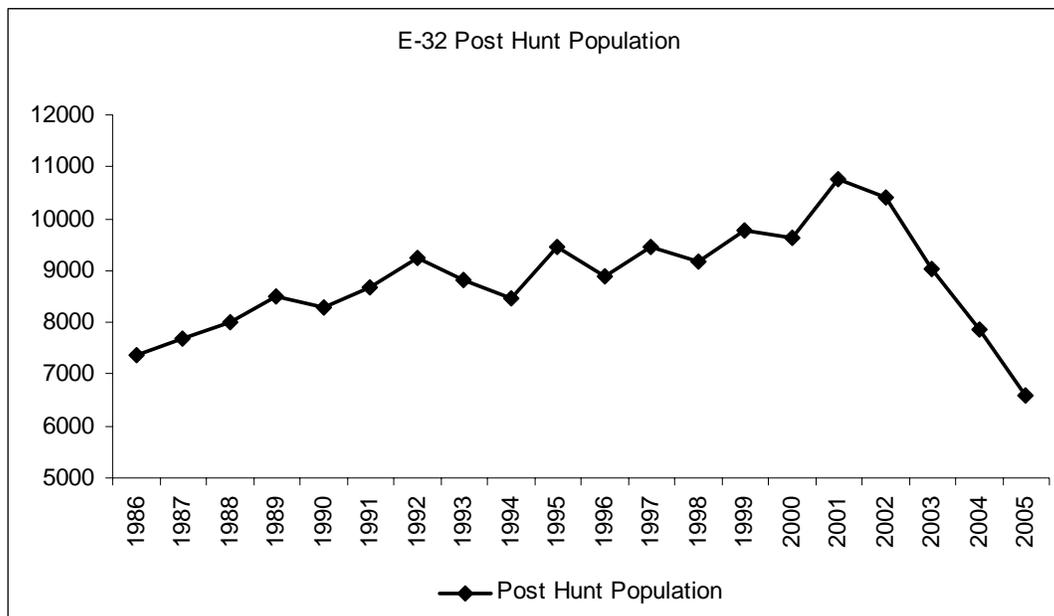


Figure 3. Posthunt population estimate for 1996 to 2005

The current population objective was last set in 1996 when POPII modeling was in use. POPII models underestimated elk populations across the state including this DAU. The objective of 5000 elk is lower than initially intended because of this.

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. The surveys are not done to count the total number of animals, but to obtain sex and age ratios. It is generally accepted that bull:cow ratios are higher than the observed values and that observed calf:cow ratios are fairly accurate. Aerial surveys are subject to variability due to weather, snow cover, sample size and observers. The average calf/cow ratio observed from 1978 to 2005 was 41 calves/100 cows. The high was 60 calves/100cows in 1978 and the low observed was 28 calves/100 cows in 2005.

There were an average of 8 bulls/100 cows from 1978 and 1985, prior to the implementation of antler point restrictions on elk harvest. With four point antler restriction on bulls in effect during all seasons from 1986 to 2005 the average bull:cow ratio was 13/100 with the high of 19 occurring in 1995 (Figure 3). To reach and maintain the current objective of 20 bulls:100 cows, additional restrictions on bull harvest will need to be implemented.

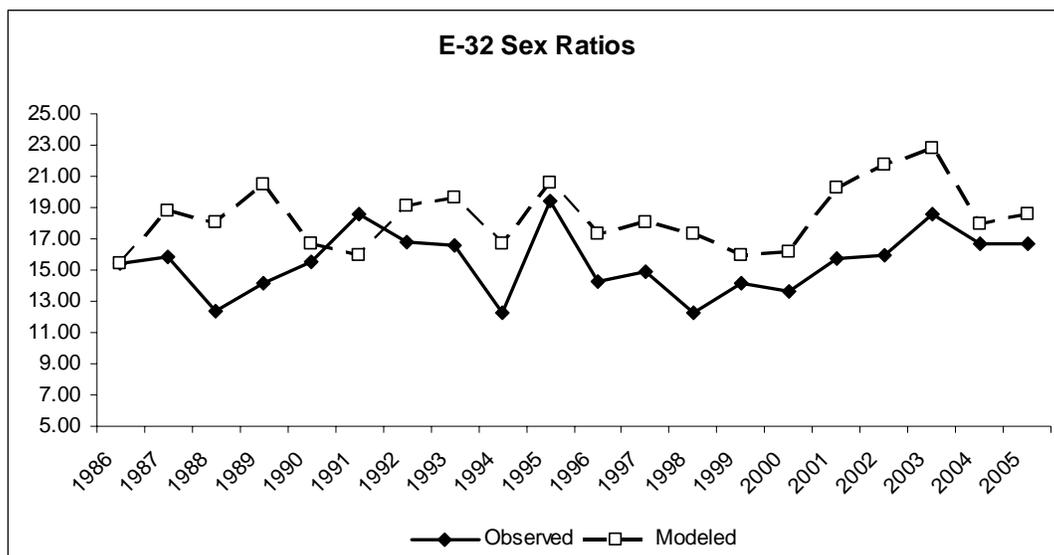


Figure 4. Estimated and observed post-hunt sex ratios for 1986 to 2005

3.3 Harvest

Harvest is affected by the number of permits issued, season structure, weather and population size. When a population is over objective surplus animals plus recruitment must be taken to decrease the population. Therefore an increased number of antlerless licenses are available, which in returns increases harvest figures. When the herd objective is reached only annual recruitment can be taken.

Harvest in E32 from 1974 to 2005 ranged from a low of 353 in 1974 to 2,155 elk in 2003. Trends in harvest are similar to trends in population numbers (Figure 5).

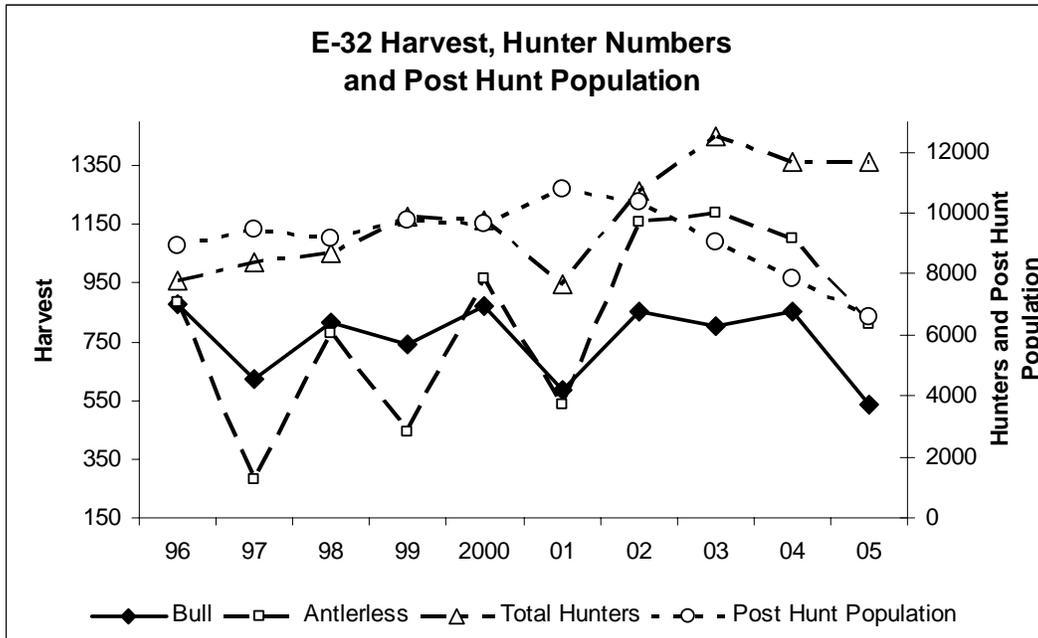


Figure 5. Bull harvest, antlerless harvest and hunter numbers from 1996 to 2005.

During the era of no point restrictions on bull elk (1974-1985) the bull harvest varied from 300 in 1974 to 844 in 1983. From 1986 to 2005 when point restrictions were in effect the harvest on bulls ranged from a low of 293 bulls in 1986 and 1987, the first years of the point restrictions, to a high of 925 bulls in 1990.

The yearly success rate from 1969 to 2005 averaged 17%, running from a low of 9% in 1974 and 1995 to a high of 29% in 1990.

3.4 Hunting Pressure

The number of hunters per year for all seasons between 1969 and 2005 ranged from a low of 2350 in 1970 to a high of 12,536 in 2003. An elevated number of antlerless elk licenses were available in GMUs 80 and 81 from 2002 to 2005 to address the over objective population.

4. Current herd Management Status

4.1 Summary of Current Conditions

The 2005 post-hunt population estimate for the lower Rio Grande DAU was approximately 6500 elk. This is above the current long-term objective of 5000 elk. The current population model shows that after a high of 10,700 in 2001 the herd has been aggressively reduced through the issuance of limited antlerless elk licenses. With current trends the 1996 herd objective of 5000 should reach by 2008.

The current long term post-hunt sex ratio objective is 20 bulls per 100 cows. In 1995 the highest sex ratio of 19 bulls per 100 cows was observed. Prior to the antler point restriction in 1986 the lowest observed bull-cow ratio was 4 bulls per 100 cows post-season. The implementation of antler point restrictions has increased the number of bulls in the population but the average of 15 bulls per 100 cows since 1995 is still short of the DAU sex ratio objective. The observed sex ratio for 2005 was 16 bulls per 100 cows which has also been the average for the past three years.

4.2 Current management Issues

The major management problem concerning this elk herd has been regulating the population to meet herd objective. During the last 14 years harvest levels were designed to reduce the herd with success only being observed in the last three years.

Movement of elk across state lines is another issue. During 1998 to 2001 New Mexico Department of Game and Fish and New Mexico Cooperative Fish and Wildlife Research Unit conducted a study regarding in part the demographics, temporal and spatial dynamics of elk that wintered near San Antonio Mountain (Smallidge et al 2003). San Antonio Mountain is located in New Mexico just south of Antonito, CO (GMU 81). As part of the study 101 elk were fitted with radio collars during the winter near San Antonio Mountain. Of these 101 elk, 17 or 16.8% spent time in Colorado during spring, summer, and fall. In general they began moving into Colorado during late April and had moved out by early October. The area that these interstate migrants used was along Co Hwy 17 near La Manga and Cumbres passes. This area is easily accessible and a popular hunting spot. The study estimated that these 17 radio collared elk represented 1,134 animals. Another 2 (2%) of the radio collared elk moved off the winter range in New Mexico and moved into Colorado near Bennett Peak (GMU 80) and remained there during the remainder of the study. The report stated that "COM (Colorado migrant elk) appear to filter into New Mexico shortly after onset of Colorado hunts." The cause of this movement was presumed by the researchers to be elk attempting to escape hunting pressure in Colorado and move into New Mexico where hunting pressure was fairly light.

Managing a population that have a significant percent of animals cross jurisdictional boundaries and are managed by different rules, herd management objectives, and hunting seasons and pressure is difficult. Movement of over 1,000 elk out of this DAU and across state boundaries is significant. Because of this several management problems arise. The time these elk leave Colorado annually varies so the amount of time they are accessible to Colorado hunters fluctuates each year. These migrants are not included in aerial classifications, so are not represented in the model population structure. Lastly a large number of elk further west in the South San Juan Wilderness Area are also available during a portion of the hunting season but winter in New Mexico and in Colorado west of the Continental Divide, increasing this problem.

Movement of the elk off of public lands onto the Monte Vista National Wildlife Refuge, where no recreational big game hunting is currently allowed, and surrounding private lands began in the early 1990s. Up to 700 elk have been reported on the Monte Vista National Wildlife Refuge. Elk start moving from the west onto the Monte Vista NWR once the first rifle season begins in mid-October. The elk usually stay on the NWR until the spring or when mild weather lets them leave earlier to traditional winter ranges. In the case of bad weather elk are forced from the NWR onto private lands where they cause damage. There was also a herd that remained on the northeast portion of the NWR throughout the year. The size of this herd has reached around 40 animals but has not been seen the past couple of years. Harvest of antlerless elk on the refuge began in 1997 through dispersal hunts and the use of a hunt coordinator paid for by the San Luis Valley Habitat Partnership Program (HPP) committee. At the same time aggressive harvest through dispersal licenses and private land only (PLO) licenses on private lands near the refuge began. Since then elk numbers have decreased and in 2005 less than 50 elk were seen on the NWR.

Elk have also started to use the Rio Grande and Conejos River Corridor from Alamosa to south of Manassa. Approximately 150 elk are using this area throughout the year. This area is mostly private land and used for various agriculture purposes including hay fields and cattle grazing. Because of this elk creating game damage problems is a concern to managers.

Game damage is a problem in the harsher winters between Del Norte and South Fork, the area around the Monte Vista Wildlife Refuge, the San Antonio and Ortiz areas, and the portion of the DAU east of Hwy 285 and north of Antonito. Currently dispersal tags and private land only licenses are being used in attempts to prevent game damage and redistribute these animals away from these areas. This has been done with some degree of success.

Development of private lands on winter range is a growing problem in the DAU. Impacts to the elk population from development, mostly private homes, include loss of important habitat and redistributing animals from historic winter habitat.

Summer recreation continues to increase in this area. People primarily from Texas, New Mexico, 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 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 elk to some degree. This could possibly affect distribution of elk and more importantly reproduction in calving areas.

Off highway vehicles continue to be a growing concern in the summer and during hunting seasons. Although 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, often damaging the resource and creating new roads. Impacts on the elk 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 calving or lactating cows and new born calves. During the hunting season, illegal OHV use often displaces elk, making them more difficult for hunters to find which in return decreases harvest and hunter satisfaction. Unfortunately only one person using an OHV illegal can have major negative impacts to the resource and others recreationalist's enjoyment.

Disease – Currently all area in the San Luis Valley, including E-32, are free of chronic wasting disease. In August 2001 the Anta Grande Elk Farm west of Del Norte on Hwy 160 (within the DAU), 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 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 E-32.

5. Habitat Resources

Winter range, particularly severe winter range, is the limiting factor to elk populations in this DAU (Figure 6). Winter range is defined as that part of the overall range where 90 % of the elk are located during the average first heavy snowfall to spring green-up. Winter concentration areas are that part of the winter range where densities are at least 200% greater than the surrounding winter range density in the average five winters out of ten. Severe winter range would be that part of the 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.

5.1 Public Lands

There is a total of 682 square miles of winter range in the DAU of which 76.2% or 519 square miles are publicly administered. Severe winter range totals 507 square miles of which 57.8% is on public lands. Winter range conflicts on public lands are primarily snowmobile and OHV harassment. Illegal harvest can also be an issue.

5.2 Private Lands

Twenty-two percent or 148 square miles of winter range is private land. Severe winter range consists of 214 square miles of private land or about 42.3% of the total severe winter range. There have been some forage conflicts on private lands due mainly to distribution problems. Subdivisions on winter range are a growing problem.

6. Development of Alternatives

The primary purpose of this DAU Plan is to determine long term post-hunt population and herd composition objectives. Herd composition is determined by calf/cow and bull/cow ratios. Calf/cow ratios are determined by environmental factors most of which wildlife managers have no control. On the other hand bull/cow ratios can be directly controlled by management actions.

Each alternative also includes a brief discussion of management variables that would probably occur for that population 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, cost, and life expectancy of the project. Individual practices that should be

considered include prescribed fires, fertilization, seeding, water developments, fencing, timber management, travel management, range management, salting and others.

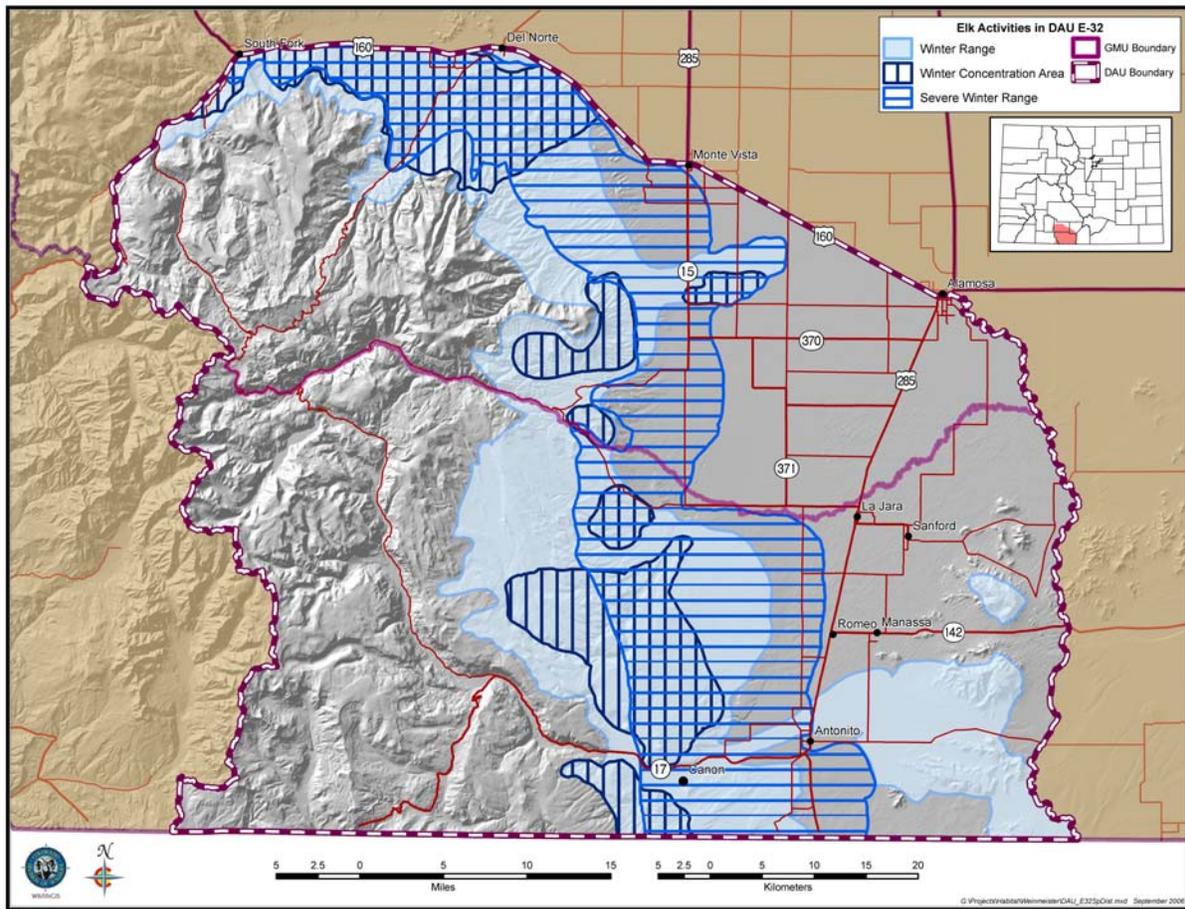


Figure 6. Winter range, severe winter range, and winter concentration areas for E32

Game damage problems, although closely tied to the severity of the winter, would probably decrease under the lower population alternatives, and would increase with increasing population levels.

Higher population levels, on the other hand, will also support a higher harvest by hunters, increase hunter opportunity, and increase the fiscal benefits to the economy. A population objective that involves reducing the number of hunting licenses by 10% will also reduce the economic benefits to the state and local counties involved by approximately 10%.

6.1 Population Objective

Current Objective – 5000

ALTERNATIVE 1 5000 to 6000 (15% decrease in current population)

This alternative suggests managing for the lowest population and is still above the current objective. This objective would demand aggressive cow harvest for the next several (approximately 3 years). Long term benefits reaching this objective would include minimal game damage to agricultural fields and minimum impact to the habitat. However, it would also offer the least amount of hunting recreation with reduced number of elk, including bulls.

ALTERNATIVE 2 6000 to 7000 (current population)

Adopting this objective would manage the herd at its current level. This would decrease antlerless licenses to a level that would allow harvest to equal recruitment rates. Little change of impacts to habitat, agriculture and hunting (excluding the decreased availability of cow tags) would be seen.

ALTERNATIVE 3 7000 to 8000 (15% increase in current population)

This alternative would allow for a slight increase in the population which would equal numbers experienced just a few years prior. Management at this level may have more impact to agricultural interests and to the habitat. It would optimize hunting opportunity for bulls. All antlerless hunting would be reduced until the population increased to objective.

6.2 Herd Composition (Bull:cow ratio) Current Objective 20 bulls:100 cows

ALTERNATIVE 1 15 to 18 bulls per 100 cows

This alternative offers the lowest sex ratio, therefore the lowest number of mature bulls in the population. The benefit of maintaining a low sex ratio is the ability to manage GMU with unlimited bull hunting as currently managed. To increase the sex ratio any higher would require additional harvest restrictions which most likely be seen in the form of limited bull licenses.

ALTERNATIVE 2 25 to 30 bulls per 100 cows

This sex ratio would require limiting bull licenses, which would be a public nomination process. Opportunities to hunt bulls would most likely be given every 1 to 3 years. The benefit of this would be fewer hunters in the field and more mature bulls.

ALTERNATIVE 3 32 to 38 bulls per 100 cows

Bull licenses would need to be severely limited to reach this objective. Most likely, hunters would only be able to obtain a bull license every 6 to 8 years. Benefits of fewer hunters and more mature bulls as seen in alternative 2 would increase more. Limiting licenses beyond this point to increase sex ratios would require greater restrictions with less benefit gained.

7. Alternative Selection

7.1 Preferred Alternatives

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

On September 20, 2006 a presentation concerning this plan was given to the San Luis Valley Habitat Partnership Program Committee. The HPP committee gave their support to population objective alternative 2 (6000 – 7000) and sex ratio objective alternative 1 (15-18:100).

A public meeting was held in Alamosa on October 2, 2006 to discuss DAU objectives. The overall view from the public was that they were not happy with current low elk population. This could be more of a distributional problem during hunting season than an actual population size. Also contributing could be that the population has been decreased by 40% in the past several years and elk are not as easy to come by during season as 4 to 5 years ago. Non-the-less any further management action to decrease this elk herd would be met by strong opposition from the public. From public comment on a survey form an increase in population (population objective alternative 3) was supported the most.

People at this meeting were also very vocal about having the opportunity to hunt every year. This sentiment is conducive to unlimited bull hunting which would be the management under sex ratio objective alternative 1.

A meeting with US Forest Service and Bureau of Land Management managers and DOW staff was held on October 16, 2006 to discuss plan revisions. Comments received included that there are not any current grazing conflicts caused by elk on the US Forest Service. There was discussion about attempting to reduce elk numbers further in attempts to increase the deer population even though there is no evidence that elk numbers are suppressing the deer herd through interspecies competition. These Federal land management agencies supported population objective alternative 2 (6000 – 7000) and sex ratio objective alternative 1 (15-18 bulls:100 cows).

County Commissioners from Conejos County and Rio Grande County (counties which make up most of the DAU) were contacted by DOW Area Wildlife Manager, Rick Basagoitia, and asked for their comments concerning this plan. Conejos County Commissioners were supportive of population alternative 2 (6000 to 7000) and sex ratio alternative 1 (15-18 bulls:100 cows). Commissioner Sandoval was strongly opposed to any limitation of public hunting opportunity through limited licenses. Rio Grande County Commissioners were supportive of DOW's recommendation.

Local DOW Area Wildlife Manager and District Wildlife Managers supported the recommended alternatives. This was after discussion about biological, recreational, social, and political impacts of the proposed objectives.

Currently additional comments from three additional County Commissions (Alamosa, Archuleta, and Mineral), Woolgrower Association, and Cattleman's Association are being sought to be incorporated into this plan.

Based on input from various groups and individuals it is recommended that a **population objective of 6000 to 7000** elk (alternative 2) and a **sex ratio objective of 15 to 18 bulls per 100 cows** (alternative 1) be adopted.

Support of the recommended population objective was shown by all with the exception of individuals at the DAU public meeting. There were several individuals at the meeting who believed the elk were being over harvested in the DAU. 1/3 (7) of those who provided written comments from the meeting supported the proposed alternative while the other 2/3 (14) of the written comments supported a higher population objective. This issue was considered in depth when determining the recommended population objective. It is believed that the concerns of those from the public that want a higher population objective would be addressed with the proposed objective. The proposed objective would terminate the management to decrease the elk population which has been the trend for the past several years. This is what people want stopped. It would also substantially decrease cow harvest, in return decrease hunter crowding, and has the potential to eliminate, or at least heavily restrict, late season hunting which was also a major concern voiced at the public meeting. The proposed recommendation also allows limited growth of the population. Lastly the recommendation was based on the support shown by others at the public meeting, federal land use agencies, and County Commissioners which was the majority of those who commented on the plan.

All those who provided comments on this plan supported having unlimited bull hunting opportunity in the DAU which is supported by the recommended sex ration alternative of 15 to 18 bulls per 100 cows. The only vocalization given contradictory to this was from one individual in an e-mail sent to the Wildlife Commission.

Literature Cited

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