HERMOSA MULE DEER HERD MANAGEMENT PLAN
DATA ANALYSIS UNIT D-52
Game Management Units 74 and 741

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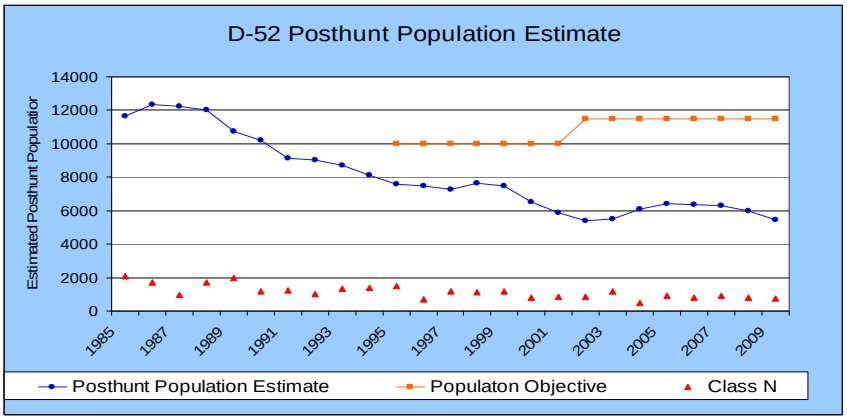
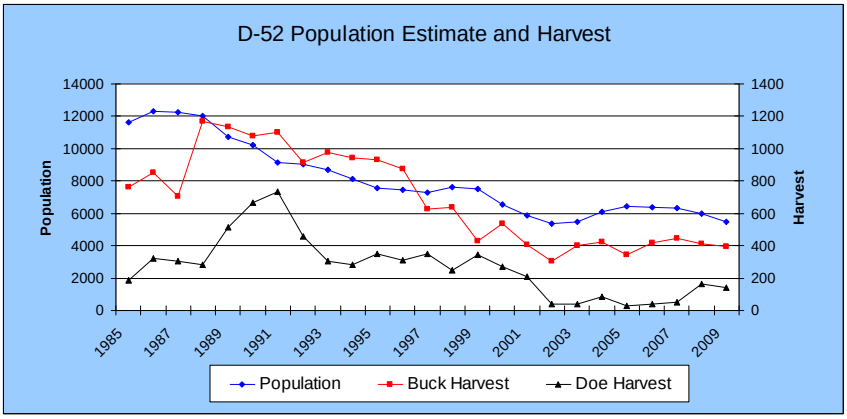
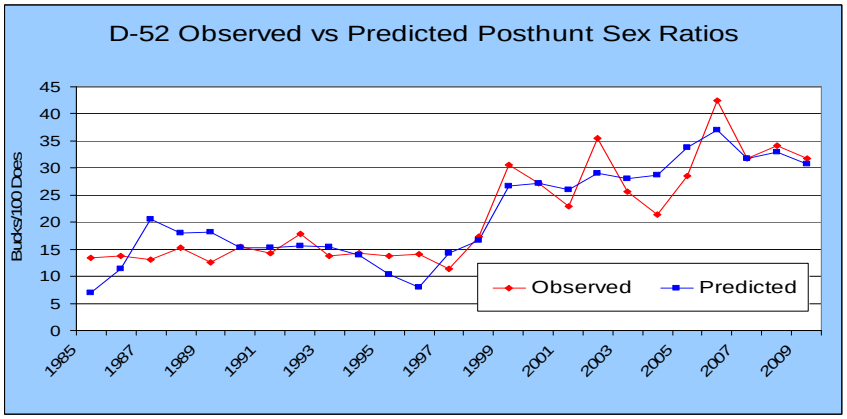
DAU D-52 (Hermosa)
EXECUTIVE SUMMARY

GMU's: 74 and 741
Land Ownership: 32% Private, 17% Southern Ute Tribe, 42% USFS, 5% BLM, 1% State, 1% BOR, 2% SLB
Post-hunt Population: Previous Objective 11,500, 2009 Post-hunt Estimate 5,500
New Population Objective Range: 4,000 to 6,000
Post-hunt Sex Ratio (Bucks:100 Does): Previous Objective: 26-30, 2009 Observed: 32, 2009 Modeled: 31
New Sex Ratio Objective Range: 25-30 bucks:100 does







D-52 Background
Mule deer DAU D-52 is located in Southwest Colorado, west of Durango, and contains GMU's 74 and 741. Most mule deer winter in GMU 741, which is primarily private land, while GMU 74 is primarily summer range and public land.

Buck license allocation changed from over-the-counter to limited by DAU in 1999. Sex ratios increased dramatically. Prior to limitation, the average buck:doe ratio in D-52 was 14 bucks:100 does. The sex ratio objective for D-52 is 26-30 bucks:100 does. Since limitation, the average observed sex ratio from 1999-2009 for D-52 is 30 bucks:100 does (range 23-42). Hunters have been very satisfied with the increased sex ratio and the potential to harvest mature bucks.

D-52 had high doe harvest in the late 1980s and early 1990s (average = 470), modest doe harvest from 1993 to 2001 (average = 396), and very little since 2001 (average = 74). Game damage used to be much greater. Localized game damage still exists in GMU 741 but changes in agricultural practices and deer population size have reduced it. Female licenses are currently private-land-only in GMU 741 to address game damage. Either female harvest reduced population size in the late 1980s and early 1990s, or the same limitations that are currently impacting the herd existed then, as well. Other factors currently appear to be limiting population growth because female harvest has been negligible for 8 years.

D-52 Significant Issues
This deer herd has declined considerably in the last 25 years. Much of this decline is likely from loss of winter range and changes in agricultural practices. Population estimates have declined from 12,300 in 1986 to the current estimate of 5,500. Post-season age ratio estimates, observed from helicopter inventory, averaged 55 fawns:100 does from 1985 to 2009 (range = 32 to 68). A mean of 50 fawns:100 does was observed over the last 5 years.

Biological carrying capacity often is portrayed as static. In reality it is a moving range that varies annually and trends over time. This declining mule deer herd is probably evidence that carrying capacity is, and has been, on a downward trend. Extensive exurban development has occurred in the DAU. The direct and indirect impacts of energy development also have reduced winter range quantity and quality. Additionally, significantly fewer dry-land crops also are being produced. Fire suppression has increased canopy cover and reduced winter range quality. Sagebrush and mountain shrub winter forage are extremely limited. The cumulative effects of all human activities lower the habitat capability and ultimately reduce the size of big game populations the habitat can sustain. Drought also can play a significant role in habitat capability by affecting winter and year-round forage condition.

The old population objective of 11,500 appears to be unattainable with current conditions. The primary goal of this DAU plan revision is to set the population objective closer to the number of deer that currently exist and we believe the habitat can support. New modeling techniques and biological information, such annual adult and winter-fawn survival rates observed in intensive mule deer monitoring areas, will allow this DAU plan revision to adjust population objectives closer to the current population size.

D-52 Management Alternatives

Population Objective Alternatives
Population objective alternatives were developed relative to the current population estimate of 5,500. Ranges are presented in each alternative to allow for management flexibility in response to changing conditions such as drought and changes in population size. Licenses are issued annually to manage for a target population size within the population objective range. The following 3 population objective alternatives are proposed:

Preferred Alternative 1. 4,000 to 6,000 (fewer deer accommodating continued decline)
Alternative 2. 4,500 to 6,500 (current population size)
Alternative 3. 5,000 to 7,500 (increase)

Preferred Alternative 1 maintains from slightly fewer to the current number of deer and offers management flexibility if the population continues to decline. Alternative 2 maintains approximately the current number of deer, however does not accommodate a continued decline in the deer herd. Alternative 3 allows an increase in the number of deer in D-52. This has been the previous management strategy that has not been successful. There is no evidence that conditions are conducive for this herd to increase.

Sex Ratio Alternatives
Preferred Alternative 1. 25-30 bucks:100 does
Alternative 2. 30-35 bucks:100 does

Preferred alternative 1 is the status quo of limited buck licenses and a sex ratio objective of 25-30 bucks:100 does. This is essentially the same as the old sex ratio objective of 26-30 bucks:100 does. The wider range may offer slightly more management flexibility if buck:doe ratios decline. This sex ratio objective is widely supported by the public and offers a great balance between quality and opportunity. Managed for 25-30 males:100 females, D-52 has had 10-15 adult males:100 females and licenses can be typically be drawn every year or every other year. Managing for higher buck:doe ratios usually results in considerably less opportunity and many more preference points being required to draw licenses. The rut increases stress on mature bucks lowering their body condition and making them susceptible to injury, predation, disease, and starvation. This higher natural mortality creates a point of diminishing returns whereby fewer bucks are available to harvest. Relatively higher sex ratios also increase demand for licenses which creates a social feedback loop where demand continually outpaces supply and preference points required to draw a license rise faster than individual applicants can acquire them.

New Post-season Population Objective Range = 4,000 to 6,000 deer

New Sex Ratio Range = 25-30 bucks:100 does

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 1). Big game populations are managed to achieve population and sex ratio objectives established for Data Analysis Units (DAU's). Each DAU generally represents a geographically discrete big game population. The DAU planning process establishes long term objectives that support and accomplish the broader objectives of the CDOW's Strategic Plan.

COLORADO'S BIG GAME MANAGEMENT BY OBJECTIVE PROCESS

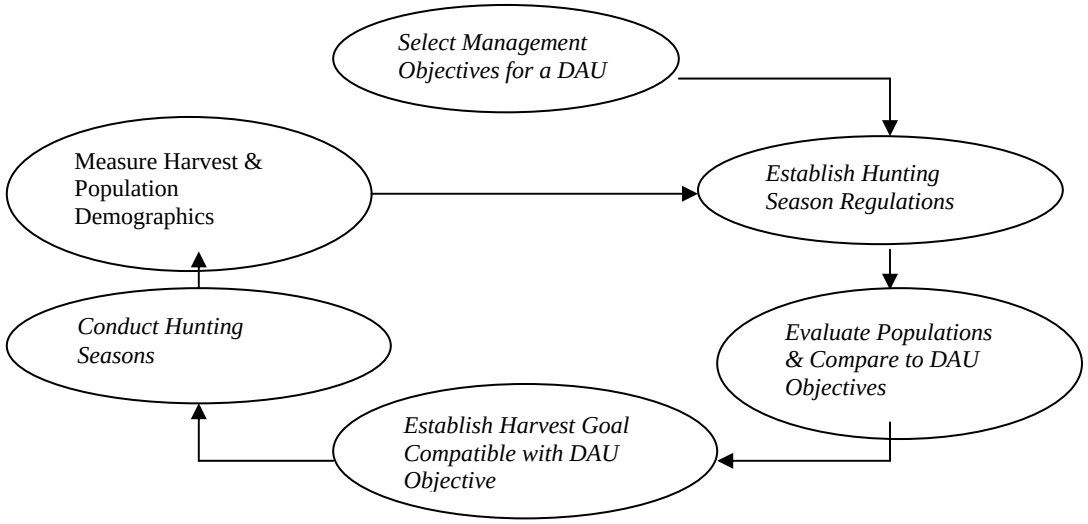


Figure 1. Management by objectives process used by the CDOW to manage big game populations on a DAU basis.

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, sportspersons, 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 classifications
- Estimated wounding loss, illegal kill, and survival rates based on field observations and telemetry studies.

A computer model estimates 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.

Objectives are set for population size and sex ratio during the DAU planning process. Population objectives influence, and are influenced by: current herd size, carrying capacity, antlerless harvest, reproduction and survival, viewing opportunity and hunter success. Buck:doe ratio objectives influence hunter opportunity, hunter density, buck harvest, trophy potential, and hunter success.

Population Objective	Male to Female Ratio
Herd size	Hunter opportunity
Habitat quality and herd capability	Hunter density
Antlerless harvest and antlerless opportunity	Male harvest rate
Reproduction and survival (density-dependence)	Male age structure and trophy potential
Wildlife viewing	Hunter success
Hunter success	Landowner voucher price
Game damage	Hunting lease value

Table 1. A summary of what factors are influenced by the two DAU plan components, population objective and sex ratio.

DESCRIPTION OF DAU D-52

Mule deer DAU D-52 is located in Southwest Colorado, west of Durango, and contains GMU's 74 and 741. The DAU is 1,000 mi^2 and includes portions of La Plata and San Juan counties and is bounded on the south by the Colorado-New Mexico state line. The towns of Durango, Silverton, Hesperus, and Breen are included in D-52. (Figure 2). Dominant geographical features are the La Plata Mountains on the west, the Animas River valley on the east, the Hermosa Creek watershed and upper Animas River to the north, and the Red Mesa/Fort Lewis Mesa area to the south. Most mule deer winter in GMU 741, which is primarily private land, while GMU 74 is primarily summer range and public land (Figure 2).

The climate is a highland or mountain climate, characterized by cool springs and falls, warm summers and moderately cold winters. Average precipitation and snowfall for Durango are 18.1 and 63 inches per year respectively. Snowfall increases dramatically to 250-300 inches per winter at higher elevations in northern portions of the DAU.

This area is in the Colorado Plateau Ecoregion, which consists of shrublands and forests. Vegetation types include: alpine over 12,000 feet elevation; spruce/fir stands down to 10,000 feet; Gambel oak, serviceberry, and ponderosa pine above 6,500 feet; and pinyon-juniper, sagebrush, mountain mahogany, and agricultural fields below 6,500 feet. Land ownership is composed of U.S. Forest Service (42%), Bureau of Land Management (5%), private land (32%), and Southern Ute Tribal lands (17%).

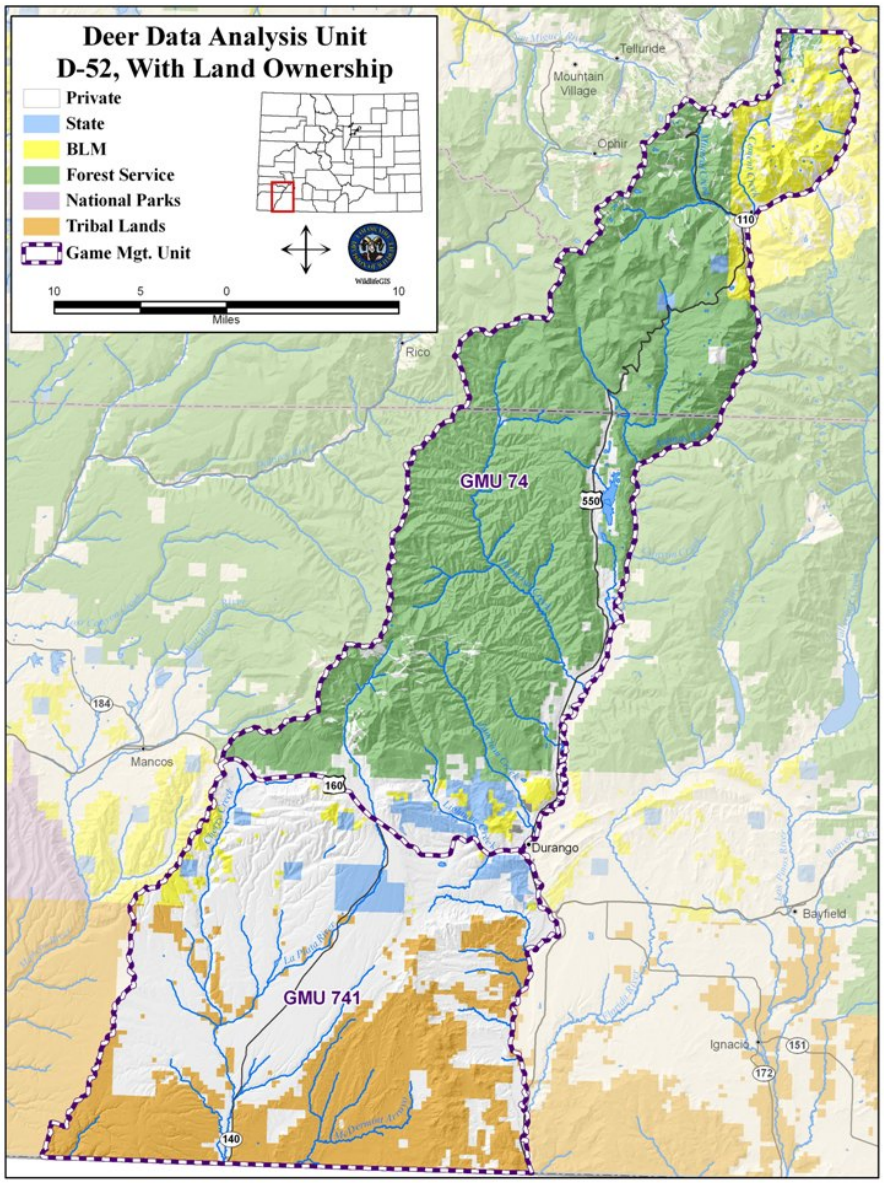


Figure 2. Figure shows DAU D-52 boundaries, GMU's, towns, and land ownership.

HERD MANAGEMENT HISTORY

Post-Season Population Size

This deer herd has declined considerably in the last 25 years (Figure 3). Much of this decline is likely from loss of winter range and changes in agricultural practices. Population estimates have declined from 12,300 in 1986 to the current estimate of 5,500. Long-time residents on Red Mesa and other deer wintering areas south of Highway 160 corroborate the modeled population estimate decline and believe there are half as many deer. Numbers of deer observed during helicopter inventory also have followed this trend (Figure 3). The average number of deer observed during annual post-season helicopter inventory from 1985 to 1995 was 1455 (range 955 to 2090). The average number of deer observed over the last 10 years is considerably lower at 838 (range 506-1181). More experience and data, new research, and better population estimation techniques will allow us to refine our herd population objectives.

D-52 was created in 1996. GMU's 72, 73, 74, and 741 were originally a single DAU but were separated into D-29 (GMU's 72 and 73) and D-52 in 1996. As a result, no population objective existed prior to that time.

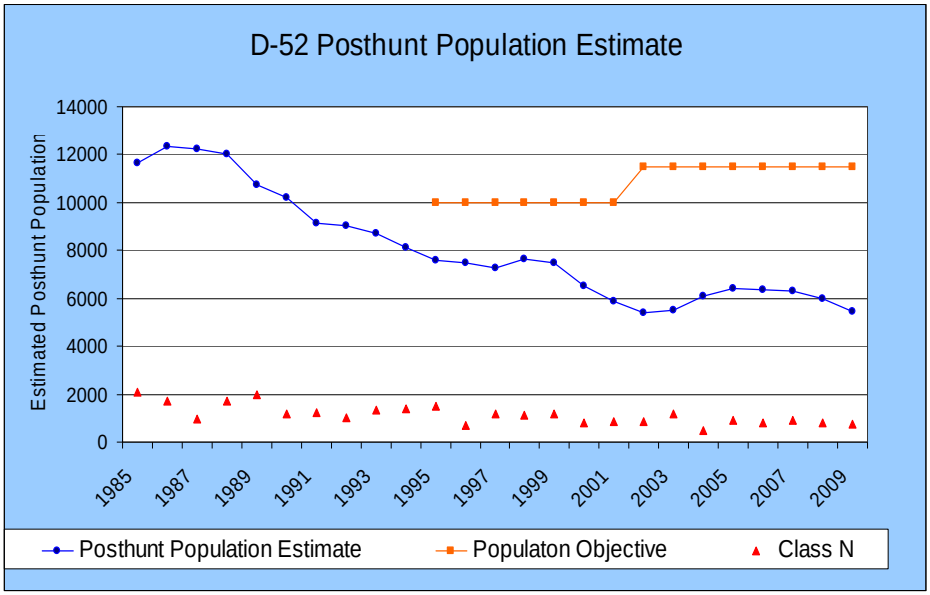


Figure 3. D-52 post-season modeled population estimates, population objectives, and number of deer classified during helicopter inventory from 1985 to 2009.

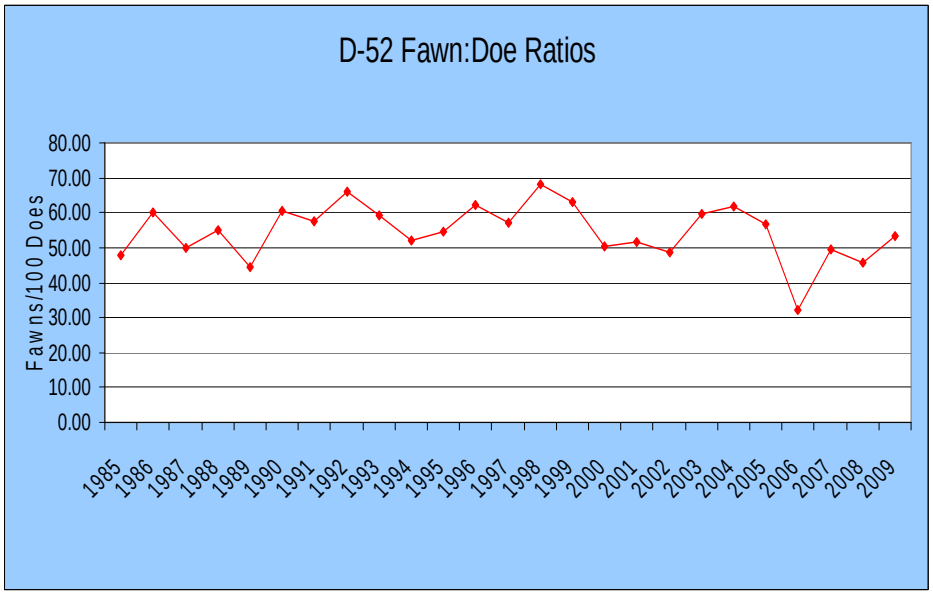


Figure 4. D-52 age ratio estimates observed from post-season helicopter inventory.

Post-Season Herd Composition

Environmental variability, such as drought and severe winters, can influence fawn production. Post-season age ratio estimates, observed from helicopter inventory, averaged 55 fawns:100 does from 1985 to 2009 (range = 32 to 68) (Figure 4). A mean of 48 fawns:100 does was observed over the last 5 years. Mule deer age ratios have declined somewhat over much of the West, despite pregnancy rates being typically greater than 90%. Pregnancy rates have been evaluated in the adjacent deer herd, D-30/GMU 771 east of Durango. Of the deer tested, the pregnancy rates

were 100% for 40 does in 2007-2008 and 15 does in 2008-2009. Weather, disease, and predation have been shown to affect neonatal fawn survival. Low fawn:doe ratios reduce a herd's resiliency to disease or other sources of mortality. Low fawn:doe ratios result in lower yearling bucks:100 does the next year. Therefore, managers must lower buck licenses in response to low age ratios to maintain buck:doe ratio objectives because bucks are not being recruited into the population.

Buck license allocation changed from over-the-counter to limited by DAU in 1999. Sex ratios increased dramatically (Figures 5 and 6). Prior to limitation, the average buck:doe ratio in D-52 was 14 bucks:100 does (Figure 5). The old sex ratio objective for D-52 was 26-30 bucks:100 does. Since limitation, the average observed sex ratio from 1999-2009 for D-52 is 30 bucks:100 does (range 23-42) (Figure 5). Sex ratios from 25-30 bucks:100 does usually have 10-15 adult males:100 females. Hunters have been very satisfied with increased buck numbers and the potential to harvest mature bucks.

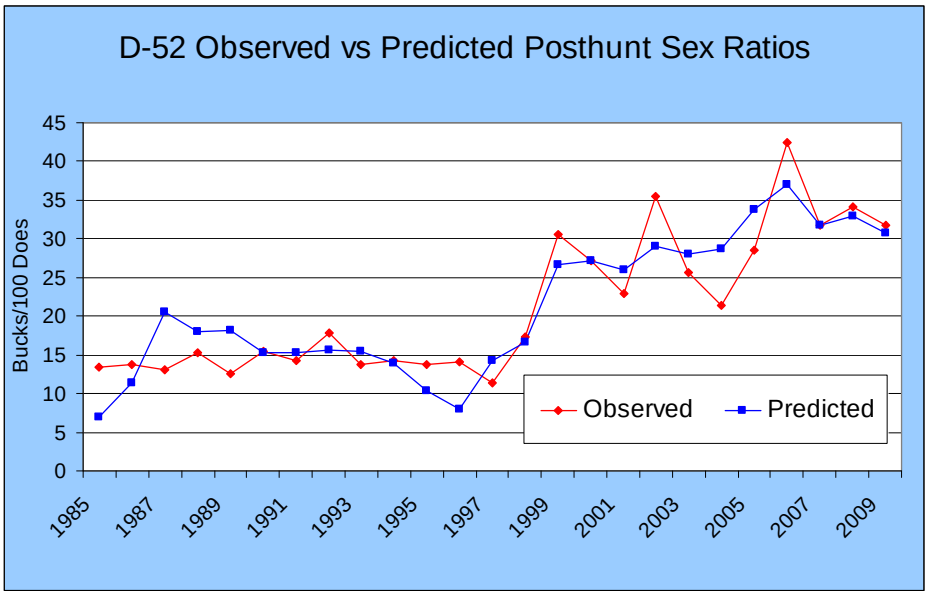


Figure 5. Post-season sex ratios observed from helicopter inventory from 1985 to 2009 compared to model-predicted ratios.

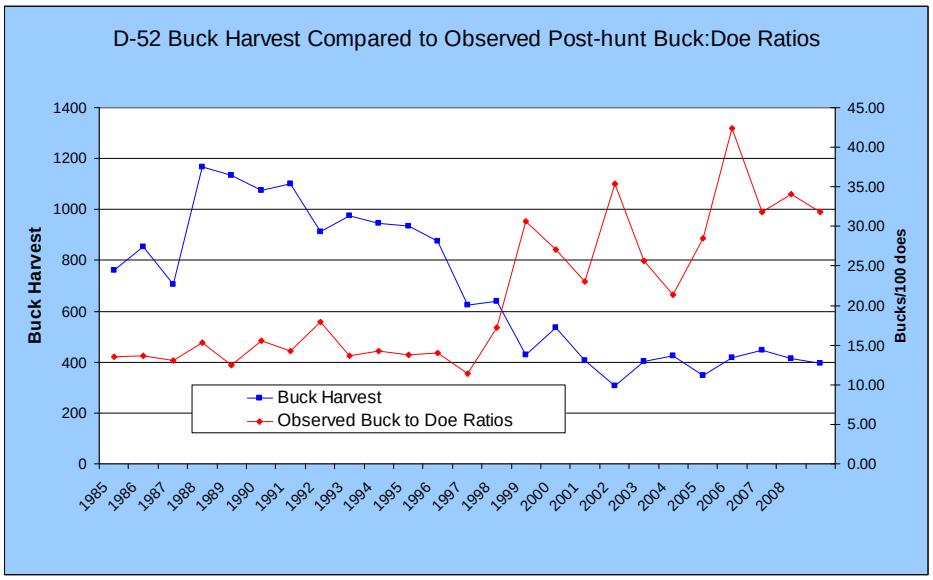


Figure 6. Relationship between buck harvest (controlled by limited licenses beginning in 1999) and buck:doe ratios observed during post-season helicopter inventory.

Harvest and Hunters

All antlerless licenses are limited and set annually to meet population objectives. D-52 had high doe harvest in the late 1980s and early 1990s (average = 470), modest doe harvest from 1993 to 2001 (average = 396), and very little since 2001 (average = 74) (Figure 7). Female licenses are currently private-land-only in GMU 741 to address game damage. Either female harvest reduced population size in the late 1980s and early 1990s, or the same limitations that are currently impacting the herd existed then, as well. Other factors currently appear to be limiting population growth because female harvest has been negligible for 8 years.

From 1985 to 1999, with over-the-counter licenses, antlered harvest averaged 907 annually (range 707 to 1,166) (Figure 6). However, over-the-counter buck harvest declined substantially from 1988 to 1999 (Figure 7). Over-the-counter harvest is expected to be proportional to population size indicating population size was declining. With limited licenses, average buck harvest from 1999 to 2009 was 412 (range 307 to 535). Hunter success and harvest in GMU 741 is double that in GMU 74 for two reasons. GMU 741 is private land, which typically has higher success. Secondly, most of the deer migrate into GMU 741 so most of the hunting takes place during later seasons when they are more vulnerable in that GMU. The 3-year average buck harvest in GMU 74 is 155 (32% success) and the 3-year average buck harvest in GMU 741 is 387 (66%). For these reasons demand is greater for GMU 741 licenses (Figures 8 and 9).

Hunters interested in pursuing bucks in D-52 generally can draw every year. The early high-country mule deer hunts take 7 or 8 preference points. The 4th season rifle in GMU 741 is the other higher demand hunt (1-2 preference points for resident and 3-4 preference points for non-resident) because of the very limited license quota and rut hunting. All other buck licenses can be drawn with no preference points.

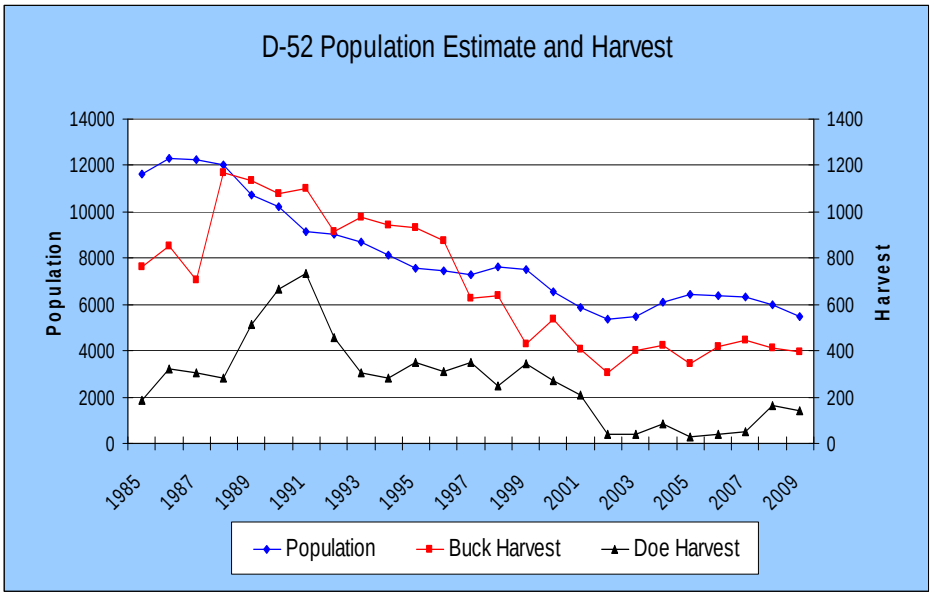


Figure 7. Antlered and antlerless harvest estimates from D-52 from 1985 to 2009.

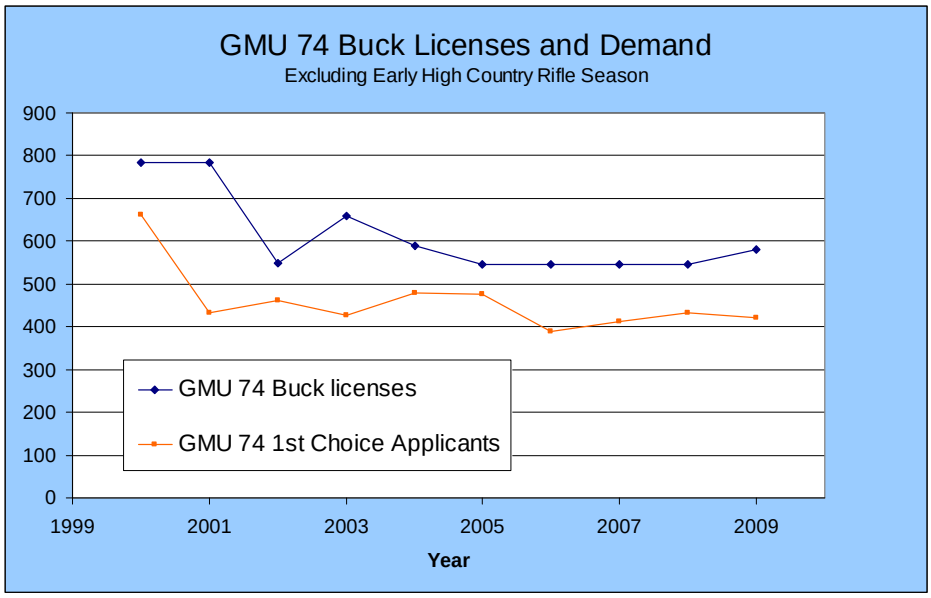


Figure 8. GMU 74 buck licenses compared to first-choice application demand since licenses were limited in 1999.

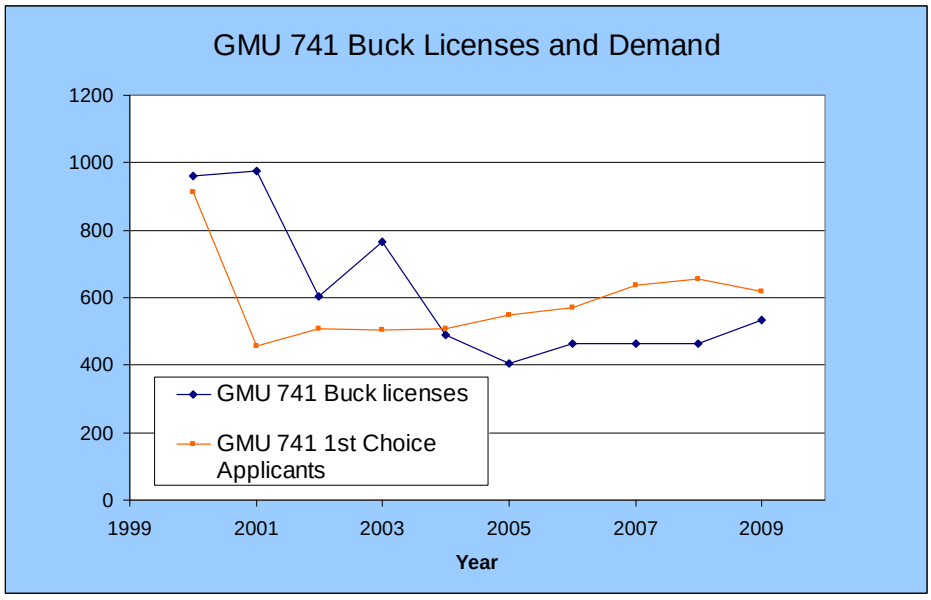


Figure 9. GMU 741 buck licenses compared to first-choice application demand since licenses were limited in 1999.

HABITAT CAPABILITY

Biological carrying capacity often is portrayed as static. In reality it is a moving range that varies annually and trends over time. Unfortunately, this declining mule deer herd probably evidence that carrying capacity is and has been on a downward trend. Some of the factors influencing mule deer population dynamics include habitat quantity and quality, agricultural practices, predation, disease, competition with other ungulates, climate, weather, and female harvest. A combination of variables is influencing this herd but quality and quantity of winter range probably are the limiting factors. Drought also can play a significant role in habitat capability by affecting winter and year-round forage condition. Fewer dry-land crops also are being produced, resulting in fewer deer.

Deer migrations generally are southerly in direction and are initiated in mid-October. Snow depth and forage availability affect timing and speed of migration. Most deer are on winter range, and consequently are on private property in GMU 741 by November 1. The majority of winter range (94%) is either private property or Southern Ute Tribal land. Only 6% of winter range, 4% of winter concentration area, and 17% of severe winter range are publicly managed.

Severe winter range, where most of the deer are concentrated in severe winters (including, the winters of 1992-1993, 2007-2008, and 2009-2010) is only 40 mi^2 (4 % of DAU). Winter concentration areas, where deer normally concentrate in a range of winter severities, make up approximately 125 mi^2 (12%) of the DAU. Deer winter concentrations during normal winters are from the Ridges Basin, Bodo, Black Ridge, Red Mesa, and lower La Plata River areas to the Colorado-New Mexico state line. A few deer winter in Junction Creek, Perins Peak, and Hermosa Creek drainages north of Highway 160. Quality sagebrush and mountain shrub winter forage are even more limited than acreage of winter range. The vast majority of these crucial habitats have been converted by exurban ranchettes, agriculture, and energy development. The highest protein content and vertical structure created by these shrubs are invaluable when snow is deep. Some deer do move into New Mexico when snow accumulates.

Managers and the public are increasingly concerned over cumulative and prolonged impacts disrupting migration corridors and decreasing quality and quantity of winter range. Extensive exurban development has occurred in the DAU. Indirect impacts from recreation and dogs are added stress to wintering big game animals that are trying to conserve energy. Seasonal closures on public lands are important to reduce impacts. Highway mortality is exacerbated by increased road density and human population, a concern both for herd welfare and human safety. The direct and indirect impacts of energy development also reduce winter range quantity and quality. Energy development impacts are likely to increase. Additionally, Lake Nighthorse was constructed on some of the highest quality deer and elk winter range in the DAU. The cumulative effects of all human activities lower the habitat capability and ultimately reduce the size of big game populations the habitat can sustain.

Fire suppression has increased canopy cover and reduced winter range quality. Exurban development makes large scale treatment difficult, expensive, and challenging. However, big game winter range habitat improvement projects have been completed on Perins Peak SWA and in numerous fuels reduction projects on the San Juan National Forest. A large prescribed burn completed in Hermosa Creek in 2008 will improve transition and winter range condition.

One of the best habitat management tools is to keep big game populations below biological carrying capacity. This often means managing for herd sizes that can be sustained in a severe winter or extended drought. Populations at biological carrying capacity exhibit density dependence in reproduction, recruitment, and survival. Over-stocked ranges also can suffer long-term damage. Deep snow in severe winters has the benefits of protecting some plants for browsing, providing good moisture for spring growth, and adjusting population size to habitat capabilities. Drought impacts may be especially insidious because big game don't exhibit overt signs of stress and plant communities can take decades to recover if over-grazed.

HPP Habitat Assessment Model

The Southwest Habitat Assessment model was developed by Wockner et al. with Colorado State University for the Habitat Partnership Program (HPP) to quantify forage production and utilization. Results should be interpreted cautiously because these models use satellite imagery to estimate plant production with no field data; however, they do have some application for DAU planning and the setting of population objectives. The Southwest model does not have a winter severity component but does have the ability to evaluate drought. The current proportion of deer and elk in the DAU are 47% elk (2009 post-hunt 4,900) and 53% deer (2009 post-hunt 5,500). Simulations using mean annual precipitation and 10-year average livestock numbers result in a population of 6,300 deer utilizing forage to the "low threshold," which is 25% utilization. The new population objective range for deer is below 6,300. Therefore, based on these simulations with average precipitation, habitat in the DAU can support the new population objectives for deer and elk and stay at or below 25% forage

utilization. Simulations with 10-year average livestock numbers and a dry year with the new deer and elk population objectives result in the high utilization threshold being reached where 32% of production is consumed. Proposed population objective ranges would allow management for the lower end of the objective if drought conditions were persistent.

Conflicts with Agriculture
Localized game damage does exist in GMU 741. This has decreased with smaller population size and less bean and oat production. However, some game damage situations would persist even with drastic reductions in deer numbers in the DAU and are best addressed on each property with special seasons, distribution management hunts, and AWM kill permits, rather than on a DAU population scale. CDOW has been starting many private-land-only seasons on September 1 in other DAU's to address resident, non-migratory deer and deer game damage. These are more effective if the damage occurs prior to the October migration.

D-52 DAU planning has been discussed at the local HPP committee and no concerns have been raised with the preferred alternative. HPP members understand the issues in D-52 herd management, history, population estimation, and population objective selection. Appendix III is the San Juan Basin HPP committee comment letter regarding this herd management plan and revision.

CURRENT HERD STATUS , ISSUES, and STRATEGIES

Population Estimation and Population Objective Setting
Previous DAU plan objectives (2001)
Population = 11,500
Sex Ratio = 26-30 bucks:100does

Post-season 2009 estimates
Population = 5,500
Sex Ratio = 32 bucks:100does

The new reality for mule deer management in human impacted landscapes may be fewer deer. The old objective of 11,500 appears to be unattainable with current conditions. Although the public and many biologists would like more mule deer, population objectives need to be realistic. Trying to allow a herd to increase above what it has shown it is capable of given environmental constraints and changes is unproductive and ecologically irresponsible.

The old population objective of 11,500 was based on earlier population models that may have slightly over-estimated population size. The population estimate in 2001 was 9,800 and current models estimate about 6,000 deer in 2001. Estimating free-ranging ungulate population size in complex landscapes is challenging. Past population size can be estimated more accurately than the current population because it is surrounded by data. The intent at the time of the last revision was to allow for a population increase which did not occur. The primary goal of this DAU plan revision is to set the population objective closer to the number of deer that currently exist and we believe the habitat can support. New modeling techniques and biological information, such annual adult and winter-fawn survival rates observed in intensive mule deer monitoring areas, will allow this DAU plan revision to adjust population objectives closer to the current population size.

Population Objective Indexing
Population modeling is an evolving process whereby modeled estimates can change over time based on additional data or improved modeling methodology. As such, when modeled estimates change irrespective of an actual change in the population, it might be reasonable to adjust or index population objectives relative to the new modeled estimate. The basis of harvest-based population management is to increase harvest when a population exceeds objective, decrease harvest when a population is below objective, and maintain harvest when a population is at objective. Because population objectives are only meaningful in the relative context of the

population estimates available at the time the objective was established, indexing the objective maintains the integrity of the objective based on the fundamental criteria of whether there are too many, too few, or the desired number of animals in the population.

Chronic Wasting Disease
Chronic Wasting Disease (CWD) is a neurological disease occurring in members of the cervid family, including deer, elk, and moose. CWD has not been detected in or around DAU D-52. From 2002 to 2009, 203 E-30 elk and 277 D-52 deer (GMUs 74 and 741) were tested for CWD. CDOW will continue surveillance for CWD on a voluntary basis. The nearest CWD-positive herds are deer and elk in the La Sal Mountains of Utah, approximately 100 miles away. If CWD is detected in or around DAU D-52, managers may need to reevaluate management objectives if they are deemed incompatible with CWD risks. CDOW research has shown that the CWD prevalence in bucks typically is twice that in does. The prevalence among mature bucks is especially high, therefore managing for high buck:doe ratios may be contradictory to disease goals if CWD was to be detected in D-52.

Public Involvement
A public DAU planning meeting conducted in Durango was attended by 28 participants. Herd history and management strategies were discussed. Basic questionnaires about population and sex ratio alternatives were handed out. Because this was not a random survey, results may not represent all interest groups or even adequately represent specific interest groups. Survey responses do provide opinions of those able to attend the meetings (Appendix I). That said, there seemed to be a good representation of different interests in attendance. For surveys returned at the meeting, 52% were primarily hunters, 14% had agricultural interests, 18% were outfitters or guides, 7% had non-consumptive and wildlife viewing interests, 5% were business owners, and 4% were other (Appendix I). Half had poor satisfaction with the deer hunting, 38% thought the deer hunting was good, and 13% considered it excellent. Half would like to see more deer in DAU D-52, 45% preferred the same, and none wanted a decrease in herd size, and 5% were unsure. A large majority (63%) preferred the same buck:doe ratio objective and management strategy with 21% desiring increasing sex ratios. Of these hunters 24% thought it was very important to hunt every year and 20% considered harvesting mature animals most important.

Mail-in surveys demonstrated much different hunting interests. This survey was of a different, and less diverse, group. Most had not attended the public meeting so were not as aware of herd management strategies and data with respect to herd status. Responses were so different that combining surveys seemed inappropriate. Twenty six surveys were mailed in, 90% were hunters and 10% had agricultural interests (Appendix II). Of these respondents 79% had poor satisfaction with the deer hunting, 21% thought the deer hunting was good, and none considered it excellent. They overwhelmingly (85%) wanted more deer in GMU 74, 4% preferred the same, and none wanted a decrease in herd size. Results were similar for GMU 741, 85% would like more deer, 4% preferred the same, none wanted a decrease in herd size, and 12% rest weren't sure. Contrastingly, a large majority preferred increasing the buck:doe ratios (77%) with 19% desiring current sex ratios, and 4% interested in lower sex ratios. Only 8% of these respondents viewed hunting every year as a priority and 42% considered harvesting mature animals most important.

ALTERNATIVE DEVELOPMENT and PREFERRED OBJECTIVE RECOMMENDATION

Population Objective Range Alternatives
Population objective alternatives were developed relative to the current population estimate of 5,500. Ranges are presented in each alternative to allow for management flexibility in response to changing conditions such as drought and changes in population size. Licenses are issued annually to manage for a target population size within the population objective range. The following 3 population objective alternatives are proposed:

Preferred Alternative 1. 4,000 to 6,000 (same to somewhat fewer deer)
Alternative 2. 4,500 to 6,500 (current population size)
Alternative 3. 5,000 to 7,500 (increase)

Preferred Alternative 1 maintains the current number of deer and offers management flexibility if the population continues to decline. Alternative 2 maintains approximately the current number of deer, however does not accommodate a continued decline in the deer herd. Alternative 3 allows an increase in the number of deer in D-52. This has been the previous management strategy that has not been successful. There is no evidence that conditions are conducive for this herd to increase.

Sex Ratio Alternatives
Preferred Alternative 1. 25-30 bucks:100 does
Alternative 2. 30-35 bucks:100 does

Preferred alternative 1 is the status quo of limited buck licenses and a sex ratio objective of 25-30 bucks:100 does. This is essentially the same as the old sex ratio objective is 26-30 bucks:100 does. The wider range may offer slightly more management flexibility if buck:doe ratios decline. This sex ratio objective is widely supported by the public and offers a great balance between quality and opportunity. At 25-30 males:100 females, D-52 has had 10-15 adult males:100 females and licenses can be typically be drawn every year or every other year. Managing for higher buck:doe ratios usually results in considerably less opportunity and many more preference points being required to draw licenses. The rut increases stress on mature bucks lowering their body condition and making them susceptible to injury, predation, disease, and starvation. This higher natural mortality creates a point of diminishing returns whereby fewer bucks are available to harvest. Relatively higher sex ratios also increase demand and create a social feedback loop where demand continually outpaces supply and preference points required to draw a license rise faster than individual applicants can acquire them.

New Post-season Population Objective Range = 4,000 to 6,000 deer

New Sex Ratio Range = 25-30 bucks:100 does

APPROVAL / SIGNATURES

On behalf of the Colorado Division of Wildlife and the Colorado Wildlife Commission, we herby accept and approve this DAU D-52 herd management plan.

_____ Date _____
Thomas E. Remington, Director
Colorado Division of Wildlife

_____ Date _____
Tim Glenn, Chairman
Colorado Wildlife Commission

Appendix 1. Public Survey Results from DAU planning public meeting (28 attendees)
Sample Size 23
DAU's E-30 and D-52 Management Plans Public Survey

Name (Optional):

1) Which group(s) best represents your interests in deer and elk management in this area?
52%__ hunting 14%_ agricultural _18%___ commercial (guide/outfitter)
_7%_ viewing opportunities/non-consumptive _0%__ Agency personnel
__5%__ Business Owner _5%__ other (specify)_____

2) **Agriculture Producers** – Have you had problems with deer and/or elk in the past five years?
Describe problem:__**See comments below**_____
What species were involved _____ Number of animals _____
Was DOW contacted? Yes / No Actions taken by DOW_____
Is this a continued or growing problem? No Yes

3) **Hunters**
What is your satisfaction with **elk** hunting in GMU 74 and 741? 42% Poor 53% Good 5% Excellent
What is your satisfaction with **deer** hunting in GMU 74 and 741? 50% Poor 38% Good 13% Excellent
Circle which GMU you usually hunt: 72 % 74 17% 741 11% Both

What is most important to you? Mark your **TOP TWO** choices.
_24%_ hunting every year __26%__ hunting quality with fewer hunters
_12%___ high harvest success rates___20%_ potential to harvest mature animals
__16%__ hunting for meat other _2%_____

4) Would you like the number of **elk** in GMU 74 to**:**
_60%_Increase __28%_Stay the same _4%_Decrease _8%__ Don't know
Why?

5) Would you like the number of **elk** in GMU 741 to**:**
_35%__Increase __35%_Stay the same _0%__Decrease __30%_ Don't know
Why?

6) Would you like the number of **deer** in GMU's 74 and 741 to**:**
__50%_Increase __45%_Stay the same __0%_Decrease _5%__ Don't know
Why?

7) The number of bucks maintained in a population is related to levels of hunting opportunity. For the purposes of **deer** hunting, should GMU's 74 and 741 be managed for:

_21% Increased buck to doe ratio (greater trophy potential but it would become more difficult to draw a license).

_63% Same buck to doe ratio (same trophy potential and opportunity to draw a license as we now have).

_16%_ Decreased buck to doe ratio (less trophy bucks but easier to draw a licenses than it currently is)

8) Totally limiting bull licenses requires a separate public nomination process from DAU planning. However, for our information, we are interested in your preference below.

For the purposes of **elk** hunting, should GMU's 74 and 741 be managed for:

__18% Increased bull:cow ratio (greater trophy potential but all hunting by application only and less hunting opportunity).

__82%_ Same bull:cow ratio (same trophy potential and hunting opportunity).

Please provide additional comments on the future management of DAU's E-30 or D-52 below:

Question 1.
Also interested for scientific studies

Question 2:

200+ Elk eating grass and causing fence damage. Is a continued problem, but have received HPP money.

200+ Elk Eating our hay, and have participated in HPP; We allow free hunting on our land but it is not popular with the drive by observers. They (the drivers) don't see the benefit of game management. We often also take people hunting they see bigger bucks in the valley.

100-150 Elk graze fall pasture, graze 1st green growth in spring, try to eat livestock feed during the winter months in Animas Valley. HPP has helped with the fencing, but is still a continued problem. "I have built a level of tolerance on the premise that this is the cost of farming in the Animas Valley, I enjoy seeing the herds in the summer in the high country; and so do my clients that ride with me. I also depend on work generated from hunting activity in the fall." (Question- Why hunting is important) Hunting opportunity for out of state hunters who hire outfitters to guide them and bring dollars to our region.

80-100 Elk eating hay field, DOW provided fertilizer, continued problem

Elk, Deer in the hundreds causing Crop damage, No DOW contact, but a continued problem.

Question 3:
Switched to 75-78 unsuccessful in 74 and 741- no access

Elk population good, but declining; Maintain good elk in 74

Excellent hunting in Both; We agree with buck:doe ratio, 30-100, We have seen quality improved in 741 (bucks) We are happy with elk numbers. We have altogether- 4000 acres under wildlife management in 741

Question 4:
Good to see animals during hunt, not overtax winter range. It is important to me to hunt elk and deer every year. Quality seems good, please keep quality.
Increase- See More animals in the woods.
Increase 20%; Provide for better hunting and viewing
Last 4-5 years we have seen significantly fewer elk and our harvest rates have been poor.
- Land access in 741 is very limited- Properties have been taken from hunting by govt. entities for swaps and water- need more areas open to the public or these same areas opened- if even to limited hunting.

Increase- Numbers are down,
better hunting opportunity
Same-Population healthy- increase in numbers means increase in tags and out of state hunters
Increase-To increase the potential of hunting mature animals.

Increase Proportional to carrying capacity
Don't know- Whatever is best for the health of the herds and hunting yearly!

Access is a huge problem in 74. Hunters are very concentrated during seasons. Mostly 74 is not hunted.

Increase- increase success

Question 5
Numbers are down
- Increased numbers should provide higher % of trophy animals- not necessarily record book, but better quality!
All private and no access;
Elk herds are becoming permanent (Non-Migratory) in 741

Question 6
Enjoy seeing them and better hunting opportunity; DOW should get a method to get homeowners to allow free access to hunt to reduce crop damage- There are a lot of youth, senior citizens, meat hunters, etc. who would welcome the opportunity to hunt and harvest an animal regardless of sex.

Seems like a good amount

Same- herd is presently large enough

Question 7 and 8
This is not the area (region) to be managing for trophy big game hunting-too much private land is needed to support herds in winter and too many people generally wanting to drive too fast creating road kill hazard. It is important to provide hunting opportunity so those folks don't lose interest waiting for the chance to hunt. I'm concerned that down the road if hunter numbers continue to decline, we will not have this important tool to manage big game populations.

Issue licenses to outfitters if limiting Licenses

General Comments
We hunt because we love to be in the woods and eat quality meat. So anything that helps those goals is positive! Thanks

Appendix II: Mailed in forms
Sample size 26

DAU's E-30 and D-52 Management Plans Public Survey

Name (Optional):

1) Which group(s) best represents your interests in deer and elk management in this area?
__90% hunting __10% agricultural ____ commercial (guide/outfitter)
____ viewing opportunities/non-consumptive ___ Agency personnel
____ Business Owner ___ other (specify)_____

2) **Agriculture Producers** – Have you had problems with deer and/or elk in the past five years?
Describe problem___**See comments below**_____
What species were involved _____ Number of animals _____
Was DOW contacted? Yes / No Actions taken by DOW_____
Is this a continued or growing problem? No Yes

3) **Hunters**
What is your satisfaction with **elk** hunting in GMU 74 and 741? 83% Poor 17% Good Excellent
What is your satisfaction with **deer** hunting in GMU 74 and 741? 79% Poor 21% Good Excellent
Circle which GMU you usually hunt: 64% **74** 8% **741** 28% **Both**

What is most important to you? Mark your **TOP TWO** choices.
_8%_ hunting every year _24%_ hunting quality with fewer hunters
_14%_ high harvest success rates __42% potential to harvest mature animals
_12%___ hunting for meat other _____

5) Would you like the number of **elk** in GMU 74 to**:**
__96%_Increase __4%_Stay the same _____Decrease _____ Don't know
Why?

9) Would you like the number of **elk** in GMU 741 to**:**
__88%_Increase __8%_Stay the same __0%_Decrease __4%_ Don't know
Why?

10) Would you like the number of **deer** in GMU's 74 and 741 to**:**
_85%__Increase _4%__Stay the same __0%_Decrease _12%__ Don't know
Why?

11) The number of bucks maintained in a population is related to levels of hunting opportunity. For the purposes of **deer** hunting, should GMU's 74 and 741 be managed for:

__77%_ Increased buck to doe ratio (greater trophy potential but it would become more difficult to draw a license).

_19%_ Same buck to doe ratio (same trophy potential and opportunity to draw a license as we now have).

_4%_ Decreased buck to doe ratio (less trophy bucks but easier to draw a licenses than it currently is)

12) Totally limiting bull licenses requires a separate public nomination process from DAU planning. However, for our information, we are interested in your preference below.

For the purposes of **elk** hunting, should GMU's 74 and 741 be managed for:

__75%_ Increased bull:cow ratio (greater trophy potential but all hunting by application only and less hunting opportunity).

_25%__ Same bull:cow ratio (same trophy potential and hunting opportunity).

Please provide additional comments on the future management of DAU's E-30 or D-52 below:

Question 1

Question 2.

Mule Deer eating trees, No DOW contact, Not a continued problem

Question 3.

Problem- Too few elk

WE NEED MORE ELK!!!

I have hunted 74 for elk the last 14 years and have noticed a marked decline in cow numbers. While bull numbers seem steady, I feel the herd will suffer if this trend continues

To Whom It May Concern- we need less of a cow elk harvest

Question 4.

Increase-Too many hunters killing cows and young bulls

Populations have declined from historic levels and the quality of horns have decreased

Same- Increase Quality

Increase- Lack of cows makes herd unhealthy
Increase- would like to see more animals in the woods

Increase-Improve hunting success more potential for older bulls

Question 5.
Populations have declined from historic levels and the quality of horns have decreased

741 is winter range for many elk in 74. The only way to stabilize the herd is to increase cow numbers in 741

Same- Conflict with farmers

To keep numbers in unit 74 up

Question 6.
74 and 741, in the past, has maintained high head counts for deer. Numbers have decreased in recent years

Question 7 and 8

Would like to see more mature bucks

I would like to see bull tags as usual, I see lots of bulls but only a 1/3 of cows in the La Platas. Where I hunt and have seen the decline of cows in the last 10 years. So I worry about the quality of the herd.

General Comments

The DOW needs to be more user friendly- You work for the hunter -

Hunting seasons on even year only, hunting only every other year. Both Deer and Elk state-wide. Give the Herds a break. Less stress, close some units down to vehicle traffic. Make non-hunters pay a fee to enter National Forest.

Appendix III. San Juan Basin HPP comment letter.

San Juan Basin Habitat Partnership Program Committee

June 20, 2010

Andy Holland, Terrestrial Biologist/Statewide Big Game Coordinator
Colorado Division of Wildlife
151 East 16th Street
Durango, CO 81301

RE: San Juan Basin HPP Committee comments on Elk DAU-30 and Deer DAU-52

Dear Mr. Holland,

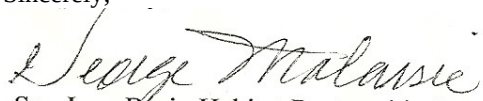
This letter is in response to your request for formal comment regarding the Division of Wildlife DAU E-30 and D-52 herd management planning process. The San Juan Basin HPP Committee has had significant discussion over the past year regarding future deer and elk population objectives for E-30 and D-52. The recommendations outlined below are based on the current 2009 post hunt population estimate of 4,900 elk (E-30) and 5,500 deer (D-52) you provided the committee. After considerable discussion the following recommendations are put forward by this committee.

- It is a general consensus that the current elk population objective should be increase slightly following the preferred alternative, which set the objective range between 5,000 to 6,000 animals. There remains to be individual groups of elk, primarily in the Animas River Valley and on some private lands south of Highway 160, that tend to congregate in and around agricultural fields and raise overall agricultural concerns in these isolated areas. Continued liberal licenses in these areas to address agricultural concerns and reduce resident/non-migrating herd size are needed to aid in efforts to resolve these isolated distribution conflicts. Given the recent history of sustained drought and USFS efforts to reduce livestock stocking rates within portions of E-30 the committee would recommend that the lower range (5,000 animals) be the target of short term elk management in E-30. We would like to see this target met gradually over a period of years by only slight reductions in overall hunting opportunity.
- It is a general consensus of the committee that the Division of Wildlife manage E-30 for a 15-25 bulls per 100 cows sex ratio. The committee agreed that we would like to see more mature bulls in the population and were in favor of the current limitations on muzzle loading, 1st rifle and 4th rifle season bull elk harvest. The committee would not like to see the over-the-counter 2nd and 3rd seasons be limited or 4th season bull hunting be eliminated.
- Over the past several 10 years the committee has seen a substantial increase in recreation pressure on the San Juan National Forest within E-30. This pressure is occurring earlier in the spring each year and persists continually into the fall resulting in the potential decreased utilization of important public land calving grounds, summer range, and winter range for both deer and elk populations. To address current and future elk distribution issues and provide more public land hunting opportunity, the committee would like to see the Division of Wildlife work in conjunction with the San Juan National Forest to evaluate current and potential seasonal access restrictions. We would like to see efforts made to keep elk on the forest as much of the year as possible. This would help to keep spring, late summer, and early fall agricultural conflicts to a minimum. Specific conflict areas continue to be the Animas River Valley and private lands south of highway 160.
- The committee agrees with the conclusion that despite a 25 year effort to increase the D-52 population, the biological carrying capacity of the remaining habitat is limiting this deer herd. The current pace of all forms of development and continued loss of winter range supports the recommendations of the preferred alternative requesting a reduction in the population objective to a range of 4,000-6,000. The committee foresees continued reduction in agriculture production areas and loss of winter range indefinitely into the future. These reductions will continue to diminish the carrying capacity of the habitat in D-52. Future management for the preferred population range will allow the greatest flexibility in harvest and hunter opportunity.

- It is a general consensus of the committee that the Division of Wildlife managed D-52 for 25-30 bucks per 100 does sex ratio. The committee agreed that we would like to see this herd sex ratio to continue at the upper end of this range. The current average ratio of 30:100 has resulted in a good balance of buck quality and hunter opportunity throughout D-52.
- The committee would urge the Division of Wildlife to closely consider all factors in regards to overall land health, carrying capacity, habitat loss and degradation, drought, and limitations of winter range in making their final decision. The continued loss of winter range to all forms of development (urban, energy, trail, etc.) remains the limiting factor for the future of these deer and elk herds.

On behalf of the San Juan Basin HPP committee we thank you for your request and opportunity to comment.

Sincerely,



San Juan Basin Habitat Partnership Program Committee