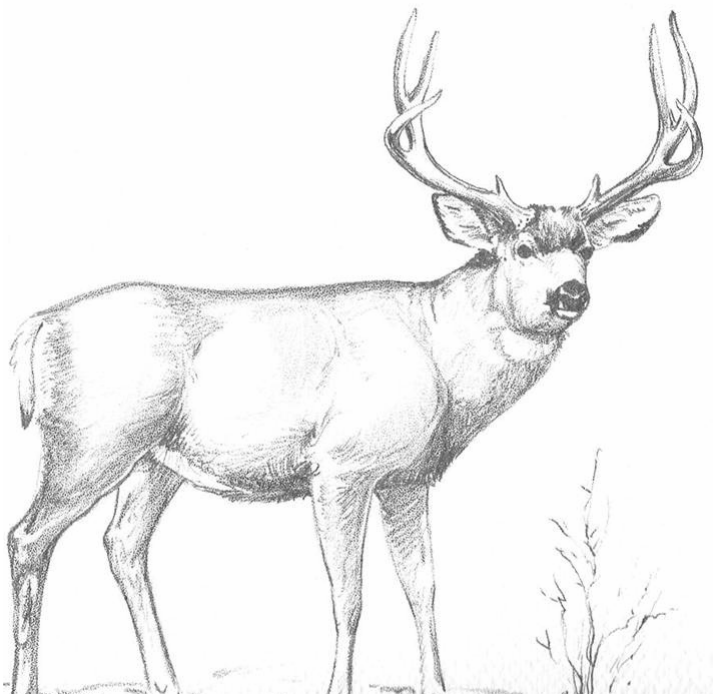
# Uncompahgre Plateau Deer Management Plan

## DATA ANALYSIS UNIT D-19
## GAME MANAGEMENT UNITS 61 & 62

**Wildlife Commission Approved January 2006**

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# UNCOMPAHGRE PLATEAU DEER MANAGEMENT PLAN

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# EXECUTIVE SUMMARY

**GMUs:** 61 and 62
**Land Ownership:** 24% Private, 37% USFS, 38% BLM, 1% State
**Posthunt Population: Objective** 36,000-38,000 **2004 Estimate** 35,800
**Posthunt Sex Ratio (Bucks/100 Does): Objective** 34-36 **2004 Observed** 36 **2004 Modeled** 35

**Figure 1. D-19 Posthunt Population Estimate**

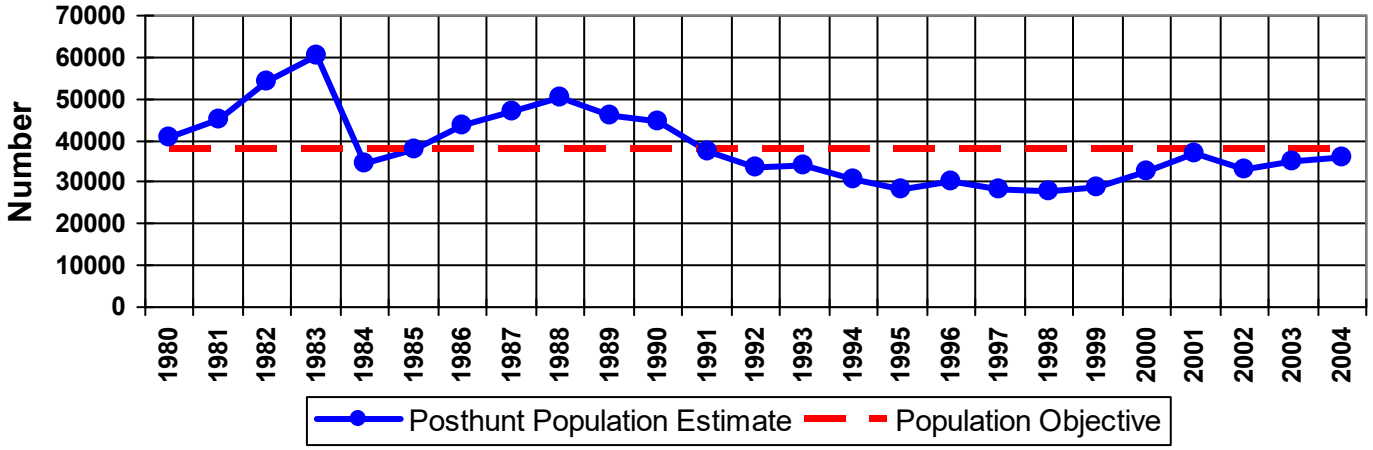



**Figure 2. D-19 Harvest**

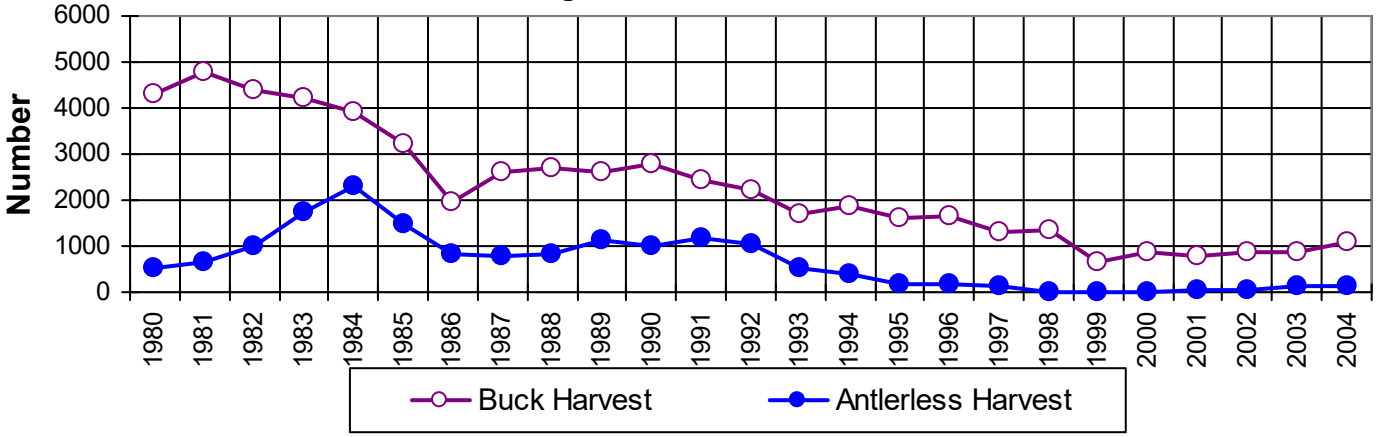
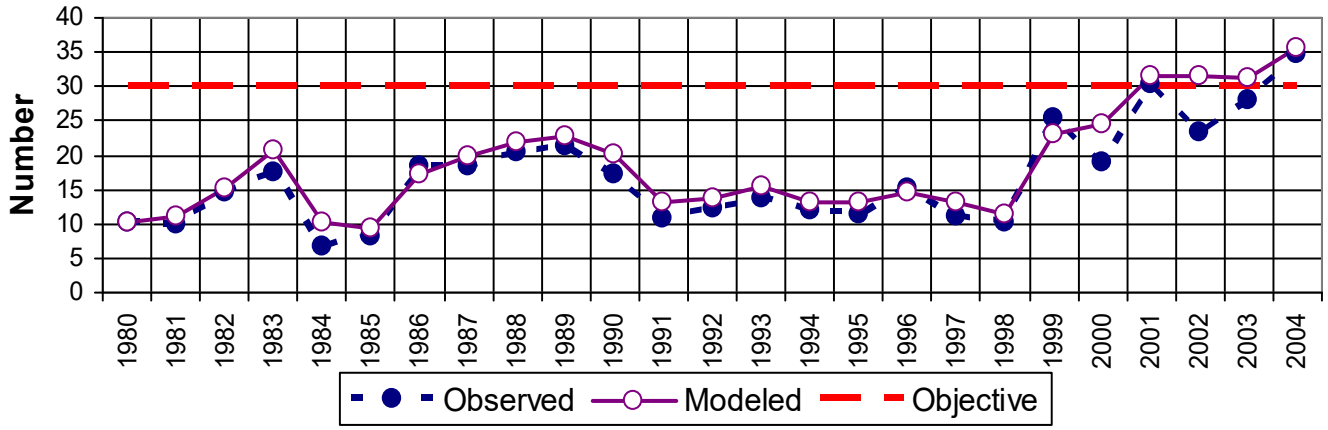



**Figure 3. D-19 Posthunt Bucks/100 Does**



## D-19 Background

Data Analysis Unit (DAU) D-19, the Uncompahgre Plateau deer management area, consists of Game Management Units (GMU) 61 and 62. Since 1992, the Colorado Division of Wildlife (CDOW) has managed GMU 61 as a quality deer hunting unit with limited licenses and greatly reduced hunting pressure. Unit 62 has historically been managed for hunter opportunity until 1999 when all deer licenses became limited across the state, and licenses were reduced by 75% in an effort to recover ailing mule deer populations. Unit 62 has still provided significantly more hunter opportunity than unit 61. In 1998 rifle doe hunting was eliminated on public land to also help in the recovery of the mule deer population. However, either-sex archery and muzzleloader tags have been available since 2002 to increase harvest of a growing resident mule deer population in the Uncompahgre Valley.

From 1988 to 1998, the estimated D-19 post-hunt deer population declined steadily from approximately 50,000 to 28,000 (Figure 1) with deceases in buck/doe ratios (20.4:100 in 1988 to 10.1 in 1998, Figure 3) and fawn/doe ratios (64:100 in 1988 to 34.2:100 in 1997). The overall decline could probably be contributed to declining availability of winter range habitat, loss of agricultural land, a general decline in overall habitat condition, and thus density-dependency and over harvest during the population decline.

Since 1998 the population along with buck/doe and fawn/doe ratios has been increasing due to mild winters and the limitation of licenses (69% decline in total hunters for Units 61 and 62 in 1998). The post-hunt population from 2004 was 35,700 with an observed sex ratio of 34.8 bucks/ 100 does and an observed age ratio of 53 fawns/ 100 does. The current post-hunt population objective for D-19 is 38,000 deer. The current observed post-hunt sex ratio objective is 30 bucks/100 does.

The decline in deer numbers across the west and on the Uncompahgre Plateau triggered multiple actions from CDOW and other agencies and organizations. The CDOW limited license numbers and established the Uncompahgre Plateau as an intense deer study area to monitor winter fawn survival and overall doe survival to better manage deer numbers on the Plateau and in similar habitats across southwestern Colorado. The Uncompahgre Plateau Project was developed to increase cooperation and planning between state and federal agencies to improve deer and elk habitat. The CDOW has also conducted a summer fawn mortality study; a research project evaluating the impacts of winter habitat condition on overall doe and fawn survival; started another research project to assess the affects of habitat improvement projects on overall doe and fawn survival; and have also started a mountain lion project that should allow a more intense look at the predator/prey dynamics between mountain lions and mule deer.

## D-19 Significant Issues

Habitat capability on the Plateau has been difficult to assess, but based on poor winter condition due to the drought and loss of winter range and agricultural land to housing developments, we are very concerned about mule deer population size. Based on past

population highs and subsequent population crashes and the continuing loss of winter range it is probably best that we not have as high of a population objective for D-19 as there has been in the past.

Hunter demand on the Plateau for deer licenses has always been high, especially prior to going limited in 1999. Buck licenses in GMU 61 require 4-8 preference points to draw depending on season. While buck licenses in GMU 62 require 2 points for muzzle-loader licenses, all other seasons can be drawn by residents and non-residents with zero points.

Deer numbers in D-19 have been recovering across the Uncompahgre, however, the increasing number of resident deer in the Uncompahgre Valley has been creating large conflicts with crop producers. Over the last three years $150,000 has been paid on game damage claims, primarily associated with corn damage. To help alleviate this issue, game damage hunts have been issued as well having established a new season strictly in the Valley for doe and either-sex archery and muzzle-loader licenses prior to the migratory deer moving into the area.

**D-19 Management Alternatives**

Three alternative deer management strategies are being considered for D-19:

(1) Manage the DAU similarly to current management with both units limited while unit 61 is for quality experience and unit 62 will provide more hunter opportunity with a post-hunt population objective of 36,000-38,000 and an observed sex ratio of 34-36 bucks: 100 does.

(2) Manage the DAU with limited licenses for quality experience in both GMU 61 and GMU 62, similar to 61's present management, with a post-hunt population objective of 36,000-38,000 and observed sex ratio of 45 bucks: 100 does.

(3) Manage the DAU with limited licenses for hunter opportunity in both units, providing similar licenses numbers in unit 61 as in 62, with a post-hunt population objective of 34,000-36,000 and an observed sex ratio of 25 bucks: 100 does.

The CDOW does not recommend managing for more than 38,000 deer due to past and future loss of winter range to development on the 62 side, poor winter range habitat condition, and to minimize conflict with agricultural interests. Thus, the area staff recommendation is to select alternative 1, status quo. This would mean little change to current management style, would set a population objective, and would have little economic change to the community from current status.

The preferred alternatives were approved by the Wildlife Commission in January 2006.

# INTRODUCTION AND PURPOSE

The Colorado Division of Wildlife (CDOW) manages wildlife for the use, benefit and enjoyment of the people of the state in accordance with the CDOW's Strategic Plan and mandates from the Wildlife Commission and the Colorado Legislature. Colorado's wildlife resources require careful and increasingly intensive management to accommodate the many and varied public demands and growing impacts from people. To manage the state's big game populations, the CDOW uses a "management by objectives" approach (Figure 4). Big game populations are managed to achieve population and sex ratio objectives established for data analysis units (DAUs). Each DAU generally represents a geographically discrete big game population. The DAU planning process establishes herd objectives that support and accomplish the broader objectives of the CDOW's Strategic Plan.

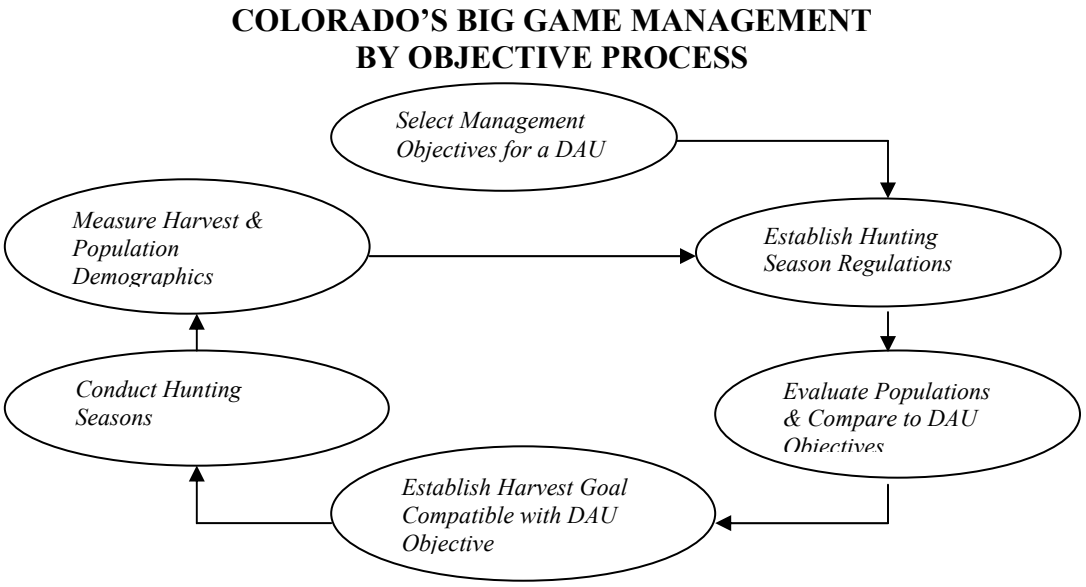



***Figure 4. Management by objectives process used by the CDOW to manage big game populations on a DAU basis.***

The DAU planning process incorporates public input, habitat capabilities, and herd considerations into management objectives for each of Colorado's big game herds. The general public, sportsmen, federal land management agencies, landowners, and agricultural interests are involved in determining DAU plan objectives through questionnaires, public meetings, comments on draft plans, and input to the Colorado Wildlife Commission. Limited license numbers and season recommendations result from this process.

Each DAU is managed to meet herd objectives that are established through the DAU planning process. The DAU plan establishes post-hunt herd objectives for the size and structure of the population. Once the Wildlife Commission has approved DAU objectives, they are compared with modeled population estimates. Model inputs include:

- Harvest estimates determined by hunter surveys
  - Post-hunt sex and age ratios determined by aerial counts
    - Estimated wounding loss, illegal kill, and survival rates based on field observations and telemetry studies.

A computer model calculates the population's size and structure based on the most accurate information available at the time. The final step in the process is to calculate harvest recommendations that will align population estimates with the herd objectives.

# DESCRIPTION OF DATA ANALYSIS UNIT D-19

## Location

Data Analysis Unit D-19 encompasses 2,262 square miles of the Uncompahgre Plateau in southwestern Colorado and includes parts of Delta, Mesa, Montrose, Ouray, and San Miguel Counties (Figure 5). DAU D-19 consists of Game Management Units 61 (948 square miles) and 62 (1,314 square miles) and includes parts of the Uncompahgre, San Miguel, Gunnison, and Dolores River drainages. The DAU is bounded on the north by Colorado Highway 141, on the east by US Highways 50 and 550, on the south by Colorado Highway 62, and on the west by the San Miguel and Dolores Rivers. GMUs 61and 62 are separated by the Divide Road (USFS Rd 402) and the Dave Wood Road.

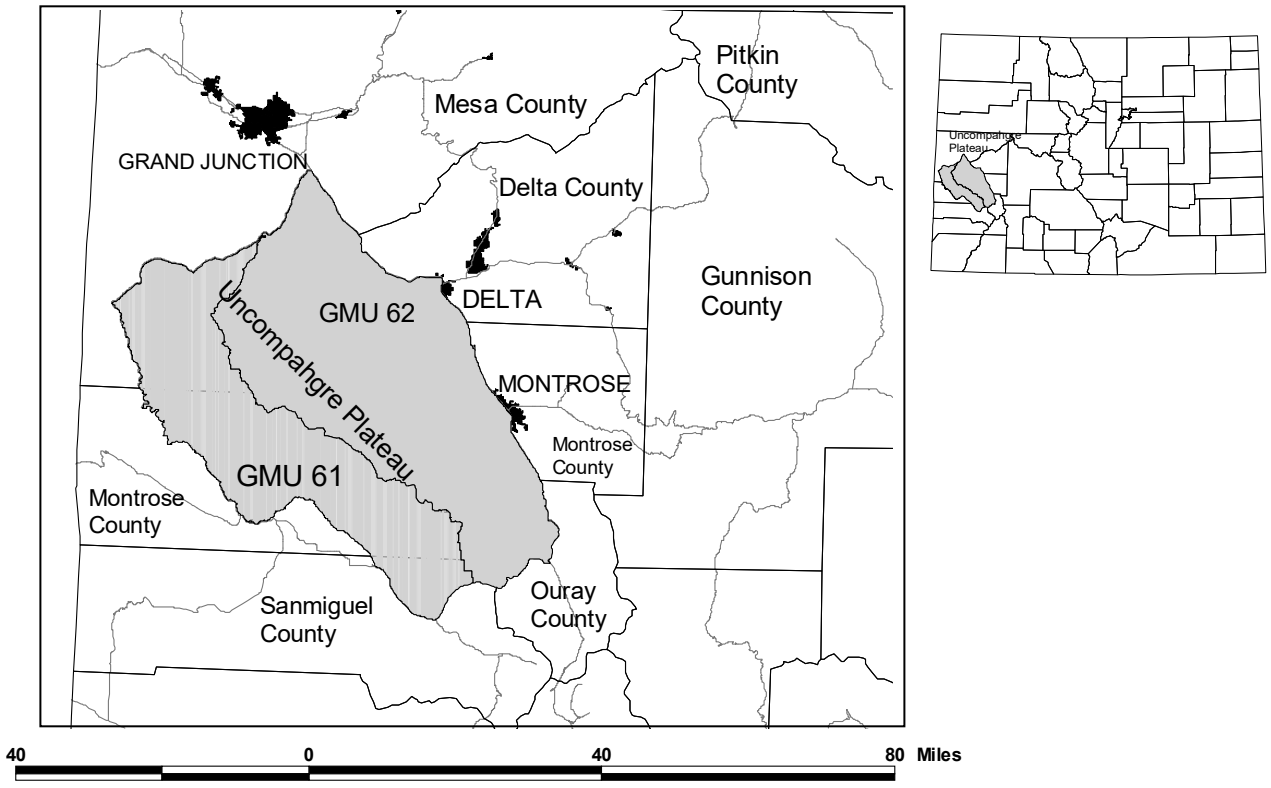



***Figure 5. Location of DAU D-19, GMUs 61 & 62, in southwestern Colorado.***

## Physiography

The Uncompahgre Plateau is a broad structural uplift within the Colorado Plateau physiographic province. The Uncompahgre Plateau consists of a relatively flat 9,000 – 9,800 foot summit that runs northwest from Ridgway to the Unaweep Canyon. The summit drops off quickly on the Unit 61 side and more gradually slopes downward on the Unit 62 side. Both sides of the Uncompahgre Plateau are incised by deep canyons separated by relatively flat mesas that typically run perpendicular to the main summit ridge and end at the San Miguel, Dolores, Gunnison or Uncompahgre Rivers. The elevation in DAU D-19 ranges from 4,570 feet along the Dolores River near Gateway to 10,338 feet at the summit of Horsefly Peak near the southeast end of the Plateau.

# Vegetation

At elevations below approximately 6,500 ft near the Dolores, San Miguel, Uncompahgre and Gunnison Rivers, a high desert plant community is the predominant, extant vegetation type. Important plant species of this community include four-wing saltbush, shadscale saltbush, black sagebrush, winterfat, broom snakeweed, rabbitbrush, greasewood, and, in the Gateway area, black brush. Elevations between approximately 6,000-7,500 ft, are characterized by pinyon pine and Utah juniper woodlands and grassland/shrub (e.g., basin big sagebrush, black sagebrush, Wyoming/mountain big sagebrush, mountain mahogony, Indian ricegrass). The pinyon-juniper type covers approximately 40% of DAU D-19 and is the predominant plant community. From approximately 7,500 to 8,500 ft, ponderosa pine/mountain shrub (e.g., Gambel oak, serviceberry, mountain mahogany, mountain big sagebrush, silver sagebrush, snowberry, manzanita) is the dominant vegetation type. Elevations above 8,500 ft are generally characterized by aspen forests and a mixed spruce-fir complex (aspen, Douglas fir, sub-alpine fir and Engleman spruce). Common plant species found in lowland riparian areas on the Uncompahgre Plateau include narrowleaf cottonwood, coyote willow, chokecherry, tamarisk, and boxelder. In higher elevation riparian areas characteristic species include thinleaf alder, birches, willows, and blue spruce.

Agricultural areas and cultivated croplands within the DAU occur primarily in the Uncompahgre Valley between Montrose and Delta.and in the other major river valleys surrounding the Plateau.

# Climate

The climate of the Uncompahgre Plateau varies depending on season and elevation. Areas below 6,500 ft are usually hot and dry during the summer and generally remain free of snow during most of the winter. Elevations between 6,500-8,000 ft usually have persistent snow only between late November and March. Areas above 8,000 ft can receive heavy snowfall and from December through late April are generally inaccessible except by foot or snow-machine. Mean annual precipitation varies from less than 8 inches at lower elevations to over 30 inches on top of the Plateau. Snowfall accounts for the majority of the precipitation at the higher elevations. Monsoonal moisture between July and September can also be an important source of precipitation at all elevations.

# Land Use

## Ownership

Land ownership in DAU D-19 is 24% private, 38%BLM, 37% US Forest Service, and 1% state. Municipalities that border the DAU include Montrose, Delta, Olathe, Ridgway, Norwood, Nucla, Naturita, and Gateway.

## Development

The Uncompahgre Plateau is surrounded by a growing human population that is placing increased demands on D-19 for development and recreation. Approximately 205,000 people live in the five counties that comprise DAU D-19 (Table 1). The human population in these counties increased over 40% between 1990 and 2004 and it is expected to continue increasing at a rapid rate well into the future.

***Table 1. Human population in the 5 counties that comprise DAU D-19, 1960-2004 (source U.S. Census Bureau).***

| COUNTY | 1960 | 1970 | 1980 | 1990 | 1995 | 2000 | 2004 |
|---|---|---|---|---|---|---|---|
| **Delta** | 15,602 | 15,286 | 21,225 | 20,980 | 25,077 | 27,834 | 29,774 |
| **Mesa** | 50,715 | 54,374 | 81,530 | 93,145 | 106,548 | 116,255 | 127,253 |
| **Montrose** | 18,286 | 18,366 | 24,352 | 24,423 | 28,829 | 33,432 | 36,674 |
| **Ouray** | 1,601 | 1,546 | 1,925 | 2,295 | 3,033 | 3,742 | 4,139 |
| **San Miguel** | 2,944 | 1,949 | 3,192 | 3,653 | 4,929 | 6,594 | 7,116 |
| **TOTAL** | **89,148** | **91,521** | **132,224** | **144,496** | **168,416** | **187,857** | **204,956** |

Habitat loss due to development and fragmentation is primarily occurring near the outer edges of the DAU. Relatively little development is occurring in the interior parts of the DAU which are primarily USFS and BLM lands. The most rapid residential development is occurring on the west side of the Uncompahgre Valley between Ridgway and Delta. Some of these developments, such as those on Loghill Mesa and in the Government Springs area, occur in important wintering areas for deer. Other areas of increased residential development in deer habitat include the Norwood and Nucla areas, Dallas Divide, Iron Springs Mesa, and Unaweep Canyon.

## Agriculture

Agricultural use in D-19 includes cultivated crop production and orchards on irrigated private lands below 6,000 ft in the Uncompahgre Valley and Nucla area, alfalfa and grass hay production primarily on irrigated private lands below 7,500 ft, and livestock grazing throughout most of the DAU on private and public lands. As a result of extensive water distribution networks, the Uncompahgre Valley has become one of the major crop producing areas on the Western Slope and agriculture contributes greatly to the local economy. Major crops include corn, pinto beans, wheat, onions, and alfalfa. Crop damage by deer is a major concern in the Uncompahgre Valley due to an increasing non-migratory deer herd residing year-round on agricultural land.

Since the 1880's, livestock grazing has been a mainstay of the Uncompahgre region. Cattle grazing occurs throughout most of D-19 including most of the Uncompahgre National Forest and most BLM lands. Sheep grazing occurs primarily on private land and BLM land on the eastside of the Plateau south of Escalante Canyon. In 1999, there were approximately 31 cattle grazing allotments with a total of 89,000 AUMs available on the Uncompahgre National Forest in GMUs 61 & 62. In addition there were 51 BLM grazing allotments for cattle with 19,824 AUMs available and 14 grazing allotments for sheep with 6,935 AUMs available. USFS lands are grazed by cattle primarily between June and October and BLM lands are generally grazed by cattle and sheep between October and June.

From the mid-1930's to the early 1970's, many range improvement projects were undertaken on BLM and USFS lands on the Plateau primarily to benefit livestock. Projects included contour ditching, chaining of pinyon-juniper woodlands, herbicide treatment of sagebrush and Gambel oak, water impoundments, and seeding with non-native species such as crested wheatgrass and intermediate wheatgrass. Deer and elk likely benefited from some of these livestock range improvement programs. In addition, intensive predator control with toxicants and other methods was undertaken on the Plateau between the late 1950's and the early 1970's.

## Recreation

The Uncompahgre Plateau has long been a popular destination for recreation. Recreation activities on the Plateau include hiking, camping, hunting, fishing, wildlife viewing, photography, mountain biking, horseback riding, four-wheeling, OHV use, snowmobiling, and cross-country skiing. According to the BLM and USFS, recreational use is increasing rapidly on the Uncompahgre Plateau. The impact of increased non-consumptive recreation activities on deer and other wildlife is largely unknown but is, at some point, assumed to be detrimental because of increased disturbance and habitat degradation.

Hunting impacts to deer are not limited to actual harvest. Hunters have an affect on the distribution of deer in the fall and can affect where deer will winter. Hunters also create new roads that can increase disturbance to deer by a variety of motorized users outside of the hunting seasons. From an economic standpoint, hunting makes the greatest contribution to the local economy of any recreational activity.

## Mining

Energy and mining activities in D-19 include open-pit coal mining, oil and gas wells, sand and gravel extraction, and mineral mining claims. Intensive exploration and mining for uranium and vanadium occurred in the west-end of Unit 61 between the 1930's and early 1980's. Habitat impacts (i.e., roads, runways, mines, seismic lines, tailings) from this industry are readily apparent in Unit 61 between Nucla and the Unaweep Canyon. Reclamation of prior mining and milling sites is now the primary focus of the uranium/vanadium industry in the area, however, within the

last year there has been an increase in uranium mining leases across western Colorado indicating there may be another uranium boom. Reclamation is also an ongoing aspect of open-pit coal mines.

Little precious metal mining activity has occurred within DAU D-19. Some placer mining for gold has occurred along the San Miguel and Dolores Rivers. Intensive gold and silver mining activity began in the San Juan Mountains to the south of the Uncompahgre Plateau in the 1870's. It is likely that unregulated market hunting and subsistence hunting associated with mining activities in the San Juan Mountains contributed to the deer population decline on the Plateau near the turn of the 20th century.

Mining impacts to deer are mostly undetermined. Networks of mining roads, primarily between Nucla and Gateway, have provided increased motorized access to deer hunting and winter range areas and possibly have increased disturbance. Mining has also had beneficial effects on deer and elk. Deer and elk heavily use reclaimed mine sites and, in some cases, can hamper reclamation efforts.

### Timber Harvest

Timber harvest on the Plateau consists primarily of aspen clear-cutting, ponderosa pine timber sales, and fuel wood collection on the Uncompahgre National Forest and private lands. On BLM land, timber harvest consists primarily of pinyon and Gambel oak fuel wood collection and selective cutting of juniper for posts.

The impact of timber harvest on deer is mostly undetermined. Roads created by the timber industry have allowed increased motorized access and possibly greater disturbance to deer. Conversely, deer often prefer timber harvested areas because forage production often increases following silvicultural activities.

## Uncompahgre Plateau Landscape Assessment

A more detailed description of the Uncompahgre Plateau and its resources is available in the Uncompahgre Plateau Landscape Assessment produced by the USFS and BLM.

# HERD MANAGEMENT HISTORY

## Post-Hunt Population Size

Restrictive hunting regulations, increasingly regulated livestock grazing, inadvertent habitat improvement due to recovery of disturbed areas, and a probable decrease in the number of predators allowed the deer population on the Uncompahgre Plateau to increase rapidly by the late 1930's. By the 1950's, the Plateau had become a popular destination for deer hunters and for over two decades ranked as one of the most popular and productive deer hunting areas in the state. In the 1950's, wildlife managers became concerned that the large numbers of deer on the Plateau were over-browsing their winter range. In an effort to control the flourishing deer population, multiple, either-sex deer licenses were issued in the 1950's and early 1960's that allowed hunters to harvest as many as 4 deer per year. From 1960-1962, an average of 5,478 deer hunters per year enjoyed a 125% success rate with approximately equal numbers of bucks and does being harvested.

The deer population began to decline on the Plateau in the late 1960's, so hunters were limited to one deer per year. The first buck-only season since the 1930's was held in 1971. Large areas of the Uncompahgre were treated from the 1940's to mid 1970's to improve range conditions for livestock. Treatments included spraying sagebrush, Gambel oak and rabbitbrush with herbicides and chaining pinyon/juniper woodlands. Aggressive predator control with the use of toxicants such as Compound 1080 and sodium cyanide, primarily directed to coyotes, occurred on the Plateau, especially the southern part, from the late 1940's until toxicant use was restricted on federal lands in 1972.

During the late 1970's, the deer population rebounded and by the early 1980's, the post-hunt population on the Plateau was estimated to be over 60,000 deer. From 1981-1983, an average of 11,476 hunters per year harvested

4,454 bucks and 1,241 does per year for a success rate of approximately 50%. However, the Plateau's deer population declined sharply due to a severe winter from 1983-1984. The population continued a general decline to a low of ~28,000 deer in 1998. The decline in deer numbers was probably indicative of poor fawn recruitment and was consistent with mule deer populations across the western United States. Habitat changes due to development, fragmentation, fire suppression, and drought; human impacts due to commercial activities and rapidly increasing recreational use; predation from coyotes, mountain lions and black bears; and increased elk populations are among the possible factors interacting to contribute to the decline of mule deer on the Plateau.

However, since 1998 the mule deer population in D-19 has shown an overall increase to an estimated post-hunt population of approximately 36,000 in 2004 (Figure 6). This increase is probably in response to greater restrictions on licenses and mild winters. However, the current drought conditions, poor winter range condition due to the drought, and decreasing winter range habitat due to development will probably hinder the mule deer population from getting too much bigger.

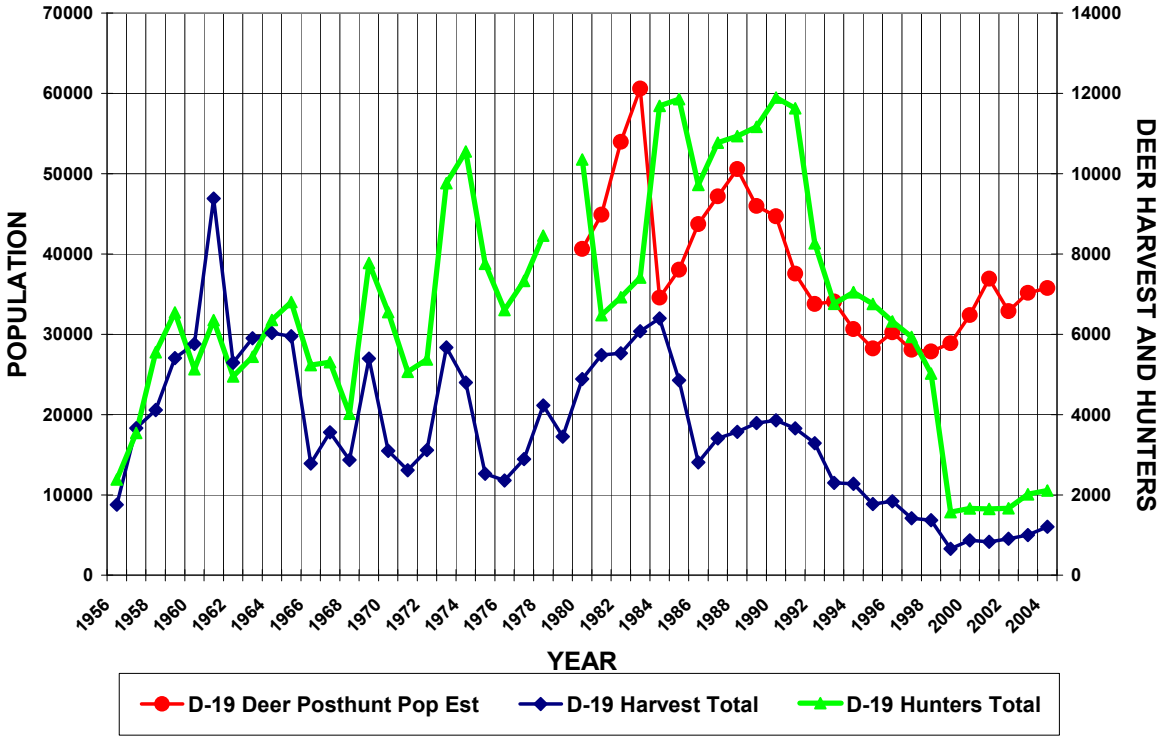



***Figure 6. DAU D-19 estimated post-hunt deer population ,total deer harvest, and deer hunterst, 1956- 2004. 95% confidence intervals average ± 7% for deer harvest and ± 3% for hunters since 1995.***

## Post-Hunt Herd Composition

Post-hunt herd composition is determined by aerial surveys of randomly stratified 1mi$^2$ quadrats in late December or early January after the animals have moved to their winter range. It is believed that buck:doe ratios observed on the Uncompahgre Plateau during aerial surveys are biased low because small groups of bucks or lone bucks are more difficult to sight from the air than larger herds of does and fawns, adult bucks on the Plateau often winter in dense pinyon-juniper where sightability is much lower than in the open sagebrush areas, and the survey quadrats are more

likely to detect large numbers of does and fawns than bucks. Modeled buck:doe ratios averaged 10% higher than observed buck:doe ratios between 1982 and 2004.

Observed post-hunt buck:doe ratios for D-19 averaged 14.1 bucks:100 does between 1982 and 1998 (range 6.6/100 to 21.2/100) during the time the whole population was declining. However, from 1998 to 2004, when the population has been increasing, the average observed buck:doe ratio has been 27 bucks:100 does (Figure 7).

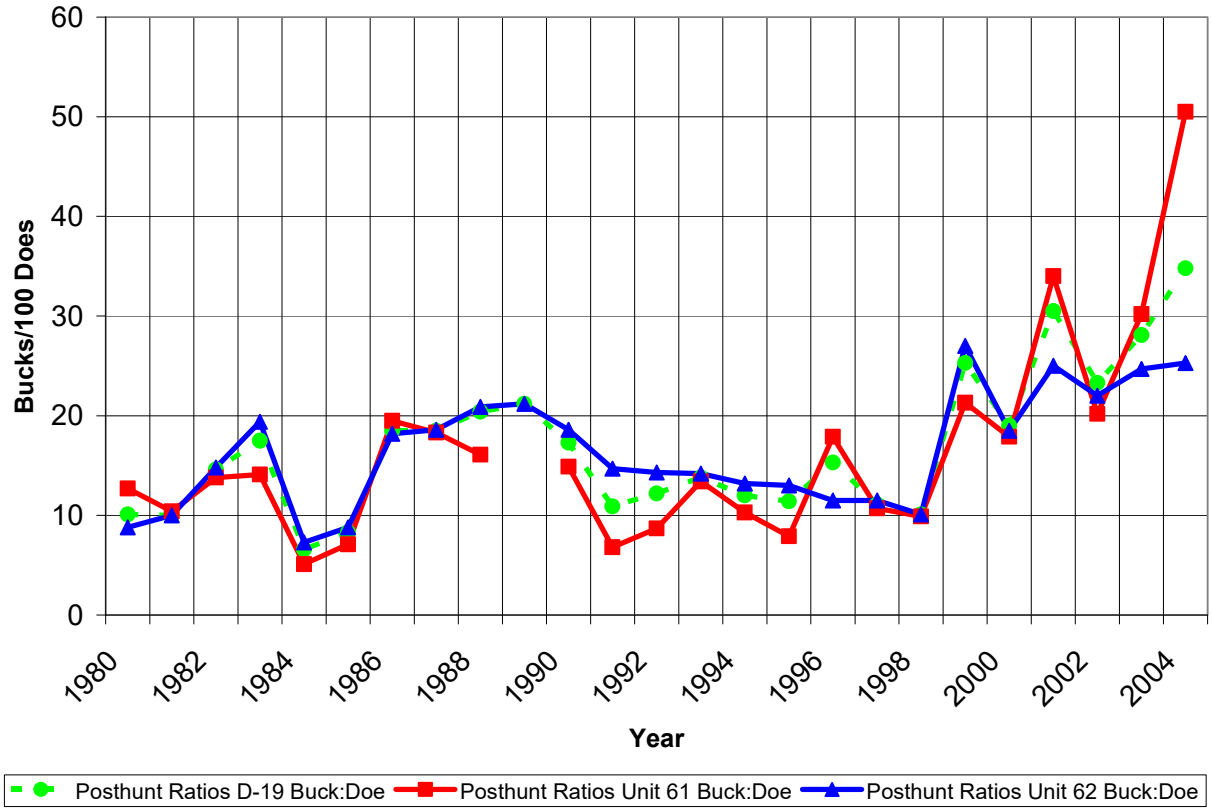



***Figure 7. DAU D-19 post-hunt bucks per 100 does observed during aerial counts and post-hunt population estimate, 1980-2004. 95% confidence intervals for D-19 are generally ± 20% on the buck:doe ratios.***

Fawn:doe ratios observed during aerial counts are generally believed to be non-biased and represent actual ratios. Female mule deer usually don't bear their first fawns until they are 2 years old and typically produce twins. Observed fawn:doe ratios for D-19 between 1982 and 1998 when the population was on the decline averaged 50.0 fawns:100 does (range 31.6:100 to 78.5:100), however, even though the population has recovered some since 1998 the average observed fawn:doe ratio from 1999 to 2004 is only 50.9 fawns:100 does (range 38.5:100 to 63.6:100) (Figure 8).

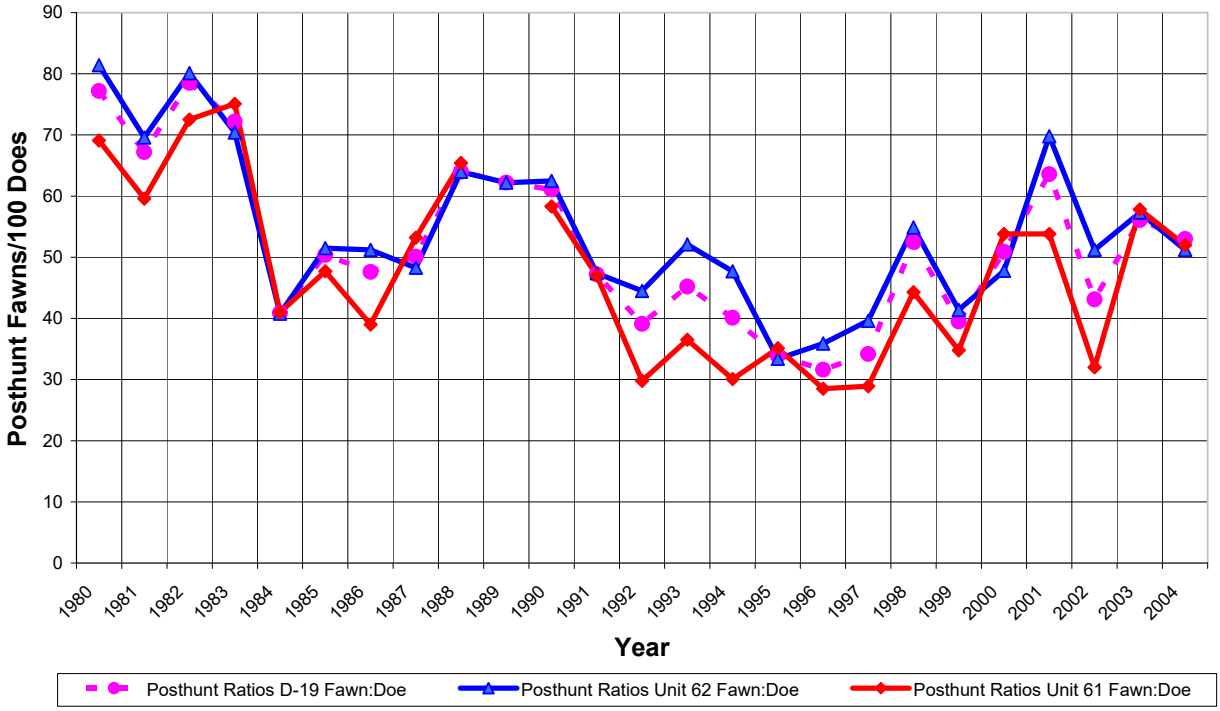



***Figure 8. DAU D-19 post-hunt fawns per 100 does observed during aerial counts, 1980-2004. 95% confidence intervals for D-19 are generally ± 13%.***

# Harvest

## Factors Affecting Harvest

Factors affecting the number of deer harvested each year include: (1) hunting pressure in Unit 62, which is managed for opportunity; (2) resident deer in the Uncompahgre Valley and increased game damage harvest; (3) season structure; (4) weather; and (5) population size and structure.

## Harvest History

Mule deer populations on the Uncompahgre Plateau grew rapidly in the late 1930's due to restrictive hunting regulations and a variety of other factors after being set way back due to unregulated hunting and habitat alterations. By the 1950's, the Plateau had become a popular destination for deer hunters and ranked as one of the most popular and productive deer hunting areas in the state. However, managers became concerned that the large numbers of deer on the Plateau were over-browsing their winter range. Multiple either-sex licenses were issued in the late 1950's and early 1960's that allowed hunters to harvest as many as 4 deer per year. From 1960-1962, an average of 5,478 deer hunters per year enjoyed a 125% success rate with approximately equal numbers of bucks and does being harvested. Then, in the late 1960's harvest was limited to one deer per year and in 1971 the first buck-only season was held since the 1930's on the Plateau after the deer population had declined.

The 1970's and early 1980's saw the Uncompahgre mule deer population rebound again to as many as 60,000. During this period the Plateau drew large numbers of hunters and supported a large deer harvest. In the period 1981-1983, an average of 11,476 hunters per year harvested 4,454 bucks and 1,241 does per year for a success rate

of approximately 50% (Figure 7). Yet, the winter of 1982-83 was severe and caused a sharp decline in the mule deer population.

Between 1986-1991, a 3-point minimum antler restriction was implemented for all bucks during the combined rifle seasons in GMU's 61 and 62. Antlerless deer licenses, with the exception of archery/muzzleloader licenses and a small number of private-land-only licenses, have not been issued in GMU's 61 and 62 since 1986. In 1992, GMU 61 became totally limited unit for deer hunting and the number of hunters was reduced by almost 90%. In addition, the antler point restriction was eliminated and the buck season was shortened to the first 3 days of each regular rifle season. In 1995, all third season buck licenses were limited statewide and a 5 day buck season was implemented. Between 1995 and 1997, an average of 6,337 hunters per year killed 1,513 bucks and 166 does for a 26% success rate in D-19 (Figure 9).

In 1998, every deer GMU across the state went limited and license numbers were cut by 75% in GMU 62 for the 1999 season (Figure 10). Since 1999, hunters have harvested an average of 853 bucks and 53 does in D-19with the greatest yearly harvest occurring within the last year based on greater available licenses. In 2004, 2107 hunters harvested 296 bucks in GMU 61 and 797 bucks in GMU 62 along with 115 does in GMU 62. D-19 ranked 8th in the state for total deer harvest in 2004, while GMU's 61 and 62 ranked 49th and 7th among other units.

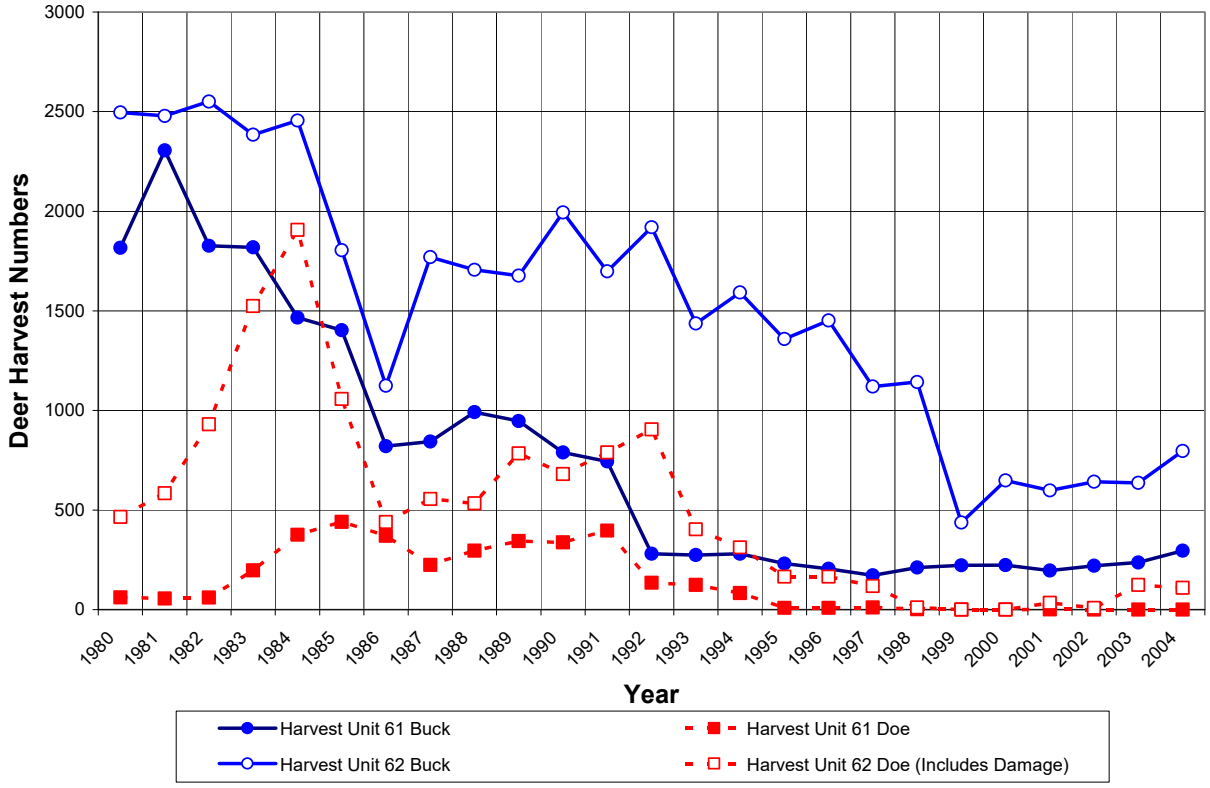



***Figure 9. DAU D-19 deer harvest, 1980-2004. 95% confidence intervals for D-19 average ± 10% for bucks and does.***

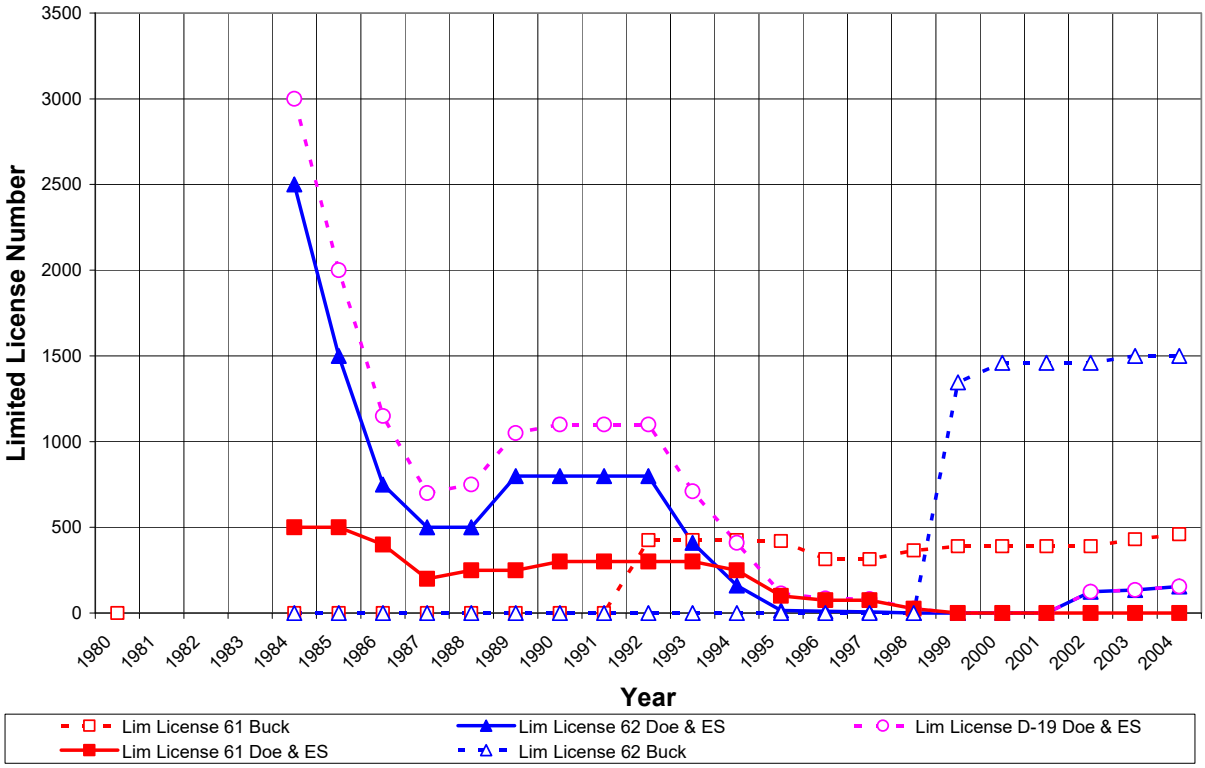



***Figure 10. DAU D-19 limited deer licenses, 1980-2004.***

The number of antlerless licenses has been limited since 1998, other than licenses for game damage and licenses that started being issued in 2002 to control resident deer populations in the Uncompahgre Valley. Antlerless licenses may be made more available again when the population meets objective to control it from going beyond objective and to minimize game damage and resident deer in the Uncompahgre Valley.

# Hunters

## Hunter Numbers

The number of licensed deer hunters per year in D-19 has fluctuated over the last 15 years ranging from a high average of 11,814 from 1983-85 to a low average of 1629 between 1989-2001. In general, the number of hunters declined from the early 1980's to the late 1990's due to declining mule deer populations, however, licenses numbers have increased over the last few years due to improving mule deer populations (Figure 11). Archery hunters accounted for an average of 19% of the total hunters from 2000-2004. Between 2002 and 2004, D-19 ranked 13$^{th}$ out of 54 deer DAUs for the number of deer hunters and total hunting pressure.

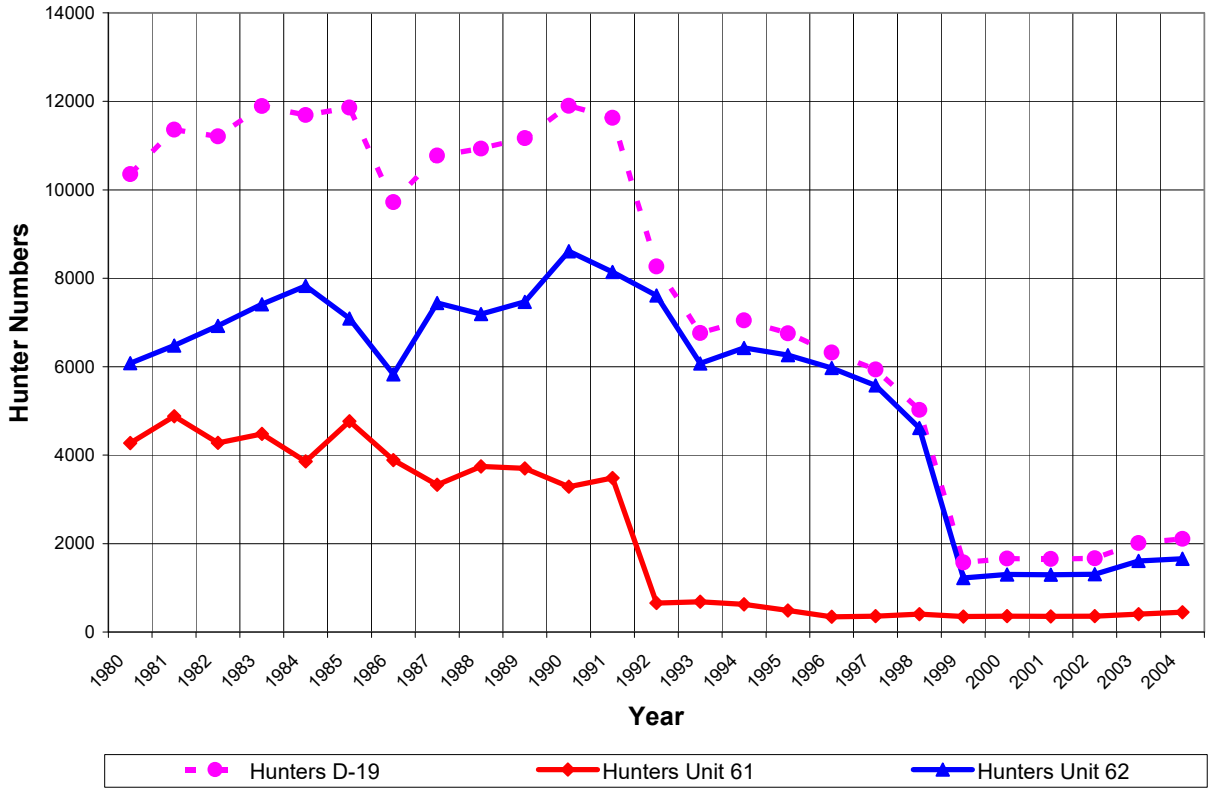



***Figure 11. DAU D-19 deer hunter numbers,1980-2004. 95% confidence intervals for D-19 average ±3%.***

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Because GMU 61 is currently managed for quality animals, deer hunting pressure differs between GMU's 61 and 62. From 1980 to 1992, Unit 62 accounted for 64% of the deer hunters in D-19. From 1992, the year GMU 61 became limited to 1998, GMU 62 accounted for 92% of the harvest in D-19. Since 1999, when all deer GMUs went limited, 62 still has accounted for 78% of the harvest in D-19.

## Hunter Success

Hunter success in D-19 averaged 33.3% (range: 24.0-54.7%) from 1984-1998, yet jumped to an average of 48.8% (range: 41.9-57.1%) success from 1999-2004 (Figure 12). Hunter success has increased since 1999 when deer hunting went limited statewide and licenses were decreased by 75% in GMU 62. GMU 61 went limited in 1992, which caused a considerable increase in success rates for that unit, but didn't have much of an impact on the overall success of D-19.

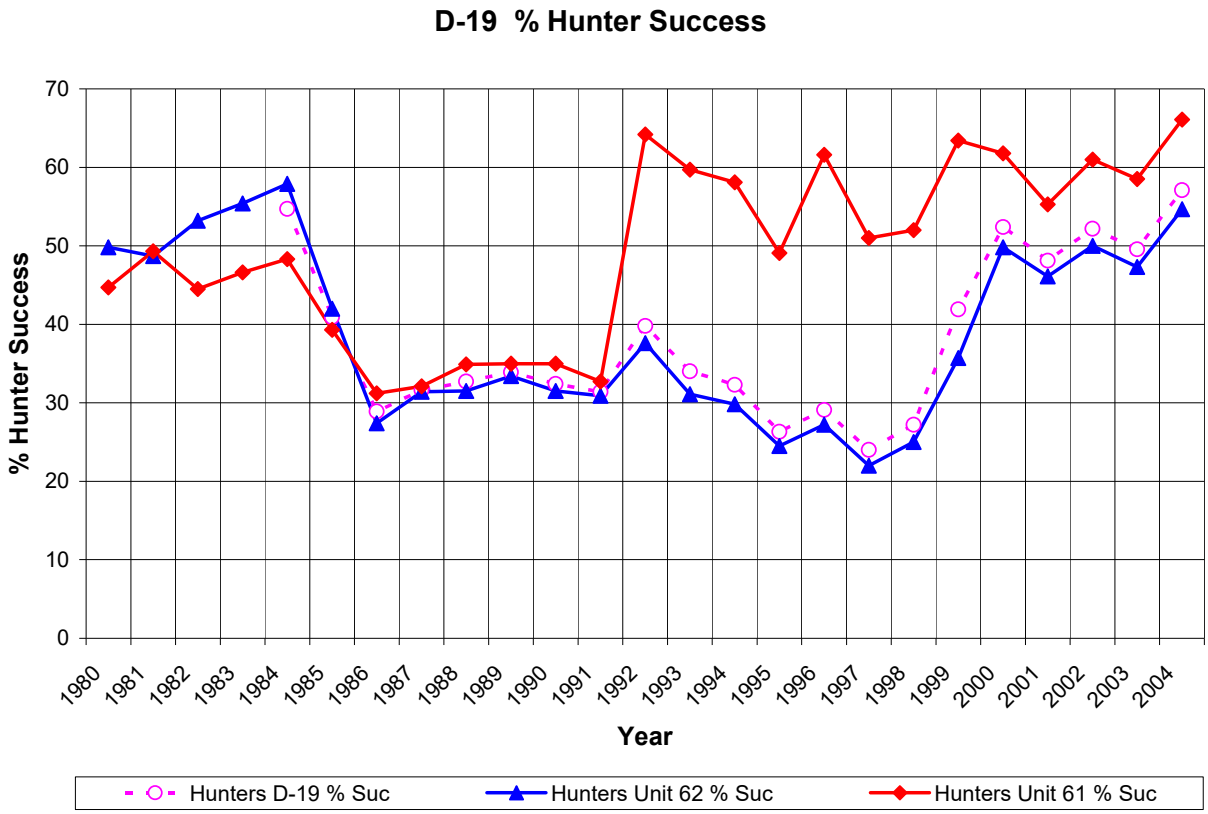


*Figure 12. DAU D-19 hunter success,1980-2004.*

## Preference Points

The number of hunters applying for D-19 continues to rise and thus the number of points required as well for certain hunts. The number of preference points required to draw a Unit 61 buck deer license continues to increase (Table 2). A minimum of 3 preference points was needed to draw a Unit 61 buck license for the 2005 season. However, in Unit 62 the only season requiring points is the muzzle-loader season. But Unit 62 rifle buck licenses have gotten harder draw, since 1999 the percent of hunters drawing a license has decreased from 82% to 50% in 2005 due to increased number of applicants. If license numbers stay consistent, the number of points required to draw a buck tag in D-19 will continue to increase, especially for non-residents as Colorado currently has the reputation as the place to hunt mule deer in the West.

*Table 2. Preference points required for D-19 limited licenses, 1999-2005.*

| YEAR | Unit 61 Archery Buck | Unit 61 Muzzle-Loader Buck | Unit 61 Rifle Buck | Unit 62 Archery Buck | Unit 62 Muzzle-loader Buck | Unit 62 Rifle Buck |
|---|---|---|---|---|---|---|
| **1999** | 3 | 5 | 3 | 0 | 1 | 0 |
| **2000** | 3 | 5 | 4 | 0 | 1 | 0 |
| **2001*** | 3 (3) | 6 (7) | 4 (4) | 0 (0) | 2 (2) | 0 (0) |
| **2002*** | 3 (4) | 7 (7) | 4 (5) | 0 (0) | 2 (2) | 0 (0) |
| **2003*** | 3 (3) | 7 (7) | 4 (5) | 0 (0) | 2 (2) | 0 (0) |
| **2004*** | 3 (4) | 7 (8) | 4 (5) | 0 (0) | 2 (2) | 0 (0) |
| **2005*** | 3 (3) | 7 (10) | 4 (6) | 0 (0) | 2 (3) | 0 (0) |

* *Beginning in 2001, nonresidents were limited to 40% of limited licenses for any hunt code not undersubscribed. Preference points required by non-residents are shown in parentheses.*

Up to 15% of D-19 deer licenses are allocated to landowners with at least 160 acres of land within the unit. Landowners have usually been able to draw a Unit 61 buck license for archery every year and muzzle-loader and rifle licenses every other year (Table 3). Unit 62 landowners usually don't try to draw landowner licenses. Many Unit 61and 62 landowners choose to sell their landowner preference. A new priority landowner preference program began in 2001. This program gives landowners up to 6 applications per year based on the acreage and the wildlife habitat value of their property.

***Table 3. First choice landowner preference (LOP) applications and quotas for GMUs 61 and 62 buck licenses, 1999-2005.***

| YEAR | Unit 61 Archery Buck | Unit 61 Muzzle-Loader Buck | Unit 61 Rifle Buck | Unit 62 Archery Buck | Unit 62 Muzzle-loader Buck | Unit 62 Rifle Buck |
|---|---|---|---|---|---|---|
| **2002** | 2 (11) | 6 (2) | 68 (44) | 2 (41) | 3 (5) | 5 (170) |
| **2003** | 4 (12) | 7 (3) | 84 (48) | 0 (45) | 0 (6) | 21 (190) |
| **2004** | 10 (12) | 11(3) | 79 (52) | 1 (45) | 0 (6) | 22 (190) |
| **2005** | 9 (12) | 7 (3) | 95 (52) | 2 (45) | 4 (6) | 44 (190) |

## Resident versus Nonresident Hunters

Nonresident hunters made up 35% of all the deer hunters in D-19 in 2004 and accounted for 45% of the hunters in GMU 61 yet only 33% of the hunters in GMU 62 (Table 4). License numbers have been limited in both GMU's 61 and 62 since 1999. In 2001, the number of nonresident hunters was limited to 40% for any limited huntcode, exclusive of landowner preference licenses, unless under-subscribed. Although GMU 62 is a limited unit, like all deer units in the state, non-residents have been under subscribing for buck tags. Thus, residents have been able to have greater hunting opportunity in GMU 62 (Table 5). However, with the over-all interest in deer hunting and Colorado's current reputation more non-residents will probably be applying for licenses in 62.

***Table 4. D-19 resident versus nonresident deer hunter numbers and deer harvest, 2004 hunting season.***

| | HUNTERS | | ANTLERED HARVEST | |
|---|---|---|---|---|
| | **RESIDENT** | **NONRES** | **RESIDENT** | **NONRES** |
| **UNIT 61** | | | | |
| All Licenses | 248 (55%) | 200 (45%) | 165 (56%) | 131 (44%) |
| | | | | |
| **UNIT 62** | | | | |
| All Licenses | 1010 (67%) | 491 (33%) | 551 (69%) | 246 (31%) |
| | | | | |
| **DAU D-19** | | | | |
| All Licenses | 1258 (65%) | 691 (35%) | 716 (66%) | 377 (34%) |

***Table 5. Percentages of resident (RES) versus nonresident (NON) D-19 hunters, harvest, and success rates, 2002-2004.***

| YEAR | BUCK | | | | | |
|---|---|---|---|---|---|---|
| | HUNTERS | | HARVEST | | SUCCESS RATE | |
| | **RES** | **NON** | **RES** | **NON** | **RES** | **NON** |
| 2002 | 68% | 32% | 66% | 34% | 51% | 56% |
| 2003 | 68% | 32% | 68% | 32% | 48% | 47% |
| 2004 | 65% | 35% | 66% | 34% | 55% | 55% |

## Economic Impact

The economic impact of hunting in D-19 includes expenditures by hunters for licenses, lodging, meals, gas, equipment, and services. According to the CDOW's 2004 report on "The Economic Impact of Hunting, Fishing, and Wildlife Watching in Colorado", each resident big game hunter in Colorado spent an average of $35/day of hunting, while each nonresident big game hunter spent an average of $300/day in Colorado during the 2002 season. Based on an estimated 5,646 recreation days by D-19 resident hunters and 3,425 by non-resident deer hunters, an estimated $1.02 million in direct expenses was generated by the Uncompahgre Plateau deer seasons in 2004. Although data are not available, it is assumed that the majority of these expenditures would have been made in the five counties that comprise D-19. In 2002, the aforementioned report estimated a total of $6.3 million dollars in direct expenses was spent by deer hunters (not just D-19 hunters) in Delta, Mesa, Montrose, Ouray, and San Miguel counties.

# CURRENT HERD MANAGEMENT

## CURRENT POPULATION OBJECTIVES

The current post-hunt objectives for D-19 are 38,000 deer with an observed buck/doe ratio of 30/100. These provisional objectives have been in effect since 1989.

The 2004 post-hunt deer population for D-19 is estimated at approximately 35,800 based on population modeling. Based on the current population objective, we are under objective. However, the population hasn't been at objective since 1991. Since the population low in 1998, D-19 has been on a steady rebound. The post-hunt observed sex ratio was 35 bucks/100 does in 2004. The observed buck/doe ratio of 30/100 was unattainable until 1999, when deer hunting went limited across the state and license numbers were reduced by 75% in GMU 62 (GMU 61 was already a limited unit).

## HARVEST MANAGEMENT

### Unit 61 versus Unit 62 Management

Buck harvest management in D-19 has been contradictory since 1992 when GMU 61 went totally limited. GMU 61 was managed as a quality deer unit, while GMU 62 was managed for hunter opportunity. This change in management seemed to halt the population decline, yet the population didn't start growing again until after 1998 when GMU 62 became a totally limited unit. Even though GMU 62 is now limited, the unit is still managed more for hunting opportunity offering over three times as many deer licenses during the rifle seasons as in unit 61 (GMU 61 2nd and 3rd buck licenses= 350, GMU 62 2nd and 3rd buck licenses= 1160.

### Regular Season Antlerless Licenses

The CDOW has not issued antlerless licenses since 1986 for D-19 outside of a small number of archery, muzzle-loader, or private land only licenses. As population numbers reach objective, antlerless licenses will be a useful tool to manage the population accordingly. When or if antlerless licenses were to be issued, numbers will be small and probably issued for private land, until it is felt that more licenses are needed and public land harvest can be sustainable as well as desired.

### Private Land-only Licenses

Private land only (PLO) licenses are used to help achieve antlerless harvest objectives and provide landowners or their designees more opportunity to hunt on their own property. In 2002, CDOW started issuing either-sex PLO tags for the Uncompahgre Valley in GMU 62, an area designated below the Uncompahgre Valley Water Users canals, to manage a growing population of resident/non-migratory deer. Licenses have been limited with 100 archery licenses and 55 muzzle-loader licenses being issued for the 2005 season. Hunter success has been lower than expected due to hunters not acquiring access on private land prior to draw.

### Damage Hunts

Damage hunts are used to reduce confirmed deer damage on specific private properties. Damage hunts are for antlerless animals only and can be held between August 15th – February 28th. The primary purpose of damage hunts is not to achieve DAU harvest objectives but to help alleviate ongoing damage. License applications are given to landowners for distribution. In 2004, 31 damage hunts with 188 total licenses resulted in the harvest of 99 antlerless deer in D-19. Managing deer damage in the Uncompahgre Valley is always an issue with large amount of agricultural production for alfalfa, grass hay, sweet corn, silage corn, and other vegetables.

# HABITAT RESOURCE

## Habitat Distribution

### Summer Range

In the spring, most of the deer move to higher elevations following the retreating snowline and green-up. Although some deer remain at low elevations year-round, the majority of the deer on the Uncompahgre Plateau can be found above 8,000 ft during the summer months. Aspen stands and oak brush communities are especially favored during late spring and summer fawning. By fall rifle seasons in October, large numbers of deer will start moving to lower elevations into the pinyon/juniper, sage-brush, and agricultural lands for winter.

The quality of summer range is important so deer can recover from winter weight loss, does can support late fetal growth and subsequent lactation, and bucks, does, and fawns will go into the breeding season and winter in good body condition.

### Winter Range

Most deer will start moving to lower elevation winter ranges with the first snowfall, typically in mid-October. Their winter range typically consists of mixed pinyon/juniper, sagebrush, and agricultural fields below 8,000 ft. Deer have a high fidelity to their winter ranges unconditional of snowfall.

Winter range is often considered to be more critical than summer range because it is usually much more limited. The CDOW characterizes winter range into three categories:

- *Winter Range* - that part of the range where 90% of the animals are located during average winters.
- *Winter Concentration Area* – that part of the range where densities are at least 200% greater than the surrounding winter range in average winters.
- *Severe Winter Range* – that part of the range where 90% of the deer are located during the two worst winters in 10 years as determined by the maximum annual snowpack and minimum temperatures.

The BLM manages 65%, 68%, and 75% of the deer winter range, winter concentration area, and severe winter rage in the DAU, respectively (Table 6). Private property comprises 19%, 26%, and 17% of the deer winter range, winter concentration area, and severe winter range in D-19. Important private land wintering areas for deer in Unit 61 include the Nucla area, Unaweep Canyon, and Blue Mesa. In Unit 62, important wintering areas on private land include Loghill Mesa, the Colona/Government Springs area, Sims Mesa, the Dry Creek drainage, and Escalante Canyon as well as most other agricultural land bordering BLM from Ridgway north to Delta.

***Table 6. Land ownership of DAU D-19 deer winter range in square miles and percent.***

| DAU D-19 | Total | Winter Range | Winter Concentration Area | Severe Winter Range |
|---|---|---|---|---|
| **BLM** | 1655 (68.7%) | 780 (64.5%) | 231 (67.5%) | 643 (75.3%) |
| **USFS** | 258 (10.7%) | 183 (28.4%) | 22 (6.3%) | 53 (6.2%) |
| **State** | 26 (1.1%) | 12 (1.0%) | 3 (0.7%) | 12 (1.3%) |
| **Private** | 468 (19.5%) | 235 (19.4) | 88 (25.5%) | 146 (17.1%) |
| **TOTAL** | 2,407 (100%) | 1,210 (100%) | 344 (100%) | 665 (100%) |

# Habitat Condition and Capability

## Habitat Condition

Land health problems on the Uncompahgre Plateau that have been identified by the BLM include accelerated erosion, noxious weed invasion, low levels of perennial grasses, lack of cool season grasses, lack of forbs, low plant species diversity, pinyon and juniper invasion into sagebrush and mountain shrub communities, dominance by late seral vegetation, lack of age-structure diversity, and dense mature shrub communities with low vigor. On the Uncomaphgre National Forest land health concerns include conifer invasion into aspen communities, dense mature forest and shrub communities with low productivity, and tree invasion into open parks and meadows.

BLM range trend plots on the Uncompahgre Plateau, many established in the late 1960's and 1970's, indicate the complexity of assessing habitat condition. Of 496 plots, 165 showed an upward trend, 178 showed a downward trend and 180 were stable or cyclic. When grouped by plant type, the trends indicate trees and shrubs are increasing on BLM lands on the Plateau.

- *Downward Trend* – some resource damage may be occurring.
- *Stable or Cyclic Trend* – neither damage nor improvement is occurring.
- *Upward Trend* – improvement in the ecological condition from baseline.

The current habitat conditions on the Uncompahgre Plateau have been greatly influenced by historic and recent human activity. Human activities impacted the Plateau long before Euro-American settlement. Historical accounts indicate the Ute Indians used fire extensively to improve hunting conditions and facilitate movement. Two of the most significant post-settlement influences on the Plateau ecosystem have been historic overgrazing and fire suppression.

Intensive, unregulated cattle grazing began on the Plateau in the early 1880's and sheep were introduced three decades later. Early in the 20$^{th}$ century, the effects of severe overgrazing had become readily apparent and concern increased about poor range conditions. Grazing on public lands on the Plateau became regulated by the federal government with the creation of the Uncompahgre National Forest in 1905 and the passage of the Taylor Grazing Act in 1934. Even with federal control, stocking rates on public lands on the Plateau remained high well into the 1950's. Today grazing on USFS and BLM lands is regulated to avoid overuse and ranchers are much more knowledgeable about range science. Elk, and deer to a lesser extent, also factor into the grazing equation and can contribute to negative impacts.

Historic overgrazing is believed to have had major long-term consequences on the ecological complexion of the Uncompahgre Plateau. Heavy grazing by livestock removed grasses and forbs that provided the fine fuels necessary to carry periodic, less-intense natural fires. In the absence of fire and competition by grass, woody species (pinyon/juniper, mountain shrubs, and sagebrush) became more dominant and proliferated. Runoff and erosion increased and streams began down-cutting at accelerated rates.

Over 100 years of fire suppression has allowed woody species to continue to mature and become denser and less productive. In addition, fire suppression has allowed fuels to build up to the point that when infrequent fires do occur they are much more intense and destructive. Elk and deer show a strong preference for burned areas and seek the nutritious new growth that occurs after fire.

The pinyon/juniper (PJ) type is the most widespread plant community in D-19. Prior to European settlement it is believed that some PJ stands were more open with greater understory productivity. Fire suppression allowed PJ forests to fill in and invade sagebrush and mountain shrub areas. Only a small percentage of deer stay in the PJ zone year-round but many deer use PJ as winter range and/or to escape hunting pressure. Mature PJ stands provide little food for deer and large, uninterrupted PJ woodlands have limited value for deer except as escape cover. The value of PJ woodlands to deer and elk can be improved by creating mosaic openings to create more forage and diversity.

Aspen and mountain shrub communities are very important for deer. Loss of aspen due to conifer invasion is a concern on the Plateau. Some aspen communities appear to be very resilient to conifer replacement whereas others

appear to be an intermediate successional stage. Silvicultural treatment of aspen can be beneficial for maintaining some aspen stands.

In the absence of fire, Gamble oak/mountain shrub communities can become increasingly dense and mature resulting in restricted movement, less accessible forage, and reduced understory productivity. A large percentage of the deer in D-19 summer in the Gamble oak/ mountain shrub type.

Between the 1930's and the early 1970's, extensive habitat treatments occurred on the Plateau primarily to benefit livestock. These treatments included contouring, plowing, PJ chaining, herbicide spraying of sagebrush and Gambel oak, seeding with non-native grasses, controlled burning, and water developments. Tens of thousands of acres were treated. Deer frequently use these treated areas and it is assumed that many were beneficial to deer and elk, both. Most of these treated areas that have not been retreated are rapidly filling in with PJ and shrubs.

One of the primary goals of the current Uncompahgre Project, a collaborative effort between USFS, BLM, CDOW, the Public Lands Partnership, and the local community, is to improve habitat conditions for deer, elk, and other wildlife species on the Uncompahgre Plateau using coordinated habitat restoration projects. For example, paired treatments in mountain shrub and PJ are being considered to benefit deer and elk and help encourage spatial segregation.

Other factors that can influence habitat conditions for deer include roads and fences. Fences contribute to deer mortality and can impede movement. In particular, woven-wire fences and improperly constructed worm fences create major obstacles for young fawns. These fences are primarily a problem on the southern end of the Plateau.

### Habitat Capability

There is no easy or accurate way to assess habitat capability (i.e., carrying capacity) for deer on a DAU basis. Habitat models such as HABCAP used by the USFS are attempts to estimate habitat capability by using readily available inputs (e.g., forest overstory structure, road density). Although such models can be useful tools for evaluating different management options, they greatly oversimplify very complex systems. Carrying capacity is dynamic and can shift dramatically depending on weather conditions, the arrangement of habitat components, animal distribution, disturbance factors, and multispecies interactions. Body condition and population productivity are probably the best indicators of density-dependent effects and habitat capability. Low reproductive success, high mortality of young, and poor body condition are indicators that a population is at or approaching the capacity of the habitat.

Reproductive success and fawn survivability has been up in recent years, possibly due to mild winters and has allowed a quick recovery of population numbers along with the limited harvest. However, drought conditions in recent years and increased development has caused a decline in the quality and availability of winter range habitat. Thus, leading us too recommend that we not place population objectives too high. In past years when estimated population numbers reached between 50,000 and 60,000 animals, population crashes followed.

## Conflicts

### Deer Damage

The state of Colorado is liable for compensating landowners for documented damage to commercial agricultural products, livestock forage, and fences by deer and other big game animals provided the landowner allows reasonable hunting access and charges no more than $100 per hunter. The CDOW also provides stackyards and fencing materials at no charge to qualifying landowners to mitigate big game damage problems.

There have been 75 mule deer damage claims paid by the CDOW in D-19 since 1995. Almost $222,500 has been paid for deer damage to hay, corn, and the high dollar sweet corn in the Uncompahgre Valley. In 2003, almost $105,000 was paid to landowners for game damage during one of the worst drought years in recent history. Of the 75 claims paid since 1995, only 5 of the claims came from landowners within GMU 61.

In September 1996, the Uncompahgre Habitat Partnership Program (UHPP) was created. The UHPP area includes Game Management Units 61 and 62 as well as 60, 64, 65, and 70. The mission of the UHPP is to identify and solve livestock/big game conflicts that pertain to rangeland forage, growing and harvested hay crops, harvested crop aftermath grazing, and fences on both private and public lands. The UHPP receives 5% of the hunting license revenue generated in the 6 game management units that it encompasses (1998 budget approximately $140,000; 2,000 budget approximately $80,000). Projects that have been approved by the UHPP for funding include providing materials to repair fences damaged by elk, roller chopping on public and private lands to improve deer and elk habitat, fertilizing hay meadows to compensate for elk grazing, and noxious weed control.

In addition to agricultural damage, deer can also cause damage to lawns and ornamental plants in residential areas and other non-agricultural areas such as open space and golf courses. Deer/vehicle accidents are also a major concern for deer and public safety during the Spring and Fall migration periods as well as during the winter months when deer are concentrated in the valleys.

It should be noted that many landowners in D-19 realize significant economic benefits from deer and elk by leasing hunting rights, guiding deer and elk hunts, and charging hunter trespass fees.

## Elk Competition With Deer

Potential competition and conflicts between elk and mule deer are largely undetermined. Several studies in the western United States have found that mule deer and elk generally show only moderate diet overlap except during periods of food shortage such as during severe winters. An elk's larger body and rumen size allow it to utilize diets higher in fiber and lower in digestibility than those tolerated by deer. Elk generally prefer to graze on grass, sedges and forbs during much of the year whereas deer often elect to browse during the winter and select forbs, succulent young grass, and new leader growth during the growing season. Deer are not able to utilize high fiber, grass diets as effectively as elk and therefore have a narrower dietary tolerance. Although deer are probably better adapted to browse diets than elk (e.g., deer have tannin binding proteins in their saliva), elk can effectively utilize browse diets when necessary. In periods of food shortage, elk will out-compete deer. During most winters, there is spatial segregation between the majority of elk and deer on the Plateau. Elk generally winter in the Gambel oak/mountain shrub/manzanita community types above 7,500' whereas most deer winter in the pinyon-juniper/sagebrush/agricultural interface zone below 7,500'.

Other potential interspecific conflicts between deer and elk such as negative social interactions (e.g., species intolerance, competition for calving and fawning areas) are complex and poorly understood. For example, it has been hypothesized that large numbers of elk might force deer into less preferred habitat where the deer are more susceptible to predation. Casual observation during 3 years of neonatal fawn capture work on the Plateau indicated little evidence that elk are negatively impacting deer during fawning. Elk calving on the Plateau occurs 2-4 weeks prior to fawning and by the peak of fawning elk have already grouped into nursery herds. Deer are often observed in close proximity to elk with no apparent negative interaction.

The mule deer population on the Uncompahgre Plateau has generally been in decline since the early 1980's. Although a causal relationship has never been conclusively established, this decline, as in many other areas of Colorado, coincides with an increase in the number of elk. It is likely that the mule deer decline on the Uncompahgre Plateau and throughout most of the western United States is multi-factorial with habitat loss and fragmentation, decadent and maturing habitats, increased human activity, predation, disease, and elk competition each playing a role.

# ISSUES

## Issue Solicitation Process

Input for the DAU planning process has been or will be solicited by the following methods: (1) in the fall of 1998, a DAU questionnaire was mailed to affected agencies, organizations, and individuals (i.e., landowners, outfitters, businesses), and distributed in the field during the 1998 big game season and at the CDOW Montrose Service Center (Appendix 2); (2) recent letters were submitted to the U.S. Forest Service and Bureau of Land Management offices for more comments (response has not been received to date); (3) a draft of the DAU plan will be available at the Montrose and Grand Junction CDOW offices, distributed to target individuals, land management agencies, the HPP committee, and organizations for review and comments; and (4) public meetings have been held at locations around the DAU including Montrose, Norwood, and Redvale.

## Issue Identification

The primary purpose of the DAU planning process is to determine objectives for the size and structure of the post-hunt population. A secondary purpose of the process is to gather public input on the best manner to achieve the desired DAU objectives.

Population and Sex Ratio Objectives:

- Post-hunt population size.
- Post-hunt buck/doe ratio.

Management Objectives:

- Should Unit 61 continue to be managed as a limited, quality deer unit?
- Should Unit 62 continue to be managed as a limited, but greater opportunity than 61 unit?
- Should Units 61 and 62 be managed the same?

# ALTERNATIVE DEVELOPMENT

## POST-HUNT POPULATION & SEX RATIO OBJECTIVES

The estimated post-hunt deer population in D-19 has been as high as 60,000 and as low as 28,000 in the last 24 years. Recent trends have been similar to many mule deer populations across the state with an overall decline in numbers from the late 1980's through the 1990's. However, a change in management through statewide limitation of licenses in all GMUs has allowed managers to better regulate harvest and increase mule deer populations again. There is little evidence to suggest a lower deer population would be greatly beneficial from a habitat, interspecies competition, or game damage basis other than the growing resident deer in the Uncompahgre Valley. Alternatively, higher population numbers could increase the potential for habitat degradation, especially on winter ranges, and increased game damage conflicts. Thus, the CDOW recommendation for the D-19 population objective is to establish a post-hunt deer population objective of 36,000-38,000. An alternative population objective of 34,000-36,000 is being offered as an alternative if management was for more opportunity in both GMUs 61 and 62.

Sex ratio objectives are dependent on which management strategy is adopted. If the GMUs continue to be manage for split objectives, quality in unit 61 and opportunity in unit 62, it will be difficult to manage for than 35 bucks/100 does. If both units were managed for quality, a sex ratio objective of greater than 40 would be attainable. However, if management in D-19 was to provide greater deer hunting opportunity across the DAU, it would be difficult to maintain a sex ratio objective greater than 25 bucks/ 100 does. Therefore, CDOW sex ratio objective recommendation for D-19 is 35 bucks/100 does and to maintain 61 as a greater quality unit and 62 as a greater opportunity unit.

## MANAGEMENT STRATEGIES

There are two basic management strategies that the Colorado Division of Wildlife is currently using for deer DAUs. Ideally, all units within a DAU should be managed under the same strategy.

**STRATEGY 1. M*anagement for Improved Experience & Reduced Impacts*.** This strategy limits the number of hunters for all methods of take for all seasons to reduce hunting pressure and improve the quality of the hunting experience. The primary objective is to increase overall population numbers, not necessarily to increase buck/doe ratios or have more bucks in older age classes. Moderate numbers of limited buck licenses are issued for all seasons and success rates are typically higher than in units and seasons with unlimited licenses.

**STARTEGY 2. *Management for Quality Animals & Quality Experience.*** This strategy greatly limits the number of buck hunters to achieve a post-hunt buck/doe ratio of at least 35/100. The quality management strategy is characterized by a small number of limited buck licenses, high hunter success for bucks (i.e., $\geq$ 60%) with a good proportion of harvested bucks three years and older, and usually 4 or more preference points to draw a rifle buck license. Although GMU 61 has been limited since 1992, higher buck/doe ratios have not been attainable until 1998 when all deer units went limited across the state.

## MANAGEMENT ALTERNATIVES

Three management alternatives are being presented for D-19. These alternatives include different combinations of Strategies 1 and 2.

**ALTERNATIVE 1. *Status Quo.*** This alternative would keep Unit 62 as an opportunity unit for deer hunting (Strategy 1) and Unit 61 would remain a quality, limited unit (Strategy 2). D-19 would continue to attract deer hunters looking for both quality bucks and hunting opportunity. The population objective would be 36,000-38,000 to allow for greater harvest and more flexible management if variables change, such as the severe drought year of 2002. The post-hunt observed sex ratio would be managed at 35 bucks/100 does. Hunter success for bucks would remain around 50% for the DAU. Producing larger, mature bucks in Unit 61 would remain problematic because of heavier hunting pressure in Unit 62.

**ALTERNATIVE 2.** ***Manage both 61 & 62 as limited, quality units (Strategy 2).*** Alternative 3 would place all of Unit 62 and therefore all of D-19 under quality animal management. The post-hunt population objective would be for 36,000-38,000. The observed buck/doe ratio would be managed for at least 45 bucks/100 does. The number of buck licenses would probably need to be reduced slightly to achieve objectives. Three or more preference points would likely be required to draw a buck license. Success rates would be expected to increase to over 60% with a higher proportion of older age class bucks in the harvest. Surrounding less limited units would likely experience increased hunting pressure. There would be the option to have licenses valid for the entire DAU.

**ALTERNATIVE 3.** ***Manage both 61 & 62 as opportunity units (Strategy 1)***. This alternative would result in Unit 61 becoming less limited, similarly to 62's current status. The post-hunt population objective would be for 34,000-36,000. The population objective is lower to allow for greater flexibility in harvest and to provide greater hunter opportunity. Deer hunting pressure would increase, particularly in GMU 61 to hunter numbers similar to GMU 62's. The observed post-hunt sex ratio for D-19 would be around 25 bucks/100 does. The increased pressure would probably decrease hunter success in GMU 61 and antlered harvest would consist mostly of younger bucks.

# ALTERNATIVE PROJECTIONS

Model simulations can be used to project the outcome of different management alternatives on deer harvest, hunter numbers, success rates, and local economic impact. For comparison purposes, actual D-19 data from 2000 to 2004 are provided in Table 7. Simulations representing a post-hunt population of 35,000 deer for alternative 3 and 37,000 deer for alternatives 1 and 2 with buck/doe ratios of 30 or more are presented in Table 8.

The following assumptions based on CDOW radio-collared deer studies and best available data were made for all projections: 73% natural winter fawn survival (5-year average), 83% natural annual adult female survival (5-year average), 66% natural annual adult male survival (5-year average), 10% wounding loss, and a 50% sex ratio at birth and post-hunt. The post-hunt ratio of fawns/100 does was 53, based on 5-year average. Additional assumptions used for model simulations: 65% of buck hunters are residents, and local expenditures of $157.5 per resident deer hunter and $1350 per nonresident deer hunter (based on 2004 CDOW study showing a resident hunter/angler spends $35 per recreation day and a nonresident hunter/angler spends an average $300 per day, times 4.5, which was the average number of days hunting in 2004).

Success rates for buck hunters were assumed to vary from 45-65% depending on the buck/doe ratio. Success rates for antlerless harvest was assumed to be 50% based on average hunter success rates from the 1980's when antlerless licenses were being issued. To achieve observed buck/doe ratios greater than 35, Unit 62 must be managed as a quality, limited unit and the number of buck hunters reduced. Buck and doe harvest rates represent the number of animals that must be annually removed from the population exclusive of normal natural mortality to stabilize the population at the post-hunt population objective once the desired ratio has been achieved. To increase the buck/doe ratio to the desired ratio from current ratio, buck harvest would need to be reduced to less than the simulated harvest until the desired ratio was achieved.

***Table 7. Deer harvest, hunters, and economic impact for DAU D-19, 2000-2005. Local expenditure does not include license sales.***

| Year | Post-hunt Population Estimate | Observed Bucks/100 Does | Buck Harvest | Buck Success Rate (%) | Antlerless Harvest (mostly damage hunts) | Total Hunters | Local Expenditure (Millions $) |
|---|---|---|---|---|---|---|---|
| **2000** | 32,392 | 19.0 | 872 | 52 | 0 | 1663 | 0.96 |
| **2001** | 36,932 | 30.5 | 794 | 48 | 35 | 1654 | 0.95 |
| **2002** | 32,868 | 23.3 | 862 | 53 | 46 | 1669 | 0.96 |
| **2003** | 35,168 | 28.1 | 874 | 46 | 134 | 2014 | 1.16 |
| **2004** | 35,767 | 34.8 | 1093 | 56 | 115 | 2107 | 1.21 |
| **Ave** | **34,625.4** | **27.1** | **899** | **51** | **66** | **1821** | **1.05** |

Simulations resulted in annual buck harvests from 3000 to 6000 bucks/year, hunter numbers from 4,000 to 7,000 per year, and local expenditure from $2.32 million to $4.01 million/year. Some of the reduced local expenditure resulting from more limited deer licenses in Unit 62 would likely be offset by increased hunting pressure in surrounding units.

***Table 8. Projected annual deer harvest, hunters, and economic impact to maintain a post-hunt population of 35,000 for alternative 3 and 37,000 deer for alternatives 1 and 2 with 9 different post-hunt, buck:doe ratios. Shaded rows most closely approximate management alternatives (Mgmt Alt) discussed on pages 21-23. Local expenditure does not include license sales.***

| Mgmt Alt | Observed Post-hunt Buck/Doe Ratio | Buck Harvest & (Success Rate %) | Antlerless Harvest & (Success Rate %) | Buck Hunters | Antlerless Hunters | Local Expenditure Millions $ |
|---|---|---|---|---|---|---|
| **3** | **25/100** | **2701 (45%)** | **487 (50%)** | **6,002** | **974** | **4.01** |
| | 27/100 | 2611 (45%) | 482 (50%) | 5,802 | 964 | 3.89 |
| | 30/100 | 2587 (50%) | 533 (50%) | 5,174 | 1,066 | 3.59 |
| | 32/100 | 2498 (50%) | 529 (50%) | 4,996 | 1,058 | 3.48 |
| ***1**** | ***35/100*** | ***2371 (55%)*** | ***522 (50%)*** | ***4,311*** | ***1,044*** | ***3.08*** |
| | 37/100 | 2286 (55%) | 517 (50%) | 4,156 | 1,034 | 2.98 |
| | 40/100 | 2164 (60%) | 510 (50%) | 3,607 | 1,020 | 2.66 |
| | 42/100 | 2085 (60%) | 506 (50%) | 3,475 | 1,012 | 2.58 |
| **2** | **45/100** | **1970 (65%)** | **499 (50%)** | **3,031** | **998** | **2.32** |

*Preferred alternative

# RESULTS OF THE 1998 D-19 SURVEY AND 2005 PUBLIC MEETINGS

In 1998, 823 public comment questionnaires were distributed to obtain public input on the management of D-19 and E-20. Results of the D-19 portion of the survey are shown in Appendix 1. A total of 266 questionnaires (32% response rate) were returned (85% resident; 15% non-resident). Ninety-one percent of all respondents and 87% of landowner respondents desired an increase in the D-19 deer population. Seventy-one percent of the respondents supported totally limited mule deer licenses in Unit 62; 25% were opposed. In response to the question of how D-19 should be managed, 5% answered that buck licenses in Unit 61 should be increased; 42% answered that Unit 62 buck licenses should be reduced; 39% preferred a combination of increasing buck licenses in Unit 61 and limiting buck licenses in 62; and 7% preferred current management (Keep in mind this is prior to the first year all deer hunting went limited in GMU 62).

In August and September of 2005 public meetings were held in Montrose, Norwood and Redvale to collect more recent public input on how deer should be managed in D-19. A total of 21 people attended the 3 meetings. Forty-

six percent of attendees that responded indicated that they were happy with the current deer numbers, while the general feeling from the other attendees was that they would like to see more deer. In regards to alternative management selections, 14% of respondents indicated they would prefer alternative #1 (status quo), 57% preferred alternative #2 (greater limitations on harvest in GMU 62 and a buck:doe ratio 45:100), and 14% indicated they would prefer alternative #3 (to lessen limitation in both units, in particularly in GMU 61).

# CDOW PREFERRED OBJECTIVES & MANAGEMENT ALTERNATIVE

The CDOW's preferred objectives for D-19 are to manage for a post-hunt population of **36,000-38,000** mule deer with an observed, post-hunt ratio of **35 bucks/100 does**. The CDOW's preferred management alternative for D-19 is **Alternative 1 (Status quo)**.

Reasons for selecting management Alternative 1:

- The mule deer population is recovering with the current management scenario.
- D-19 is providing a quality animal and hunting experience in GMU 61, similar to the elk management plan, as well as providing opportunity to hunters in GMU 62.
- Quality of bucks in GMU 62 is getting better under this management scenario, without having to get more restrictive.
- Setting the population objective higher than current status, as well as not limiting opportunity, and probably increasing opportunity, local expenditures should stay the same if not increase.
- Not increasing crowding in GMU 61 during the quality elk hunts, if Alternative 3 was selected.

Potential negative impacts of selecting management Alternative 1:

- Managing both GMUs will be difficult since most of the deer use both GMUs 61 and 62 at some point throughout the year.
- Law enforcement issues of hunters wrongfully using the greater available 62 deer tag in GMU 61.
- Less hunter opportunity than if both units were managed for opportunity.
- Growing older age-class bucks may be difficult, with the greater availability of licenses.

A population objective of 36,000-38,000 mule deer is realistic based on population estimates in the past decade. Habitat improvement projects planned as part of the Uncompahgre Plateau Project are expected to enhance habitat conditions for deer in D-19.

Additional licenses will be need to be added to manage antlerless population to meet harvest objectives for any of the alternatives. This will provide additional hunting opportunity as well as additional economic benefits within the area.

The preferred alternatives were approved by the Wildlife Commission in January 2006.

# APPENDIX 1

## PUBLIC INPUT QUESTIONNAIRE

### DISTRIBUTION & RETURN

In September 1998, a press release providing information about the public comment questionnaire for deer and elk management in Units 61 & 62 was sent to all newspapers in and around Units 61 & 62.

Between September 1998 and November 30, 1998, a sign was posted at the CDOW's Montrose Service Center informing the public of the questionnaire. Questionnaires were available only on request and recipients were asked to identify the group they felt their opinions most represented.

During the 1998 archery, muzzleloader, and three combined rifle seasons, hunters contacted in the field in Units 61 & 62 by CDOW Area 18 officers and the terrestrial biologist were informed about the questionnaire and copies were provided on request. Recipients were asked to identify the group they felt their opinions most represented.

Questionnaires were mailed or delivered to the following groups in October 1998: 1) all landowners in Units 61 & 62 on the Uncompahgre Habitat Partnership Program list; 2) registered outfitters operating in Units 61 & 62; 3) wild meat processors and taxidermist in the surrounding area; 3) locally owned sporting goods businesses in the surrounding area; 4) USFS, BLM, and DPOR employees and local county and municipal governments.

A total of 823 questionnaires were distributed and 266 were returned (32% return) (Table 9).

***Table 9. Distribution and return of D-19 public input questionnaires.***

| GROUP | DISTRIBUTED | RETURNED | % RETURN |
|---|---|---|---|
| **Rancher/Farmer/Landowner** | 214 | 48 | 22 |
| **Business** | 20 | 9 | 45 |
| **Guide/Outfitter** | 20 | 9 | 45 |
| **Local Government/Government Employee** | 26 | 7 | 27 |
| **Resident Hunter** | 357 | 136 | 38 |
| **Nonresident Hunter** | 181 | 40 | 22 |
| **Environmental/Conservation Interest** | 10 | 10 | 100 |
| **TOTAL** | **823** | **266** | **32** |

### RESULTS

Results are presented in the same format as the questionnaire. Results are presented for all 266 respondents and for 116 respondents that identified themselves as landowners in D-19. Landowner results are in *italics* surrounded by parentheses.

# D-19 PUBLIC INPUT QUESTIONNAIRE RESULTS

## Section A. BACKGROUND INFORMATION

A-1. Are you . . . a resident of CO **85% *(100%)*** a non-resident of CO **15% *(0%)***

A-2. Do you live in GMUs 61 or 62?

**54% *(14%)*** No
**46% *(85%)*** Yes

yrs in GMU 61 **31 *(32)*** yrs in GMU 62 **27 *(29)***

A-3. Do you own or lease property in GMUs 61 or 62

**56% *(0%)*** No
**44% *(100%)*** Yes

acres in GMU 61 **1931 *(1968)*** acres in GMU 62 **893 *(893)***

A-4. During the past 12 months, have you participated in outdoor recreational activities other than hunting (e.g. snowmobiling, 4-wheeling, camping, etc) in GMUs 61 or 62?

**30%*(24%)*** No **70%*(76%)*** Yes

A-5. Are you . . . **92% *(88%)*** Male **8% *(12%)*** Female

A-6. What is your age?

| 20 or less | 21-40 yrs | 41-60 yrs | 61-80 yrs | 80+ yrs |
|---|---|---|---|---|
| **3% *(3%)*** | **23% *(18%)*** | **53% *(56%)*** | **20% *(23%)*** | **1% *(1%)*** |

A-7. Which group(s) do your opinions about deer & elk management in GMUs 61 & 62 most represent? *(Check all that apply)*

| | **Answer to Question A-8 below:** |
|---|---|
| a. **30% *(50%)*** Rancher/Farmer | **12% *(27%)*** |
| b. **14% *(25%)*** Business Owner | **3% *(7%)*** |
| c. **38% *(69%)*** Landowner | **6% *(12%)*** |
| d. **11% *(16%)*** Guide/Outfitter | **3% *(16%)*** |
| e. **7% *(6%)*** Government Employee | **3% *(2%)*** |
| f. **86% *(78%)*** Hunter/Sportsperson | **68% *(44%)*** |
| g. **33% (*37%)*** Environmental/Conservation Interest | **4% *(3%)*** |

A-8. If you checked more than one response in Question A-7 above, write the letter of the one group listed that you MOST represent: **see above**

## Section B. PEOPLE & DEER

B-1. Please indicate how interested you are in doing each of the following. *(Circle one number for each item).* How interested are you in .....

| | No Interest 1 | 2 | 3 | 4 | Very Interested 5 | |
|---|---|---|---|---|---|---|
| Watching or photographing deer? | | | | | | **3.8** ***(3.7)*** |
| Hunting deer in GMUs 61 & 62? | | | | | | **4.3** ***(4.1)*** |
| Seeing deer in GMUs 61 & 62? | | | | | | **4.6** ***(4.5)*** |
| Learning more about deer management in GMUs 61 & 62? | | | | | | **4.3** ***(4.4)*** |
| Providing input for decisions about deer management in GMUs 61 & 62? | | | | | | **4.5** ***(4.6)*** |

B-2. Please indicate how concerned you are about each of the following in GMUs 61 & 62. *(Circle one number for each item).* How concerned are you about.....

| | No Concern 1 | 2 | 3 | 4 | Very Concerned 5 | | **Personally Affected** |
|---|---|---|---|---|---|---|---|
| a. Deer-Auto accidents | | | | | | **3.2** ***(3.4)*** | **30%** ***(43%)*** |
| b. Economic losses to ranchers/farmers from deer damage to rangelands/hay/ crops/fences | | | | | | **3.2** ***(3.6)*** | **27%** ***(41%)*** |
| c. Damage from deer to homeowners' trees, shrubs & gardens | | | | | | **2.3** ***(2.5)*** | **16%** ***(24%)*** |
| d. Predation on the deer population from coyotes, bears and mountain lions | | | | | | **4.6** ***(4.7)*** | **66%** ***(70%)*** |
| e. The reduction of deer habitat due to increased human population & development | | | | | | **4.3** ***(4.0)*** | **42%** ***(34%)*** |
| f. The potential of starvation of deer during the winter | | | | | | **4.0** ***(3.8)*** | **9%** ***(8%)*** |
| g. Deer spreading diseases to livestock, pets or humans | | | | | | **2.5** ***(2.4)*** | **2%** ***(2%)*** |
| h. Deer competing with livestock for forage | | | | | | **3.1** ***(3.0)*** | **28%** ***(30%)*** |
| i. The revenue that deer hunting or viewing provides for local businesses | | | | | | **3.0** ***(3.0)*** | **19%** ***(22%)*** |

B-3. Have you personally been affected by any of the concerns listed in Question B-2 in GMUs 61 or 62?

No Yes

***34%(17%)*** ***66%(83%)***

*(please circle the letter(s)* below corresponding to those deer-related concerns from Question 2 that you have personally been affected by in GUMs 61 or 62.)

**% of yes answers are listed in Question B-2:**

a b c d e f g h i

B-4. How do you personally feel about deer in GMUs 61 & 62? *(Check one)*

**0% *(0%)*** I do <u>not</u> enjoy the presence of deer in GMUs 61 & 62 AND regard them as nuisances.

**21% *(30%)*** I enjoy the presence of deer in GMUs 61 & 62, BUT I worry about problems deer may cause.

**77% (*69%)*** I enjoy the presence of deer in GMUs 61 & 62, AND I do <u>not</u> worry about problems deer may cause.

**2% *(2%)*** I have no particular feelings about deer in GMUs 61 & 62.

## Section C. DEER MANAGEMENT

C-1. How would you like the deer population in GMUs 61 & 62 change, if at all? *(Check one)*

**1% *(3%)*** Decrease greatly (over 50%)
**1% *(2%)*** Decrease moderately (26-50%)
**2% *(4%)*** Decrease slightly (1-25%)
**3% *(5%)*** No change
**8% *(12%)*** Increase slightly (1-25%)
**25% *(31%)*** Increase moderately (26-50%)
**58% *(44%)*** Increase greatly (over 50%)
**2% *(0%)*** Don't know

**All respondents: 4% want decrease, 91% increase**
***Landowners: 8% want decrease, 87% increase***

C-2. How important to you is the change in the size of the deer population that you indicated in Question 1 above? *(Circle one).*

| Not Important | Slightly Important | Important | Very Important | Don't Know |
|---|---|---|---|---|
| **1% *(2%)*** | **5% *(6%)*** | **25% *(29%)*** | **68% *(63%)*** | **2% *(0%)*** |

C-3. If you indicated that you would like an **increase in the deer population** in Question C-1 above, what methods would you support or oppose to increase the deer population? *(Circle one number for each item)*

| | Strongly Oppose 1 | Oppose 2 | No Opinion 3 | Support 4 | Strongly Support 5 | |
|---|---|---|---|---|---|---|
| Reduce hunter harvest of bucks | | | | | | **3.7** ***(3.7)*** |
| Predator control | | | | | | **4.5** ***(4.7)*** |
| Controlled burning to improve habitat | | | | | | **4.2** ***(4.2)*** |
| Mechanical treatment to improve habitat (e.g. cutting, roller-chopping, chaining) | | | | | | **4.0** ***(4.0)*** |
| Chemical treatment to improve habitat (e.g. herbicide, fertilizer) | | | | | | **3.3** ***(3.4)*** |
| Controlled livestock grazing to improve habitat (holistic management) | | | | | | **3.7** ***(3.4)*** |
| Reduce elk numbers | | | | | | **2.2** ***(2.5)*** |
| Reduce livestock grazing on public lands | | | | | | **3.2** ***(3.5)*** |
| Restrict public access to important deer fawning and wintering areas | | | | | | **3.6** ***(3.4)*** |
| Supplemental winter feeding of deer | | | | | | **3.3** ***(3.0)*** |
| Other, please specify: | | | | | | **4.7*(4.8)*** |

C-4. How would you like the number of buck (male) deer in GMUs 61 & 62 to change, if at all? *(Check one)*

**0%** ***(0%)*** Decrease greatly (less than 5 bucks/100 does)

**0%** ***(0%)*** Decrease moderately (10 bucks/100 does)

**0%** ***(1%)*** Decrease slightly (12 bucks/100 does)

**4%** ***(7%)*** No change (16 bucks/100 does)

**16%** ***(22%)*** Increase slightly (20 bucks/100 does)

**37%** ***(33%)*** Increase moderately (25 bucks/100 does)

**40%** ***(36%)*** Increase greatly (over 30 bucks/100 does)

**2%** ***(1%)*** Don't know

**All respondents: 0% want decrease, 94% increase**
***(Landowners: 1% want decrease, 91% increase)***

C-5. If you indicated that you would like an **increase in the buck population** in Question C-4 above, what methods would you support or oppose to increase the buck/doe ratio? *(Circle one number for each item)*

| | Strongly Oppose 1 | Oppose 2 | No Opinion 3 | Support 4 | Strongly Support 5 |
|---|---|---|---|---|---|
| Minimum antler-point restrictions (eg., 3 or more points) | ..... **3.2** ***(3.0)*** | | | | |
| Maximum antler-point restrictions (eg. 2 or less points) | ..... **2.3** ***(2.2)*** | | | | |
| Fewer buck licenses | ..... **3.9** ***(3.9)*** | | | | |
| Shorter buck seasons | ..... **3.0** ***(3.0)*** | | | | |
| No buck hunting during the rut | ..... **3.7** ***(3.9)*** | | | | |
| More expensive buck licenses . | ..... **2.6** ***(2.6)*** | | | | |
| Increased doe harvest | ..... **2.6** ***(2.7)*** | | | | |
| More restricted motorized access during hunting season | ..... **3.3** ***(3.4)*** | | | | |
| Other, please specify: | ..... **4.8** ***(5.0)*** | | | | |

C-6. All mule deer licenses in GMU 61 are limited and only available through a drawing process. Historically, GMU 62 has been open to over-the-counter deer licenses. Beginning in 1999 all deer licenses in Colorado will be limited. All deer hunters will be required to apply for licenses through the drawing process in early April each year. Only successful applicants would be allowed to hunt and an applicant might not be successful at being drawn every year.

Do you support or oppose a total limitation of mule deer licenses in GMU 62? *(Circle one)*

| Strongly Oppose | Somewhat Oppose | Slightly Oppose | No Opinion | Slightly Support | Somewhat Support | Strongly Support |
|---|---|---|---|---|---|---|
| **15%** ***(18%)*** | **4%** ***(4%)*** | **6%** ***(9%)*** | **4%** ***(5%)*** | **8%** ***(7%)*** | **15%** ***(15%)*** | **48%** ***(42%)*** |

**All respondents: 25% oppose, 71% support**
***(Landowners: 31% oppose, 64% support)***

C-6a. Why do you feel that way?

_____

C-7. Since 1992, GMU 61 has been managed as a limited-license unit for deer whereas GMU 62 has been open to over-the-counter buck licenses. How would you like these units to be managed in the future? *(Check one)*

*Manage GMUs 61 & 62 the same as one another by:*

a. **5% *(7%)*** Increasing the number of buck licenses in GMU 61.

b. **42% *(29%)*** Reducing the number of buck licenses in GMU 62.

c. **39% *(41%)*** A combination of a & b above.

*Manage GMUs 61 & 62 differently from one another by:*

d. **7% *(10%)*** Continuing to manage GMU 61 with few deer licenses available and GMU 62 with many deer licenses available.

e. **8% *(12%)*** Other, please specify:

## Section D. DEER HUNTING

D-1. Have you ever hunted mule deer in Colorado?

**5%*(5%)*** No (Please go to page 11)
**95%*(95%)*** Yes How many years? **21.6 *(24)*** years

D-2. Have you ever hunted mule deer in GMUs 61 or 62?

**7% *(3%)*** No (Please go to page 11)
**93% *(97%)*** Yes How many years? in GMU 61? **14*(17)*** in GMU 62? **10*(12)***

D-3. Overall, how satisfied or dissatisfied have you been with your past mule deer hunting experiences in GMUs 61 & 62? (*Circle one number for each GMU you have hunted)*

| Very Dissatisfied | | Slightly Dissatisfied | Neutral | Slightly Satisfied | | Very Satisfied |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

GMU 61 ..... **4.1 *(4.0)***

GMU 62 ..... **3.0 *(3.5)***

D-4. *Rank the following items from 1 to 5* in the order that they would be most likely to improve your mule deer hunting experience in GMUs 61 & 62. (1=most likely to improve, 5=least likely to improve) Do not use any number more than once.

| GMU 61 | | GMU 62 | |
|---|---|---|---|
| **3.0** ***(3.0)*** | Less hunter crowding | **2.4** ***(2.5)*** | Less hunter crowding |
| **3.7** ***(3.6)*** | Higher hunter success rate | **3.7** ***(3.6)*** | Higher hunter success rate |
| **3.3** ***(3.3)*** | Less motorized vehicle access | **3.3** ***(3.3)*** | Less motorized vehicle access |
| **2.0** ***(2.0)*** | Seeing more mature bucks | **2.2** ***(2.3)*** | Seeing more mature bucks |
| **2.4** ***(2.4)*** | Seeing more deer | **2.6** ***(2.5)*** | Seeing more deer |

D-5. Would you like to see more or less of the following as they relate to mule deer hunting in GMUs 61 and 62? *(Circle one number for each item)*

| | Much Less 1 | Less 2 | Same 3 | More 4 | Much More 5 |
|---|---|---|---|---|---|
| Landowner license preference | ..... **3.0** ***(3.5)*** | | | | |
| Non-resident deer hunters | ..... **2.0** ***(2.1)*** | | | | |
| Resident deer hunters | ..... **3.2** ***(3.2)*** | | | | |
| Temporary road closures during hunting season | ..... **3.2** ***(3.1)*** | | | | |
| Permanent road closures | ..... **2.7** ***(2.8)*** | | | | |

D-6. Overall, how would you rate the quality of mule deer hunting opportunities available in GMUs 61 & 62? *(Circle one number for each GMU you have hunted)*

| | Very Poor 1 | Fair 2 | Good 3 | Good 4 | Excellent 5 |
|---|---|---|---|---|---|
| GMU 61 ..... **2.5** ***(2.5)*** | | | | | |
| GMU 62 ..... **1.7** ***(1.9)*** | | | | | |