

**D-43 SWEETWATER CREEK DEER HERD
DATA ANALYSIS UNIT PLAN
Mule Deer Management Plan
Game Management Units 25, 26 & 34**



Derby Mesa in GMU 26 provides important mule deer winter habitat in the Sweetwater DAU.



Julie Mao, Terrestrial Biologist
Perry Will & Jim Haskins, Area Wildlife Managers
Dan Cacho, Brian Wodrich, & Libbie Miller, District Wildlife Managers

Colorado Division of Wildlife
50633 Highways 6 & 24
Glenwood Springs, CO 81601

May 3, 2011

D - 43
DATA ANALYSIS UNIT PLAN
Contents

List of Figures.....	ii
List of Tables.....	ii
I. DAU Plan Executive Summary.....	1
II. Introduction and Purpose.....	5
Introduction.....	5
DAU Plans and Wildlife Management by Objectives.....	6
Population Dynamics and Managing for Maximum Sustained Yield.....	7
III. Description of the Data Analysis Unit.....	9
Location.....	9
Physiography: Topography, Climate, Vegetation.....	9
Land Status: Land Ownership, Land Use, Public Land Grazing.....	12
IV. Habitat Resource.....	16
Habitat Distribution.....	16
Habitat Condition and Capability.....	16
Conservation Easements.....	20
Conflicts.....	20
V. Past Herd Management History.....	21
Disclaimer for Population Size Estimation.....	21
Post-Hunt Population Size.....	21
Post-Hunt Herd Composition.....	23
Fawn Ratios.....	23
Buck Ratios.....	24
Harvest History and Hunting Seasons.....	25
Hunting Season History.....	25
License Demand.....	27
Total Harvest.....	28
Buck Harvest.....	29
Antlerless Harvest.....	30
Hunting Pressure.....	31
Hunter Success.....	31
VI. Current Management Status.....	32
1988 DAU Plan Population and Sex Ratio Objectives.....	32
Current Management Problems.....	32
VII. Issues and Strategies.....	33
Issue Solicitation Process.....	33
Issues and Concerns.....	33
VIII. Alternative Development.....	35
Population Objective Indexing.....	35
Post-hunt Population and Sex Ratio Objective Alternatives.....	35
Impacts of Population Objective Alternatives.....	35
Impacts of Sex Ratio Objective Alternatives.....	37
IX. CDOW Recommended Objectives.....	38
X. Approval Page.....	40

XI. Literature Cited.....	41
XII. Appendices	
A. BLM grazing allotments within DAU D-43.....	42
B. USFS grazing allotments within DAU D-43.....	44
C. License draw information for D-43, 2007-2009.....	45
D. 2002 Federal Agency and Public Comments.....	47
E. 2010 Public Comments.....	52
F. BLM Comments.....	58
G. USFS Comments.....	60
H. HPP Committee Comments.....	62

List of Figures

Figure 1. Management by objective process.....	6
Figure 2. Density-dependent growth curve.....	7
Figure 3. Maximum sustained yield.....	8
Figure 4. Location of DAU D-43.....	11
Figure 5. Land status in DAU D-43.....	13
Figure 6. Winter range, severe winter range, and winter concentration area.....	18
Figure 7. Post-hunt population estimates.....	22
Figure 8. Observed fawn:doe ratios.....	23
Figure 9. Observed buck:doe ratios	24
Figure 10. Rifle license history	25
Figure 11. Archery and muzzleloader license history	26
Figure 12. Total harvest of deer	28
Figure 13. Harvest of antlered deer.....	29
Figure 14. Harvest of antlerless deer.....	30
Figure 15. Number of deer hunters and hunter success rate.....	31

List of Tables

Table 1. Area (sq. km.) of land status in DAU D-43.....	13
Table 2. Distribution of mule deer winter and overall ranges on public and private lands.....	16
Table 3. Habitat improvement projects	19
Table 4. License demand for 2 nd and 3 rd doe and buck rifle seasons, 2007-2009.....	27

I. DAU Plan Executive Summary

DAU: Sweetwater Creek Deer DAU D-43

GMUs: 25, 26 & 34

Current Population Estimate: 4,700 deer (post-hunt 2009)

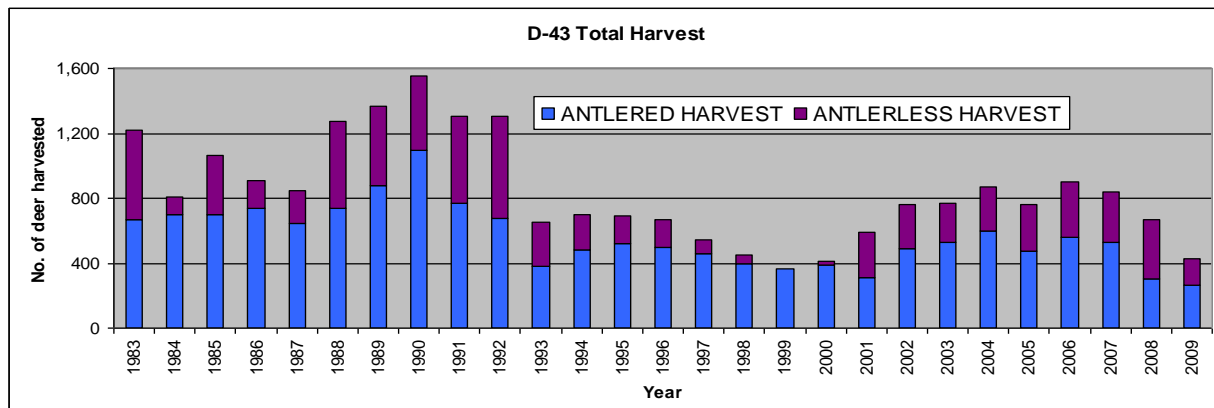
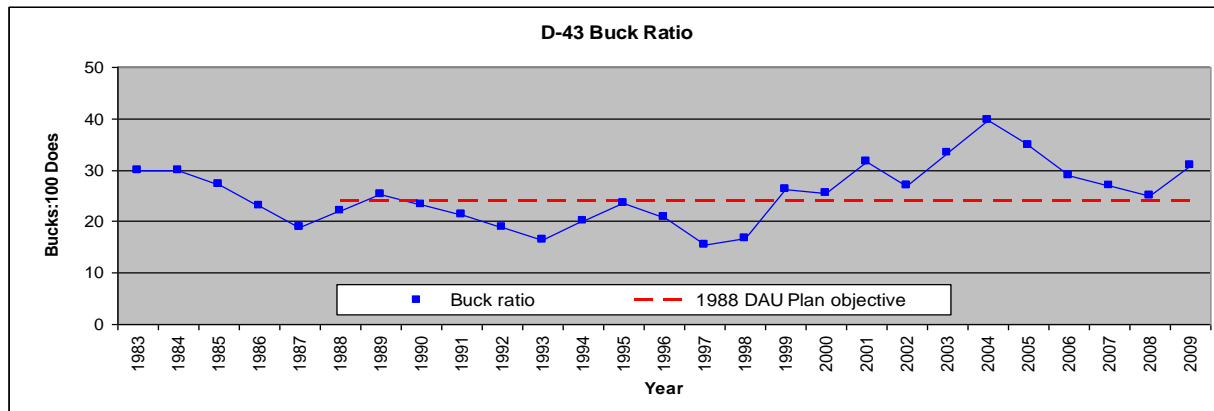
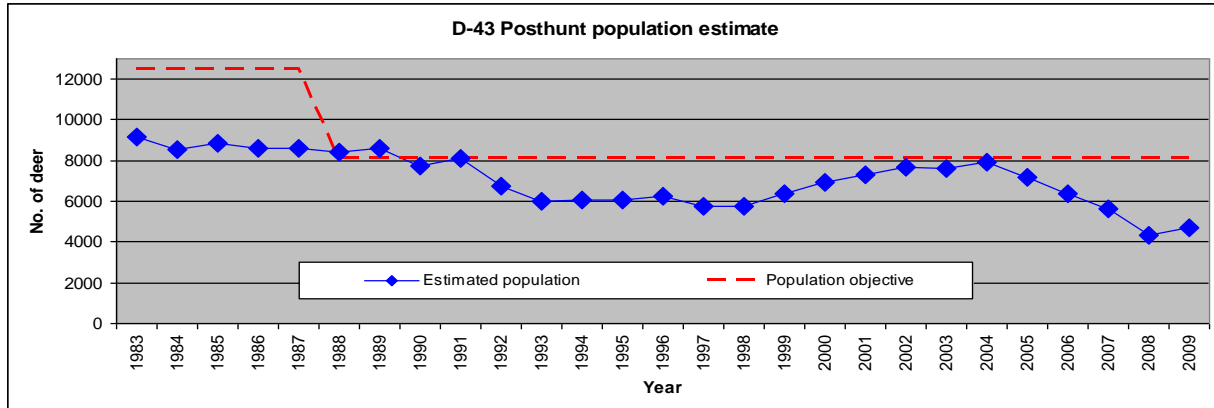
Previous (1988 DAU Plan) Population Objective: 8,100 deer

Current (2011 DAU Plan) Population Objective: 5,000-6,000 deer

Current Sex Ratio Estimate: 30 bucks/100 does (5-year average 2005-2009)

Previous (1988 DAU Plan) Sex Ratio Objective: 24 bucks/100does

Current (2011 DAU Plan) Sex Ratio Objective: 28-32 bucks/100 does



Background

The Sweetwater deer herd (Data Analysis Unit [“DAU”] D-43) is located in northwest Colorado and consists of Game Management Units (GMUs) 25, 26, and 34, and is located in Garfield, Eagle, and Routt counties. The DAU extends from the southeast portion of the Flat Tops Wilderness Area to the Colorado River. Glenwood Springs is the major town in the DAU. Some of the smaller towns within and adjacent to the DAU include Dotsero, Burns, McCoy, and Toponas.

During most of the 1980s the population objective was 12,500 deer. In 1988, the Colorado Division of Wildlife (CDOW) lowered the population objective to 8,100 deer. Since that time, however, continued degradation of habitat quality has resulted in a deer population objective that likely exceeds the available habitat carrying capacity. The current (2009) population estimate is 4,700 deer. Maintaining the population at a lower density may result in less competition among deer and between deer and elk, improved habitat condition, better body condition, higher recruitment of fawns, increased population growth rate, and thus more opportunity for hunter harvest.

Since the deer harvest became totally limited in 1999, a higher buck ratio has now been achievable and has averaged 30 bucks:100 does over the past 5 years.

Significant Issues

Unfavorable winter range conditions: The condition of habitat on deer winter range has deteriorated over the past several decades. Fire suppression and other current and historic ecological processes have led to over-mature and stunted browse plants. Piñon and juniper have encroached into sagebrush shrublands. Invasive weeds also reduce and replace native understory forage. With diminished habitat quality, the range is not able to support as many mule deer as it could in the past.

Competition with elk: The elk population overlapping with D-43 is larger than it was 50+ years ago and may be out-competing mule deer for forage and space.

Land development in winter range: Winter range is considered the most limiting factor for deer in this DAU, as with deer throughout the state. A substantial portion (39%) of deer winter range in D-43 is private lands, with only 1% protected under conservation easement. Management of winter range habitat for the benefit of deer and other wildlife therefore depends on the interests and ability of private landowners. At present, development of private lands into residential housing has been minimal relative to surrounding DAUs. However, some developments along the Colorado River Road and near McCoy have recently occurred. Because of proximity to communities along Interstate-70 and Steamboat Springs, there is a high potential risk of future development of private lands that currently function as important mule deer winter habitat.

Management Alternatives

In the DAU planning process for D-43, we considered 3 alternatives for post-hunt population size objective and 3 alternatives for the post-hunt buck:doe ratio objective.

Population Objective Alternatives

- Alternative 1: 4,000-5,000 deer:

This alternative would result in a slight decrease in the population size or would maintain a status quo (-15% to +6% change) relative to current (2009) post-hunt population estimate of 4,700 deer. At this population level, deer should have higher reproductive success and should be able to withstand and rebound from higher mortality from winter kill, harvest, and other sources. However, the total number of bucks would be lower because there would be fewer total deer in the population. This option would manage for lower population density and higher hunting opportunity.

- **Alternative 2: 5,000-6,000 deer: Selected**

This alternative would maintain or slightly increase (+6 to +28%) the current population size of this herd. The herd's reproductive potential, resiliency to mortality factors, deer hunting opportunity, harvest success rates, and economic impact would be intermediate under this alternative compared to Alternatives 1 and 3.

- Alternative 3: 6,000-7,000 deer:

This alternative would increase the current population size by 28% to 38%. This population level probably is at the upper end of what is achievable and sustainable long-term while still maintaining adequate hunting opportunity. There would be more competition among deer at this higher population density. The population size may fluctuate more in response to severe weather conditions and may be slower to recover following a harsh winter. There would be fewer antlerless licenses in order to maintain the population at a higher level, but also there would be more bucks on the landscape, so it could be easier to maintain a higher buck ratio.

Sex Ratio Objective Alternatives

- Alternative 1: 24-28 bucks per 100 does:

This alternative would reduce the current observed sex ratio by 7% to 20%, and would primarily focus on providing hunting opportunity.

- **Alternative 2: 28-32 bucks per 100 does: Selected**

This alternative would maintain the sex ratio at the current level of about 30 bucks per 100 does. The buck ratio would be managed for a balance between quality buck hunting and opportunity to draw a buck license.

- Alternative 3: 32-36 bucks per 100 does:

This alternative would increase the current observed sex ratio by 7% to 20%. The goal would be to produce high quality bucks, but would limit hunting opportunity.

CDOW Recommended Objectives

Selected Population Objective

The selected post-hunt population objective of 5,000-6,000 deer is a 6-28% increase from the 2009 post-hunt population estimate of 4,700 deer, a 9-24% decrease from the 10-year average population estimate of 6,600 deer, and a 26-38% decrease from the previous objective of 8,100 deer.

Population estimates indicate that the previous population objective of 8,100 has not been sustainable over the past 2 decades, nor is it a practical long-term objective given the multitude of mule deer habitat issues in the DAU. Although it may be possible to achieve a higher population for a short time under certain ideal environmental conditions (e.g. a series of mild winters combined with moderate moisture in the summertime), being able to hold a population at a high density long-term is unlikely. The occasional severe weather event, such as high snowfall, freezing rain, or several years of drought, can combine with density-dependent competition and mortality (including predation and hunting) to yield low fawn survival and sometimes reduced adult survival. A population managed at a high density has a lower growth rate than a population at an intermediate density and will experience wider population fluctuations in response to changes in weather, harvest, and other mortality factors. License numbers and hunting opportunity would likewise fluctuate more widely in response to population size.

Instead, at an intermediate population density, the deer population will have a higher intrinsic growth rate, will rebound more quickly following a severe winter or other extreme weather event, and deer license quotas should likewise be more consistent between years. The general public would like to

see more deer than there currently are, so the selected population objective of 5,000-6,000 deer would aim to increase the current population, but only to a level that is realistically achievable and sustainable.

Habitat improvement and protection will facilitate an increase from the current population size. Existing winter range habitat should be treated to rejuvenate browse plants and any habitat loss due to land development should be mitigated with habitat improvements elsewhere. Timing restrictions on recreation activities during fawning and early summer should be implemented and/or enforced.

In the immediate future, antlerless licenses will likely remain at their currently low quota until the new population objective is reached. At that point, antlerless licenses could be increased to stabilize the population within the new objective range. Having some level of antlerless harvest is useful for maintaining a population at an intermediate density, at which deer body condition, fawn production, and survival rates are generally highest.

Selected Sex Ratio Objective

The selected sex ratio of 28-32 bucks:100 does would maintain the current 5-year and 10-year average buck ratio of 30 bucks:100 does, and would be an increase of 17-33% over the previous objective of 23 bucks:100 does.

Prior to 1999, it was not practical to attempt to increase the sex ratio above a range of 15-25 bucks:100 does. After 1999, deer hunting in this DAU was changed to totally limited licenses and the number of buck licenses and the amount of the buck harvest could be controlled. Public opinion surveys have indicated that most hunters want both the opportunity to hunt every year and to see more and larger bucks. Maintaining the ratio at 28-32 bucks:100 does will strike a balance between buck hunting opportunity and quality of bucks. The number of buck licenses available each year would likely remain the same initially, and as the overall population increases, buck licenses could be increased to maintain the currently observed sex ratio.

This plan was approved by the Colorado Wildlife Commission on March 10, 2011.

II. Introduction and Purpose

Introduction

The purpose of a Data Analysis Unit (DAU) plan is to give the Colorado Division of Wildlife (CDOW) direction in managing a big game species in a given geographical area. It identifies suitable habitat, gives the herd history and current status, and identifies issues and problems. Key features of a DAU plan are the herd size and herd composition objectives, which are developed after considering input from all interested entities. CDOW intends to update these plans as new information and data become available, at least once every ten years.

DAU Plans and Wildlife Management by Objectives

The Colorado Division of Wildlife manages wildlife for the use, benefit, and enjoyment of the people of the state in accordance with CDOW's Strategic Plan and mandates from the Colorado 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, CDOW uses a "management by objective" approach (Figure 1). Big game populations are managed to achieve population and sex ratio objectives established for Data Analysis Units.

DAUs provide the framework to manage individual herds of big game animals. DAUs are generally discrete geographically, and attempt to identify a distinct big game population. However, individual animal movements may at times straddle or encompass more than one DAU. While DAU boundaries are administrative, they represent the best way to encompass the majority of a herd within a biological area, and allow the most practical application of management tools such as hunting to reach objectives. DAUs are typically composed of smaller areas designated as game management units (GMUs), which provide a more practical framework where the management goals can be refined and applied on a finer scale, typically through hunting regulations.

The DAU plan process is designed to balance public demands, habitat capabilities, and herd capabilities into a management scheme for the individual herd. The public, hunters, federal land use agencies, landowners, and agricultural interests are involved in the determination of the plan objectives through input given during public meetings, the opportunity to comment on draft plans, and when final review is undertaken by the Colorado Wildlife Commission.

The objectives defined in the plan guide a long-term cycle of information collection, information analysis, and decision making. The end product of this process is a recommendation for numbers of hunting licenses for the herd. A DAU plan addresses two primary goals: the number of animals the DAU should contain and the sex ratio of those animals expressed as males:100 females. The plan also specifically outlines the management techniques that will be used to reach desired objectives. CDOW attempts to review and update the DAU plans on a 5-10 year basis to align the management objectives with the changing environmental, social,

economic, and political conditions that affect Colorado’s big game herds. Changes in land development, public attitudes, hunter success, hunter access, research results, disease prevalence, and game damage may all contribute new information needed when reviewing or revising a DAU plan. CDOW strives to maintain a tight link between the inclusion of the public in the development of population objectives and the yearly iteration of data collection, analysis, and renewed decision-making to reach those objectives.

Individual DAUs are managed with the goal of meeting herd objectives. Herd data, which is typically collected annually, is entered into a computer population model to get a population projection. The parameters that go into the model include harvest data from hunter surveys, sex and age composition of the herd gathered by field surveys, and mortality factors such as wounding loss and winter severity, generally acquired from field observations. Roadkilled animals can also contribute to overall mortality and should be incorporated into the model, but at present, this data has not been compiled. The resultant computer population projection is then compared to the herd objective, and a harvest calculated to align the population with the herd objective.

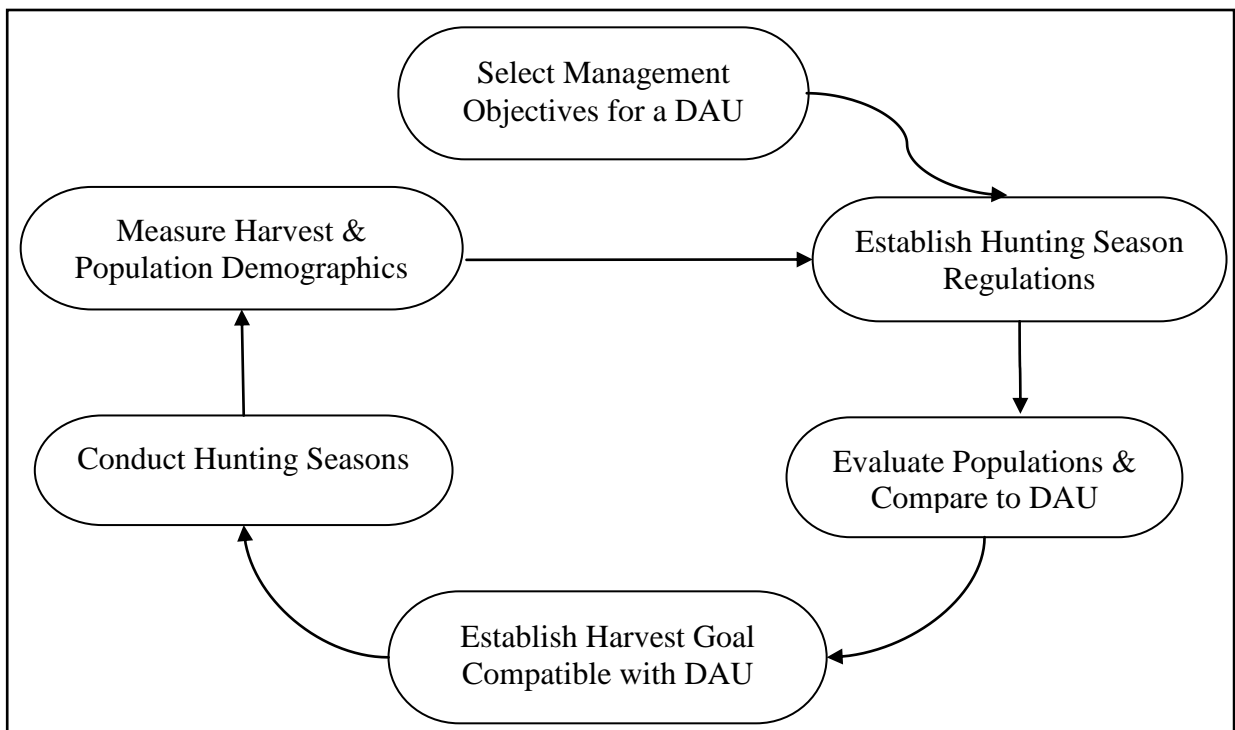
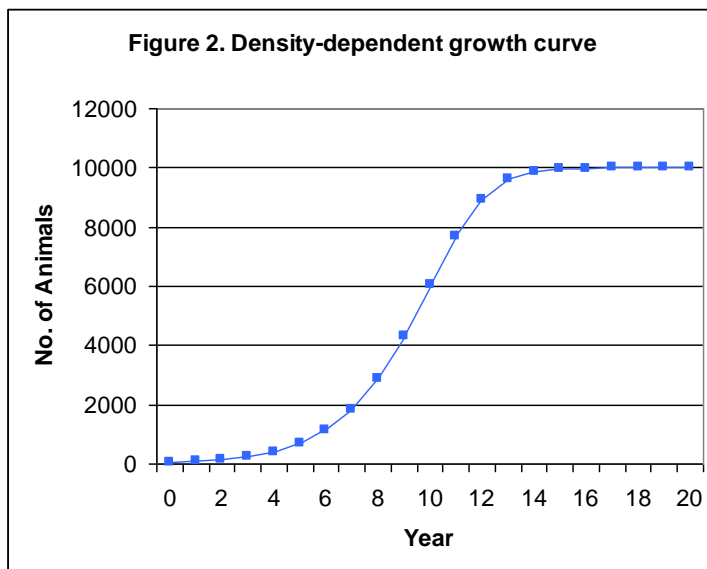


Figure 1. Management by objective process that CDOW uses to manage big game populations on a DAU basis.

Population Dynamics and Managing for Maximum Sustained Yield

Numerous studies of animal populations, including such species as bacteria, mice, rabbits and white-tailed deer, have shown that the populations grow in a mathematical relationship referred to as the "density-dependent" or "sigmoid" growth curve (Figure 2). There are three distinct phases to this cycle. The first phase occurs while the population level is still very low and is characterized by a slow growth rate and a high mortality rate. This occurs because the populations may have too few animals and the loss of even a few of them to predation or accidents can significantly affect population growth.

The second phase occurs when the population number is at a moderate level. This phase is characterized by high reproductive and survival rates. During this phase, food, cover, water and space (habitat) are not a limiting factor. Also, during this phase, animals such as white-tailed deer have been known to successfully breed at six months of age and produce a live fawn on their first birthday and older does have been known to produce 3-4 fawns that are very robust and healthy. Survival rates of all the deer (bucks, does and fawns) are at maximum rates during this phase.



The final or third phase occurs when the habitat becomes too crowded or habitat conditions become less favorable. During this phase the quantity and quality of food, water, cover and space become scarce due to the competition with other members of the population. These types of factors that increasingly limit productivity and survival at higher population densities are known as density-dependent effects. During this phase white-tailed deer fawns can no longer find enough food to grow to achieve a critical minimum weight that allows them to reproduce; adult does will usually only produce 1-

3 fawns; and survival of all deer (bucks, does and fawns) will decrease. During severe winters, large die-offs can occur due to the crowding and lack of food. The first to die during these situations are fawns, then bucks, followed by adult does. Severe winters affect the future buck to doe ratios by favoring more does and fewer bucks in the population. Also, because the quality of a buck's antlers is somewhat dependent upon the quantity and quality of his diet, the antlers are stunted. If the population continues to grow it will eventually reach a point called the maximum carrying capacity or "K". At this point, the population reaches an "equilibrium" with the habitat. The number of births each year is equal the number of deaths; therefore, to maintain the population at this level would not allow for any "hunnable surplus." The animals in the population would be in relatively poor condition and when a severe winter or other catastrophic event occurs, a large die-off is inevitable.

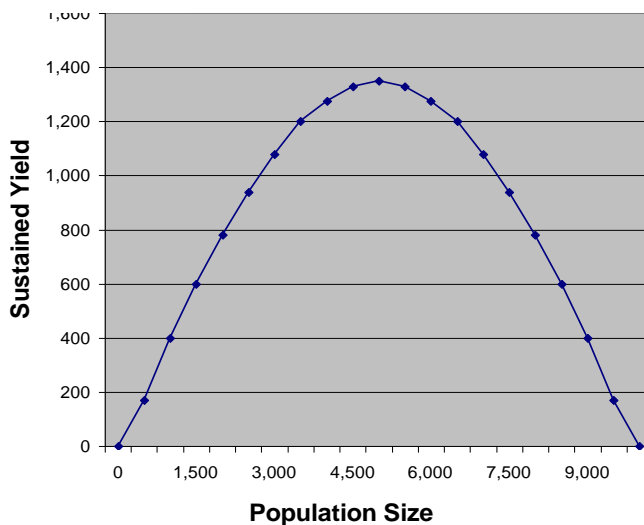
What does all this mean to the management of Colorado's big game herds? It means that if we attempt to manage for healthy big game herds that are being limited by density-dependent effects, we should attempt to hold the populations more towards the middle of the "sigmoid growth curve." Biologists call this point of inflection of the sigmoid growth curve the point of maximum sustained yield or "MSY". In the example below, MSY, which is approximately half the maximum population size or "K", would be 5,000 animals. At this level, the population should provide the maximum production, survival and available surplus animals for hunter harvest. Also, at this level, range condition should be good to excellent and range trend should be stable to improving. Game damage problems should not be significant and economic return to the local and state economy should be high. This population level should produce a "win - win" situation to balance sportsmen and private landowner concerns.

A graph of a hypothetical deer population showing sustained yield (harvest) potential vs. population size is shown (Figure 3). Notice that as the population increases from 0 to 5,000 deer, the harvest also increases. However, when the population reaches 5,000 or "MSY", food, water and cover becomes scarce and the harvest potential decreases. Finally, when the population reaches the maximum carrying capacity or "K" (10,000 deer in this example), the harvest potential will be reduced to zero. Also, notice that it is possible to harvest exactly the same number of deer each year with 3,000 or 7,000 deer in the population. This phenomenon occurs because the population of 3,000 deer has a much higher survival and reproductive rate compared to the population of 7,000 deer. However, at the 3,000 deer level, there will be less game damage and resource degradation but lower watchable wildlife values.

Actually managing deer and elk populations for MSY on a DAU basis is difficult if not impossible due to the amount of detailed information required and because of the complex and dynamic nature of the environment. In most cases we would not desire true MSY management even if possible because the number and quality of bulls and bucks is minimized. However, the concept of MSY is useful for

understanding how reducing densities and pushing asymptotic populations towards the inflection point can stimulate productivity and increase harvest yields. Knowing the exact point of MSY is not necessary if the goal is to conservatively reduce population size to increase yield. Long term harvest data can be used to gauge the effectiveness of reduced population size on harvest yield.

Figure 3. Maximum Sustained Yield



Commonly CDOW eliminates female harvest in populations where productivity is low and populations are below DAU plan objectives. However, this “hands-off” type of management simply exacerbates and perpetuates the problem the DAU plan was intended to address. As Bartmann et al. (1992) suggest, because of density-dependent processes, it would be counterproductive to reduce female harvest when juvenile survival is low and increase harvest when survival is high. Instead, a moderate level of female harvest helps to maintain the population below habitat carrying capacity and should result in improved survival and recruitment of fawns.

III. Description of the Data Analysis Unit

Location

The Sweetwater Creek DAU (D-43) is located in northwest Colorado and consists of GMUs 25, 26 & 34 (Figure 4). It is bounded on the east and south by the Colorado River, on the west by Canyon Creek, the Colorado - White River Divide and USFS Trail 1817 and on the north by Highway 131 and the Bear River.

The DAU contains portions of Garfield, Eagle, and Routt counties. The DAU contains all of Mitchell, No Name, Grizzly, Deep, Sweetwater, Derby and Egeria Creeks and the south side of the Bear River. The Flat Tops Wilderness Area is located in the higher elevations of the DAU in the NW corner and comprises 13% of the DAU. There is only one major town in the DAU - Glenwood Springs (pop. 9,000). Some of the smaller towns and areas include Dotsero, Burns, McCoy and Toponas. Interstate-70, Colorado River Road, Coffee Pot Road, and Derby Mesa Loop Road are the major access routes in the DAU.

Physiography

Topography

The DAU lies on the lee-side of the Flat Tops Wilderness Area. The elevation ranges from a high of 12,241 ft. on top of Sheep Mountain to a low elevation of 5,620 ft. at the confluence of the Colorado River at Canyon Creek. Other high peaks include Turret Peak (11,525 ft.), Derby Peak (12,186 ft.) and Dome Peak (12,172 Ft.).

Climate

Lower elevations of the DAU are characterized by moderate winters and warm summers with low to moderate precipitation. The higher elevations are characterized by long, cold winters and short mild summers with high precipitation. The higher elevation around Deep Lake can receive over 30 in. of precipitation while the lower elevation around Dotsero average only 10 in. of moisture per year. Prevailing winds for this area are typically out of the northwest. Most of the annual precipitation comes from snowfall. Temperature can vary from a low of -40° F in the winter to a high of >100°F in the summer. The largest extremes occur in the lower elevations where the coldest air settles in the winter, the same areas where the temperatures are the hottest

in the summer. Deep snow forces deer and elk to winter in the lower elevation, usually on south facing or wind-blown slopes where less snow accumulates.

Vegetation

The vegetation in the Sweetwater DAU can be categorized as five broad types -- cropland, wetland/riparian, rangeland, forestland and alpine.

Croplands are found at the lower elevations and consist of irrigated hay meadows and terraces that have been re-seeded to desirable livestock forage plants. Most of the hay ground consists of Timothy, Smooth Broome, and American Sloughgrass with some sedges and rushes. Some hay meadows are planted with alfalfa. Most of the cropland is found along the Colorado River north of Dotsero, in Sweetwater Creek, in the Burns/Derby Creek area, and in the Egeria Creek/Bear River area near Toponas.

Wetland/riparian vegetation is found primarily along the river bottoms and low land areas. Some of the best riparian habitat is along the Colorado River between the towns of McCoy and Dotsero. Narrowleaf Cottonwood and willow dominate this area. The riparian habitat is one of the smallest vegetative types in the DAU but it is extremely valuable as wildlife habitat. Typically, riparian areas support the greatest abundance and diversity of wildlife in the state.

Rangelands consist of sagebrush, mountain shrub and native grasslands. The sagebrush type occurs on the lower-elevation dry and level sites that are well-drained. These areas are highly valued as deer winter range. Mountain shrub types are found on the moister sites of the lower elevation primarily on northern slopes. This plant community provides important wildlife food and cover and is very important as transitional range for mule deer. Transitional ranges are the areas that deer use primarily in the spring and fall while they are migrating to summer and winter ranges, respectively. Gambel oak, mountain mahogany and serviceberry are the three main species that make up the mountain shrub type. Native grasslands are found in two different areas. Low-elevation grasslands occur on windswept sites with poorly developed soils that cannot support sagebrush. Higher elevation grasslands occur on the more level sites in forested areas and are comprised of large bunchgrasses such as Thurber's fescue, wild rye, needlegrass and brome grasses.

Forestlands in the DAU are comprised of five major types – piñon/juniper, Douglas-fir, aspen, Lodgepole pine and spruce-fir:

- Piñon/juniper (P-J) is found on the dry, lower-elevation slopes such as the area just north of Glenwood Springs and immediately above the Colorado River. P-J provides important cover and low quality forage for wintering deer.

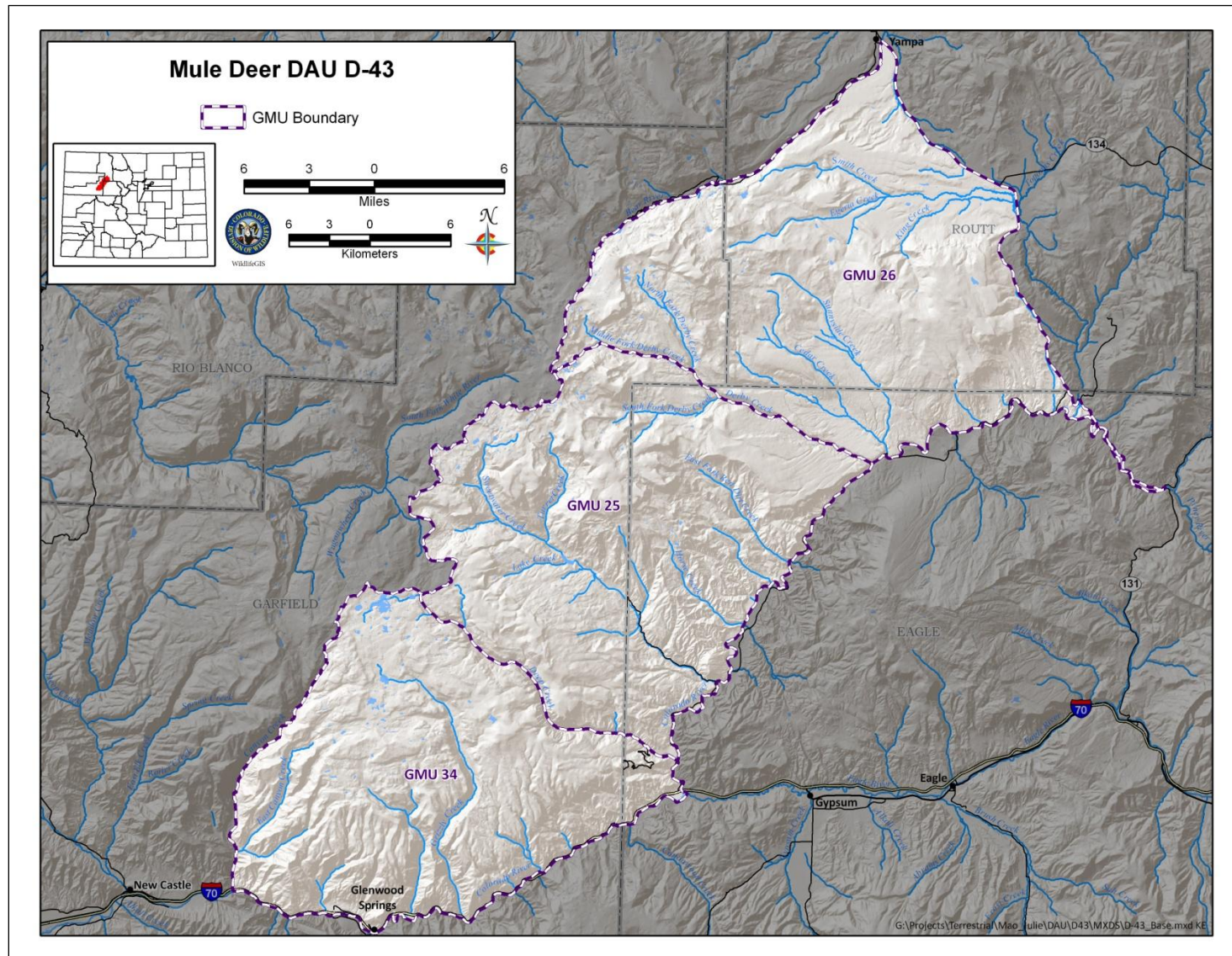


Figure 4. Location of DAW D-43.

- Douglas-fir typically occurs on the moist north-facing slopes at lower elevations. It is a long-lived species valued for wildlife habitat diversity, scenic value and big game cover. This type is well-represented in the lower reaches of Deep Creek.
- Aspen is found in the moderate to higher elevation zone of the DAU. This habitat type provides some very high quality forage and cover for deer and elk. On some sites aspen is the climax species; on other sites it is a transitional species that occurs for only a relatively short period of time after a disturbance, such as fire. This type occurs throughout the DAU but is commonly found in the area above Derby Mesa and in the Deep Lake area.
- Lodgepole pine is found in the moderate to higher elevation sites. It provides good cover for deer and elk but usually has a very poor understory so typically it is not suitable for forage sites. The type occurs in the King Mountain area.
- Spruce-fir occurs in the higher elevations, usually from 10,000 ft. to the alpine. This habitat provides excellent summer cover for deer and elk. This type is found in the Flat Tops Wilderness and Deep Lake area.
- Ponderosa pine and limber pine forest types also occur to a lesser extent in this area. There is a rather large remnant stand of Ponderosa Pine in the Derby Mesa area.

Alpine sites occur only in the highest elevations, mostly in the Flat Tops Wilderness Area of the DAU, usually above 11,000 ft. It is characterized by the absence of trees. Short grasses, sedges, and numerous species of forbs make up the vegetation. This habitat provides high quality deer forage areas primarily from July through early September and provides a refuge area away from flies and other biting insects in the lower elevation forests.

Slope and aspect play a large role in determining vegetation type. For example some higher elevation sites with a southern exposure are dominated by sagebrush while the lower elevation areas with a more northern exposure can support aspen and coniferous forests due to the high moisture retention of the soils. This variation of vegetation types scattered throughout the DAU creates a highly desirable mosaic, with a large beneficial "edge effect" that is desirable for wildlife such as mule deer.

Land Status

Land Management

The Sweetwater Creek DAU is 1,723 km² (665 mi²) in size (Table 1 and Figure 5). Land management is distributed as follows: 52% National Forest Service; 26% private land; 21% Bureau of Land Management; and <1% each for State Land Board, Colorado Division of Wildlife, and Eagle Valley Land Trust (Table 1).

Table 1. Area (square kilometers) of land status in deer DAU D-43. $1 \text{ km}^2 = 0.386 \text{ mi}^2 = 247 \text{ acres}$.

	USFS	BLM	CDOW	State Land Board	Land Trust	Private	Total
GMU 25	353	148	0	0	0	100	601
GMU 26	185	117	8.9	8	0	303	622
GMU 34	366	93	0.2	0	0.2	40	500
TOTAL	904	358	9.1	8	0.2	443	1,723
% of DAU	52%	21%	0.53%	0.48%	0.01%	26%	100%

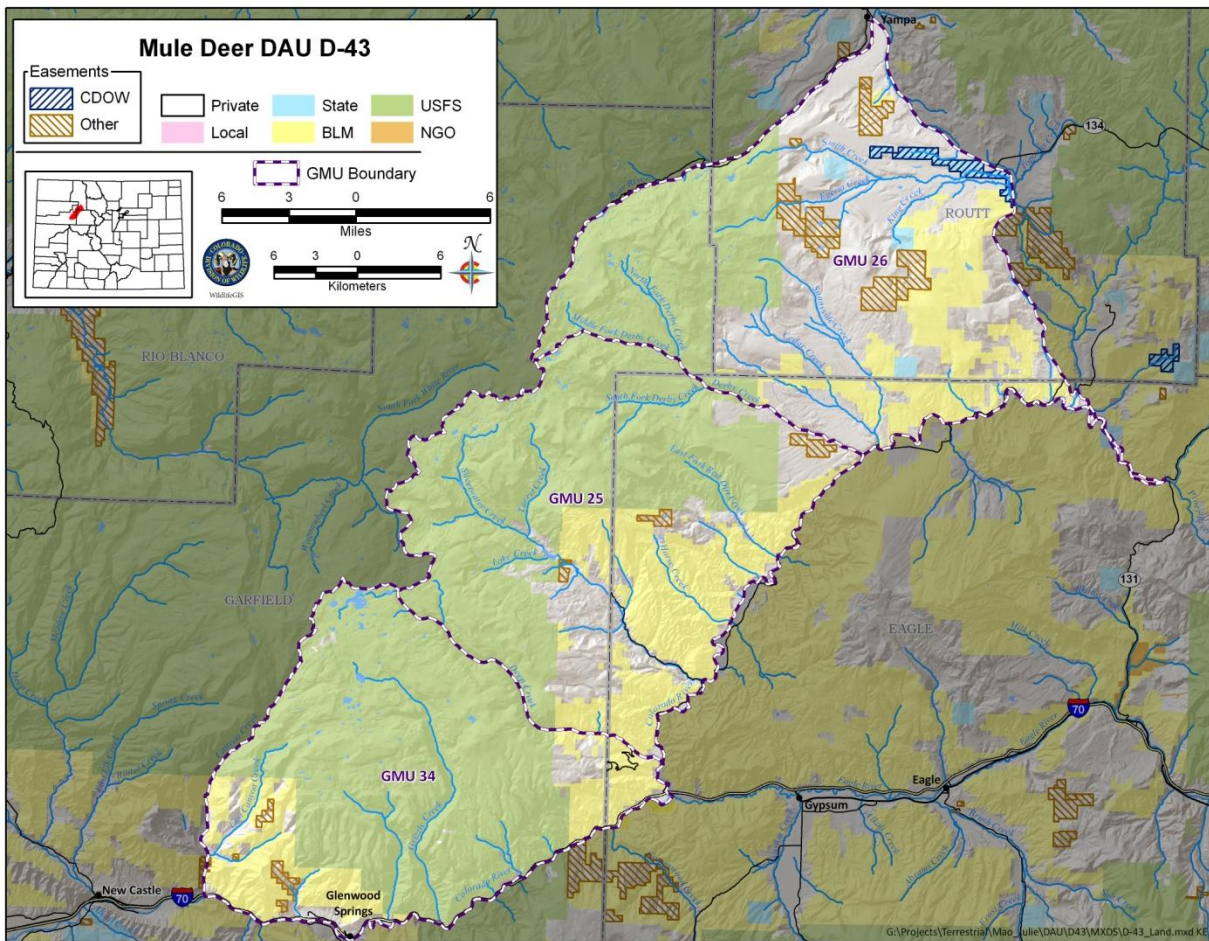


Figure 5. Land status in deer DAU D-43.

Land Use

Land use is varied and diverse in Sweetwater Creek DAU. The main industries are tourism, outdoor recreation (hunting, fishing, and sight seeing), ranching and logging. Ranching is an important industry in the Sweetwater DAU and is concentrated around the Burns to Toponas area. The main crops raised are hay and cattle. Most of the logging occurred in the 1990s in the Deep Lake/South Wagon Wheel/White Owl area in GMU 34, removing beetle-

killed spruce that died-off during the 1950s. Limited mining occurs in the DAU from a limestone quarry north of Glenwood Springs.

There are several major tourist attractions in the Sweetwater DAU. The main attraction is the Hot Springs pool in Glenwood Springs that can have over 1,000 visitors in a single day. The local economy in Glenwood Springs revolves around the tourist trade and serves as a portal to the large ski area and four-season resort complex in the Roaring Fork Valley. Each year approximately one million visitors come to Glenwood Springs. Interstate-70 through Glenwood Canyon provides a main conduit for tourist from the densely populated eastern slope of the state and Glenwood Canyon is a major tourist attraction itself. The twenty-five mile canyon has a bike path that parallels the highway. There are four rest stops - Grizzly Creek, No Name Creek, Hanging Lake/Shoshone Dam and the Bair ranch.

Hunting and fishing generate substantial economic revenue (Pickton and Sikorowski 2004). Hunters can pursue deer, elk, bighorn sheep, bear, mountain lion, blue grouse, ducks and geese. Fishing opportunities are provided in the area's numerous small streams and several high country lakes and reservoirs. Deep Lake and Sweetwater Lake are two of the more popular areas for fishing. The DAU includes portions of the White River National Forest and the Flat Tops Wilderness Area. The National Forest provides numerous areas for hiking, four-wheeling, hunting, fishing, horseback riding, snowmobiling, wilderness trips and general sightseeing.

Public Land Grazing

BLM Grazing Allotments - The Bureau of Land Management has 42 grazing allotments overlapping entirely or partially with DAU D-43 (Appendix A). Presently 33 of these are filled, primarily for cattle (86%) as well as sheep (14%) and horse (<0.1%). The grazing allotments provide 4,593 AUMs of forage for livestock. Use occurs primarily in the spring with some use in the summer and fall.

USFS Grazing Allotments - The National Forest Service has 23 grazing allotments occurring totally or partially in DAU D-43 (Appendix B). Based on 2008 data, 12 of these allotments are active, 1 is held as a forage reserve, 4 are vacant, and 6 are closed. The period of utilization is variable, but primarily occurs from late June through September (summer and fall season). Classes of livestock using these allotments include cattle, sheep, and horses.

Comparison of Wildlife and Livestock AUMs – This analysis is based upon 2009 posthunt population size estimates and 2010 public land grazing levels.

Deer AUM's* - 5,700 (4,700 deer/9.9 Deer mon./AUM X 12 mon. = yr. tot.)

Elk AUM's* – 20,000 (4,160 elk/2.5 elk mon./AUM X 12 mon. = yearly. total)

USFS Livestock AUM's – [data not presently available] (authorized use - yearly total)

BLM Livestock AUM's - 4,593 (authorized use - yearly total)

* It is important to note that most of the deer and elk are not consuming a full AUM equivalent in the winter (November – March). Instead, these animals are mostly surviving on stored fat reserves. Therefore these 12 month figures are inflated and in reality would be much lower.

Private Land Livestock AUM's - unknown

IV. Habitat Resource

Habitat Distribution

The distribution of mule deer winter and overall ranges between public and private lands in the DAU are shown in Table 2.

The lower elevations that deer use as winter range comprise 29% (502 km²; 194 mi²) of the DAU's total area. Of this winter range, 61% are on public lands, 1% is on conservation easements on private land, and 38% are on private lands without conservation easements. Because a large portion of winter range is on private lands and is therefore susceptible to future land development, conservation easements on private lands along with continued stewardship of public lands are critical.

Overall mule deer range in D-43 is 74% public lands, 2% on conservation easements, and 23% on private lands without specific conservation protection.

Table 2. Distribution of mule deer winter range and overall range between public and private lands in DAU D-43. 1 km² = 0.386 mi² = 247 acres.

Range	Public Lands		Private Lands under Conservation Easements (CE)		Private Lands without CEs		Total km ²	% of Overall range
	km ²	% of range	km ²	% of range	km ²	% of range		
Winter range	305	61%	6	1%	191	38%	502	29%
Overall range	1,279	74%	41	2%	403	23%	1,723	100%

Major wintering areas for deer include: King Mountain to Derby Mesa in GMU 26, Sweetwater Creek and Onion/Monegar Ridges in GMU 25, and Deep Creek/Lower Coffee Pot Road in GMU 34 (Figure 6).

DAU D-43 contains 322 km² (124 mi²) of severe winter range (Figure 6). Severe winter range is defined as that part of the overall range where 90% of the individuals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten.

There are 40 km² (15 mi²) of winter concentration areas (Figure 6). Winter concentration areas are defined as those parts of the winter range where densities are ≥200% greater than the surrounding winter range density during the same period used to define winter range in the average five winters out of ten.

Habitat Condition and Capability

Mule deer winter range in D-43 is in poor condition due to senescence and succession of plant communities. Browse seedlings and young plants are sparse and in many areas, the grass/forb understory is sparse and lacks diversity. Piñon and juniper stands tend to be mature with a closed canopy that severely reduces understory vegetation. Due to long-term fire

suppression, piñon and juniper woodlands have invaded sagebrush shrublands and converted them to much less productive sites. Also, many of the mixed mountain shrublands are over-mature, less productive, and can be unavailable for winter browse use. Although the BLM's land health assessments of Deep Creek (BLM 2006) and Burns to State Bridge (BLM 2009) rated the habitat condition at the landscape scale as meeting land health standards, all of the above-mentioned habitat problems were noted in localized areas on deer winter range. Land development in some areas in the DAU such as Sweetwater Creek and along the Colorado has resulted in concern about the use of prescribed burns on the adjacent public lands for fear of fire getting out of control and destroying private property.

Heavy livestock grazing, in combination with drought, occurred on many rangeland areas in D-13 from the late 1800's to the 1960's. Prior to the Taylor Grazing Act of 1934, grazing was not regulated on public lands. Modern-day range management practices were not widely applied prior to the 1960s. During this earlier period, many big game winter ranges were grazed excessively. Range degradation from this period is still apparent in D-13 due to the long lifespan and low turnover rate of many shrubland communities. In some cases, damage to riparian areas has been long-term. In other cases, inappropriate grazing has caused some sagebrush habitats to have a higher shrub canopy density than can be achieved under more natural conditions. When the canopy density exceeds 20-25%, the understory plants are greatly reduced, making natural fire much less likely to burn these areas and return the landscape to a more natural and desirable mosaic. Since the late 1960's the BLM and U. S. Forest Service have developed improved grazing management plans that have addressed much of the historic livestock problems. Also, due to the general decline in agriculture in the area, there is much less public land grazing today compared to 40 years ago.

Another complicating factor at lower elevations (below 7,500 feet) is the presence of fire-tolerant invasive weeds such as cheatgrass (*Bromus tectorum*). Soil-disturbing habitat treatments and prescribed fire meant to rejuvenate native plants could actually promote the growth and spread of cheatgrass and other pioneering weeds (B. Hopkins, BLM, pers. comm. 2010). Cheatgrass outcompetes native grasses to form a monoculture in the vegetation understory and also increases wildfire frequency, and has been particularly detrimental to mule deer habitats in Nevada, Idaho, and Utah (Cox et al. 2009). In those states, large expanses on the order of hundreds of thousands of acres of sagebrush/steppe habitat, totaling over 12 million acres (5 million hectares) have been lost due to cheatgrass (Cox et al. 2009). Cheatgrass in D-43 is currently found primarily at the lowest elevations along the Glenwood Canyon and other isolated disturbed sites (e.g., along powerlines), but remains a potential risk to overall mule deer habitat and populations.

A multitude of habitat improvement projects, including prescribed burns, removal of piñon-juniper encroachments, improvement of sagebrush and mountain shrub habitats, re-seeding, fertilization, and aeration, have been conducted or are on-going (Table 3). Various government agencies and private organizations have contributed to these projects. Due to the loss of important deer winter range throughout Colorado, the continued preservation and improvement of existing habitat is paramount.

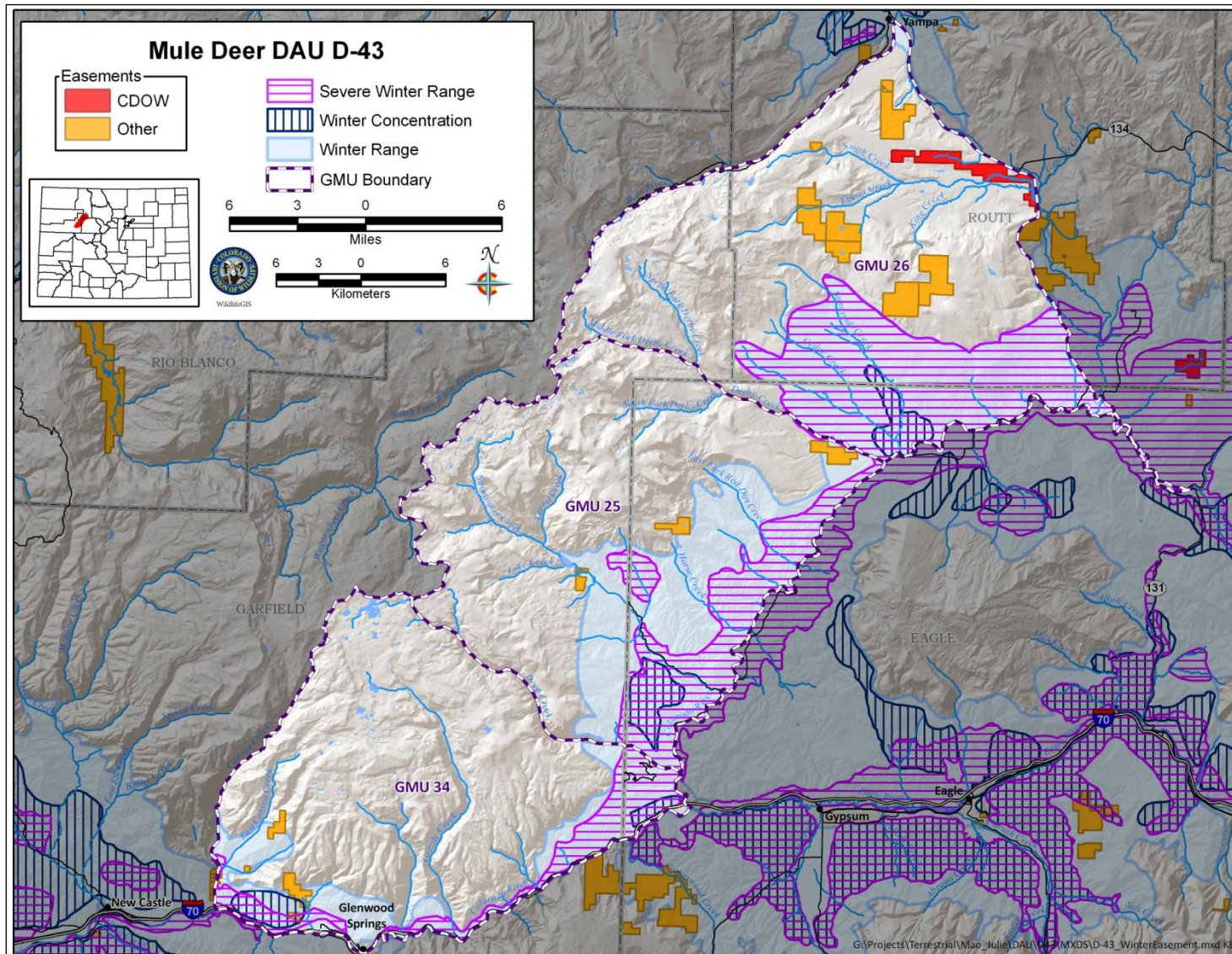


Figure 6. Mule deer winter range and conservation easements in deer DAW D-43.

Table 3. Habitat improvement projects in D-43 since 1988.

Dates	Location	Acres	Treatment Type	Agency or Organization(s)	Cost
Past and ongoing projects:					
1988-present	Flat Tops	1000	Spot invasive weed treatments	USFS	\$3,000
2005-2007	Derby Mesa	296	Juniper removal	USFS, Rocky Mountain Elk Foundation (RMEF)	\$44,000
2005-2009	French Creek	3207	Prescribed burning	USFS	\$80,175
2006-2007	Sunnyside	111	Lop and scatter P-J	BLM	\$3,000
2007	Derby Mesa	91	Prescribed burning	USFS	\$1,638
2007	Derby Mesa, Coffee Pot, French Creek	30	Invasive plant treatment (chemical)	USFS, RMEF	\$3,700
2008	French Creek	94	Juniper removal	USFS	\$9,682
2008	Sweetwater Lake	222	Prescribed Fire	BLM	\$10,000
2008-2009	Sweetwater	1335	Prescribed burning	USFS	\$40,050
2009-2010	Sunnyside	167	P-J mechanical removal	CDOW, Nottingham ranch	\$23,550
2010	Glenwood Canyon	1	Invasive plant treatment (chemical)	USFS	\$300
Future scheduled projects:					
2011-2014	Sweetwater Ranch WUI	25	Hydro-axe or hand cut/pile oakbrush and P-J	BLM	\$50,000
Future ^a	French Creek	300	Prescribed burning	USFS	TBD
Future ^a	Sweetwater	65	Juniper removal	USFS	TBD
Future ^a	Flat Tops	TBD	Hazard tree removal roads, trails campgrounds	USFS	TBD
Future ^b	Derby and Cedar Creeks	470	Fertilization, seeding, aeration, juniper removal	USFS	TBD

^a = NEPA complete; ^b = NEPA not yet completed; TBD = to be determined.

Conservation Easements

Forty-nine km² (3%) of mule deer overall range in D-43 are held under conservation easements or similar protection, including 40 km² of private lands (Table 2 and Figure 5). These conservation easements include 6 km² (1%) of winter range, all on private lands.

Conflicts

Game damage due to deer is not a major problem in the DAU due to the general decline in livestock and agricultural uses since the 1970s.

There has been some land development for residential use in the DAU, primarily along the Colorado River Road in GMU 25 and on Highway 131 near McCoy. Land development has not been as extensive as in adjacent DAUs along Interstate-70, elsewhere along Highway 131, and near Steamboat Springs. However, because of the proximity to these highly developed areas, there is potential for future subdivision and development of large, private ranches, which would negatively impact mule deer winter range.

Year-round recreation activities along the Coffee Pot Road and Deep Lake in GMU 34 are major impacts on deer, pushing deer into the drainages along the Glenwood Canyon and higher into the Flat Tops Wilderness, as well as onto private land along Sweetwater and Deep Creeks. Elsewhere in the DAU, recreational use outside of the hunting seasons is minimal and does not cause major deer-human conflicts.

IV. Herd Management History

Disclaimer for Population Size Estimate

Estimating population size of wild animals over large geographic areas is a difficult and inexact exercise. In several research projects, attempts have been made to accurately count all the known number of animals in large fenced areas. All of these efforts have failed to consistently count all of the animals. In most cases fewer than 30% of the animals can be observed and counted. Most population estimates are derived using computer model simulations that involve estimations for mortality rates, hunter harvest, wounding loss and annual production. These simulations are then adjusted to align on measured post-hunting season age and sex ratio classification counts and in some cases density estimates derived from line transect and quadrant surveys. It is recommended that the population estimates presented in this document be used only as an index or as trend data and not as an absolute estimate of the deer population in the DAU.

Post-hunt Population Size

CDOW biologists estimate the deer population size in the DAU using a computer modeling process. Starting in the early 1970s, CDOW used a computer modeling program called ONE POP. In the early 1980s, CDOW switched to a personal computer program based program called POP II. After 1999, CDOW has used a computer spreadsheet model to predict population size. In 2008, these spreadsheet models were standardized statewide using modeling methods developed by White and Lubow (2002). For the D-43 model, the biological parameters (i.e., juvenile and adult survival, and wounding loss) for input were constrained to reflect values obtained from field measurement of deer populations in western Colorado (Piceance Basin and Middle Park mule deer survival studies, 1997 – 2008). All models work in basically the same manner, using post-hunt age and sex ratios, harvest, and juvenile and adult survival rates to estimate population size. The best model is selected based on statistical fit to observed data. The results of the modeled population estimates are summarized in Figure 7.

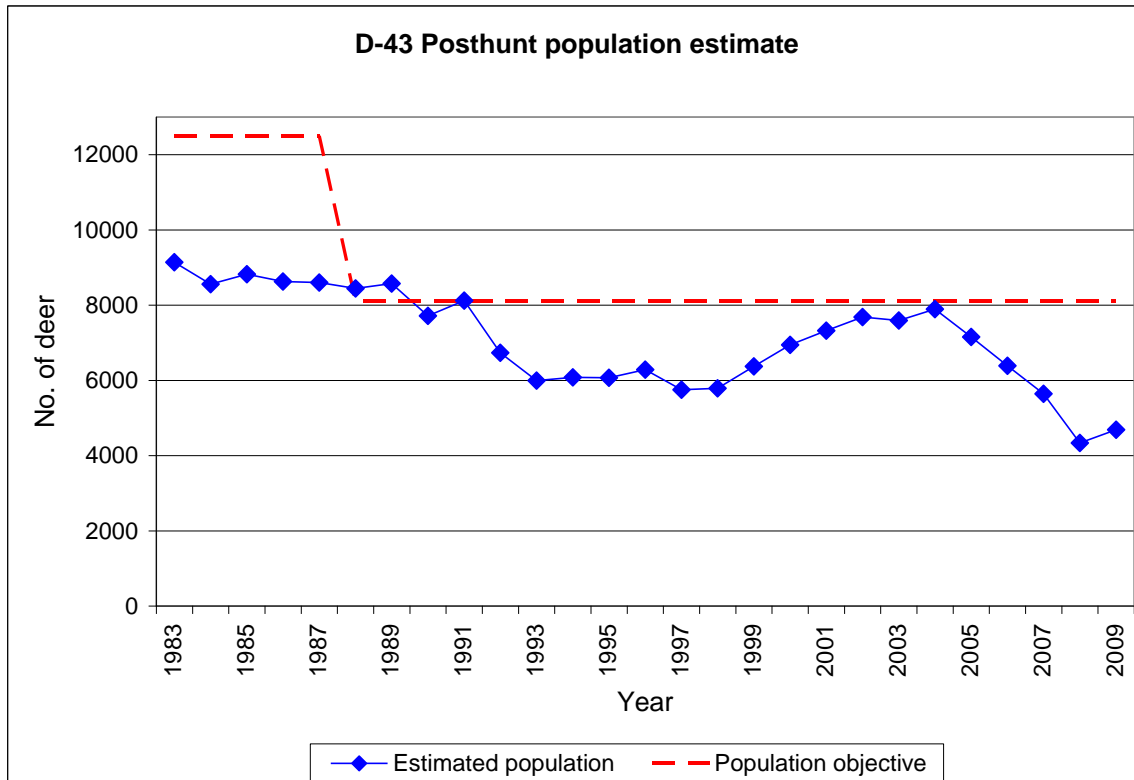


Figure 7. Post-hunt population estimates of deer in DAU D-43, 1983-2009.

The average deer population size in D-43 in the 1980s was 8,700 deer; in the 1990s, 6,500 deer; and in the 2000s, 6,600 deer (Figure 7). The 2009 post-hunt estimate was 4,700 deer. In the past 3 decades, the highest deer population size occurred in the 1980s. In the 1988 DAU plan, the population objective was established at 8,100 deer. However, the population size has not been sustainable at this objective. This pattern suggests that 8,000-9,000 animals is approximately the habitat carrying capacity for this herd. At a high population density, the herd is less productive because of competition for resources, and it is more susceptible to population declines when it experiences major mortality events, such as a hard winter or increased harvest. The severe winter of 1992-93 resulted in a population decline to approximately 6,000 deer. In 1999, the all deer hunting in the state west of Interstate 25 became restricted to limited licenses only. This regulation change resulted in an increase in the population because of an increase in the buck segment of the herd. In 2001, doe hunting was opened in this DAU while the population grew and doe licenses were increased in the mid-2000s. However, by the mid-2000s, the population peaked at 8,000 deer. With the increased doe harvest, the population size steadily declined for several years. The severe winter of 2007-08 continued to push the population size further lower. In response, all deer licenses in the DAU were reduced, and following an average winter in 2008-09, the population appears to have stabilized. Future herd management and environmental conditions will determine the trajectory of the population.

Post-Hunt Herd Composition

Age and sex classification surveys using a helicopter have been conducted in the DAU since 1977. These surveys are flown “post-hunt” in December/early January. During the early years, the surveys were conducted every other year. Since 1995, surveys have been conducted almost every year.

Fawn Ratios - The post-hunt fawn:doe ratio is used as an index of herd productivity. This index grossly reflects the combined summer natality and summer through early winter survival of fawns relative to does. In D-43, the fawn:doe ratio has generally been declining, with some increases in years following severe winters (Figure 8). This decline is typical of many mule deer herds in Colorado and throughout the West, and is usually presented as indication of a mule deer decline. The cause of this decline is equivocal; however, decreasing quality and quantity of mule deer range due to fire suppression, land development, excessive livestock grazing in previous decades, and competition with elk are usually suggested. The highest value was 95 fawns:100 does in 1977 and the lowest was 25 fawns:100 does in 2002. The fawn:doe ratio averaged 70 in the 1980s; 47 in the 1990s; and 55 in the 2000s. The current (2005-2009) average is 62 fawns:100 does, pushed up by the recent high of 80 fawns:100 does in post-hunt 2009.

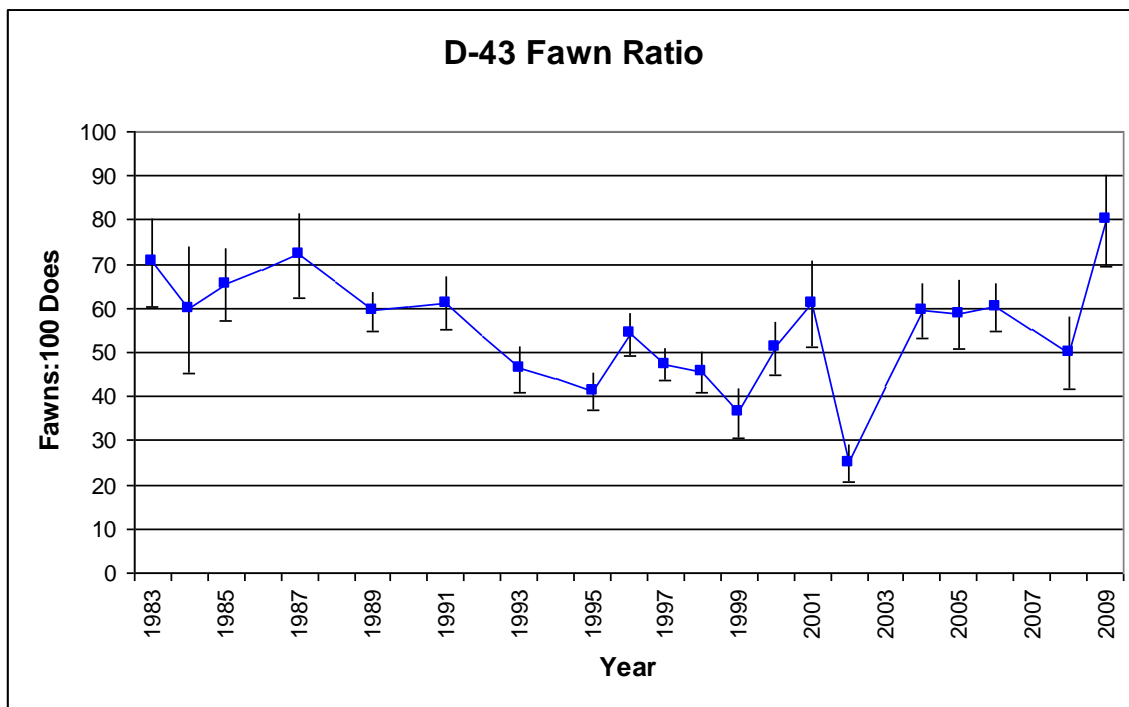


Figure 8. Observed post-hunt fawn:doe ratios in DAU D-43, 1977-2009. The bars indicate the 95% confidence interval of the field estimate for the fawn:doe ratios.

Buck Ratios – The post-hunt buck:doe ratio is used as an index of buck quality of the herd. Higher buck ratios indicate more (and by assumption, larger/older/higher quality) bucks in the population. Buck ratios showed a slight declining trend from 1977 to the late 1990s (Figure 9). The 1988 DAU plan established the objective at 24 bucks:100 does. In 1999, buck licenses became limited by draw only, resulting in an increase in the ratio. The ratio peaked in 1982 at 46 bucks:100 does and lowest was 15 in 1997. The buck:doe ratio averaged 30 in the 1980s; 20 in the 1990s; and 30 in the 2000s. The current 5-year average (2005-2009) is 30 bucks:100 does.

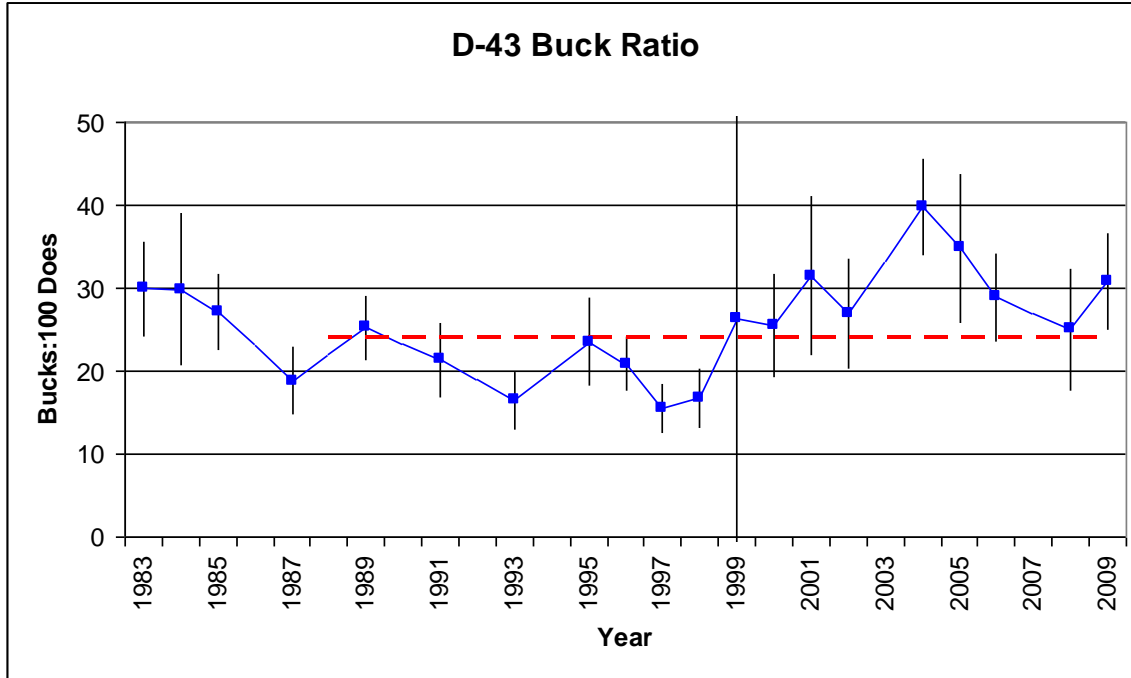


Figure 9. Observed buck:doe ratios in DAU D-43, 1977-2009. The bars indicate the 95% confidence interval (CI) of the field estimate for the buck:doe ratios. The buck:doe estimate for 1999 has an especially large CI. The dashed red line indicates the 1988 DAU plan's sex ratio objective of 24 bucks:100 does.

Harvest History and Hunting Seasons

Hunting Season History - From simple 30-day seasons to more complicated split deer, split elk and combined seasons have been used to manage deer through the years. In the early 1960s, a hunter could take 2 or more deer. From 1971 to 2002, each hunter was limited to taking 1 deer. From 1971 to 2002, each hunter was limited to taking 1 deer. Since 2003, hunters have been allowed a 2nd deer license under List B (specific units and private-land-only licenses). In 1986 the Wildlife Commission approved an either-sex archery, limited muzzleloading and three combined unlimited buck and limited doe seasons as the general statewide season structure. The three-combined rifle seasons were 5, 12 and 9 days in length, and were used as a method to spread increasing hunter pressure.

To improve the quality of bucks, in 1986 deer antler-point restrictions were approved statewide, limiting harvest of bucks to those with three points or more on one antler. Although antler-point restrictions worked well for elk by delaying the kill one year, bucks show more variation in antler development among age classes than bull elk do. Deer tend to have small two-point antlers as yearling but occasionally they are even 3 – 4 point bucks. Consequently, many hunters shot deer that were not legal, and in some cases, the deer were even abandoned. Antler-point restrictions for bucks were abandoned over much of the state by the 1991 season.

In 1992, out of a growing concern for the mule deer decline, much of the state's deer hunting was restricted to a three-day buck hunt. Deer hunting for the remainder of days was limited to hunting does. This structure was very unpopular with hunters and was abandoned after 1994. In 1995, buck hunting was extended to the first five days of each of the three combined seasons. Buck licenses remained unlimited (or over-the-counter) until 1999.

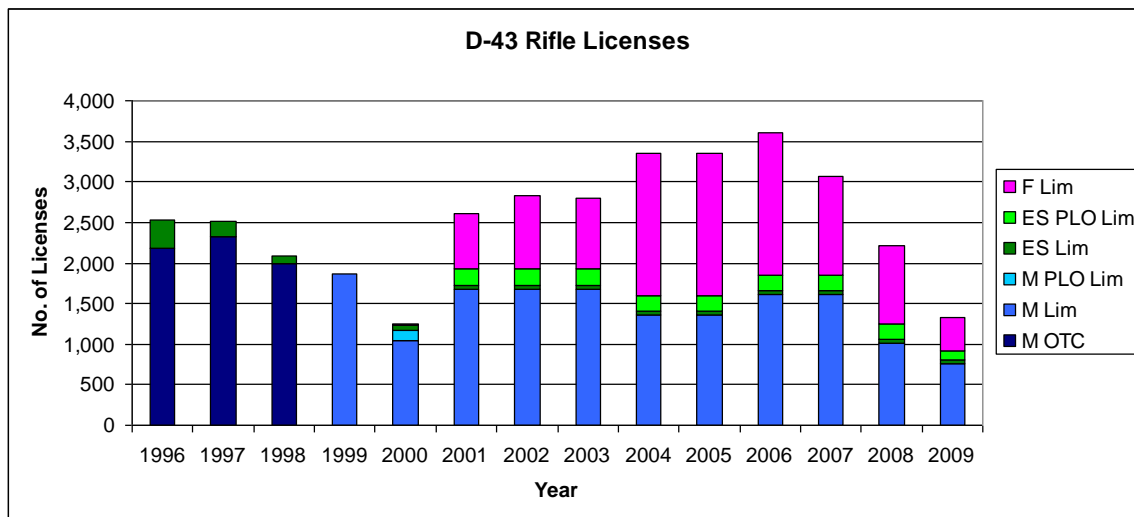


Figure 10. Rifle license history for deer DAU D-43 from 1996-2009. M = male, ES = either sex, F = female and fawns of either sex (antlerless). OTC = over the counter, Lim = limited by draw only, PLO Lim = private-land-only and limited by draw only.

Starting in 1999, all deer hunting in the state West of Interstate 25 was changed to a totally limited license (i.e., no over-the-counter licenses) for archery, muzzleloader, and regular rifle seasons (Figures 10 and 11). This change was done mainly to improve the quantity and quality of the antlered deer hunts. In 1999, 1,860 rifle buck licenses were authorized in D-43,

and in 2000, only 1,170 rifle buck licenses and 56 either-sex licenses were issued. Also, from 1999 – 2001, none of the leftover licenses from the computer drawing process were sold as leftover licenses.

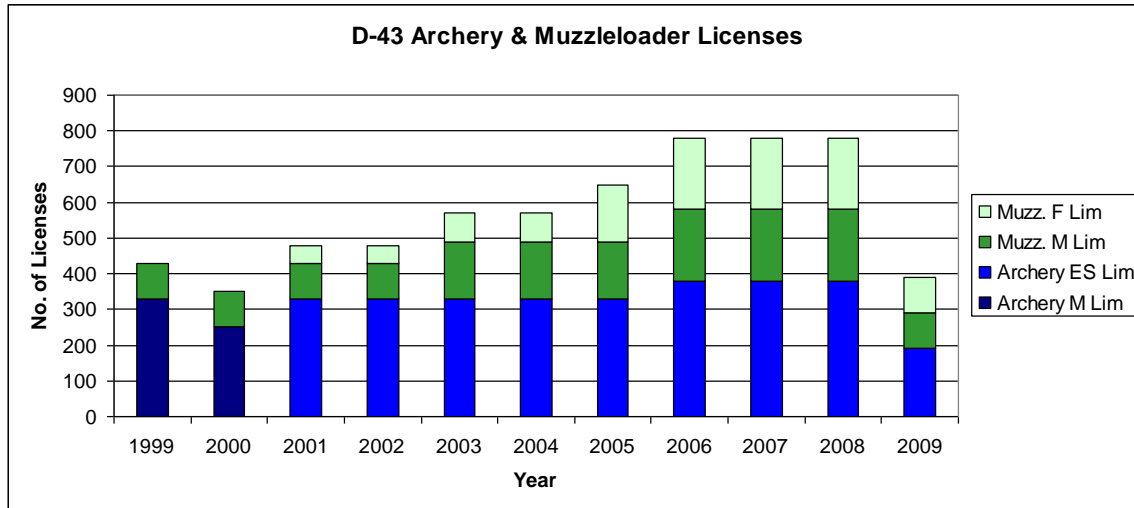


Figure 11. Archery and muzzleloader licenses for deer DAU D-43 from 1999-2009. Prior to 1999, archery and muzzleloader deer licenses were valid statewide. M = male, ES = either sex, F = female and fawns of either sex (antlerless).

In 2000, CDOW began a new 5-year season structure that included:

- 1) a limited buck or either-sex archery season
- 2) a limited muzzleloader season for bucks and does
- 3) two combined rifle seasons (second and third season) for limited bucks and antlerless deer
- 4) a very limited fourth season for buck deer. To qualify for the limited 4th season buck deer hunt, the DAU must average more than 25 bucks:100 does for the previous three years and be at or above the long-term sex ratio objective.

There is 1 ranch in D-43 participating in the Ranching for Wildlife (RFW) program. The Ranching for Wildlife program allows large ranches greater than 15,000 contiguous acres to have separate private-land-only, 90-day hunting seasons that are not confined to the normal season structure. In return, the public is given a share of the antlerless and antlered licenses. In most cases this is about 10% of the antlered licenses and 100% of the antlerless licenses. The landowners cannot charge the public hunters a trespass fee and in most cases the hunts are a minimum of 10 days long. The Burns Hole RFW program began in 2002 through the present. Burns Hole is primarily in GMUs 25 and 26 and contains 5.14% of D-43. The ranch serves as important winter range for this deer herd.

Habitat degradation, primarily due to fire suppression, has reduced the deer carrying capacity of the DAU and has limited the ability to manage the deer at the 1988 DAU plan population objective. Due to the restrictive season structure outlined above and because the population was generally below the population objective in the 1990s, antlerless licenses were not issued in the DAU until 2000 (Figures 10 and 11). As a result, the deer population reached close to the population objective by 2004, at which time antlerless licenses were increased. From 2005 – 2008, the population declined steadily. Due to concerns that the high snowpack of

the 2007-08 winter caused high winter mortality, 2008 doe licenses were reduced by 20% and buck licenses by 27% compared to the previous year. In 2009, licenses were further reduced by half for doe licenses and 35% for buck licenses to allow the population to grow.

License Demand – An examination of license application rates in the past 3 years indicates that there is relatively low demand in the draw for doe licenses and moderate demand for buck licenses (See Appendix C for all hunt codes). Before the recent license reductions in 2008 and 2009, some licenses never sold out at the higher license quotas in 2007 and many licenses sold out only as leftovers. The exceptions are the 4th season buck licenses and the either-sex Burns Hole Ranching for Wildlife public license, which have required preference points to draw. In 2009, all deer licenses in D-43 eventually sold out, in contrast with the past when license quotas were higher (Appendix C).

As an example (Table 4), in 2007, doe licenses for 2nd and 3rd rifle season never sold out. Even after substantial decreases in 2008 and 2009, these doe licenses are still not highly in demand, but they now do sell out as leftovers. Buck licenses for 2nd and 3rd rifle season sold out as leftovers in 2007. After buck licenses were reduced in 2008 and 2009, a greater proportion of applicants listed these licenses as 1st choice, including the quota in GMU 25 & 26 in 2009, which nearly matched 1st choice application demand.

Table 4. License demand for 2nd and 3rd doe and buck rifle seasons in DAU D-43, 2007-2009. These licenses represent over 60% of the total license quota for the DAU. “Quota” is the maximum number of licenses CDOW could issue; “Sold out” is the stage at which the hunt code sold out; “1st choice demand” is the number of 1st choice applicants as a percentage of the license quota.

Valid GMUs	Year	Doe 2nd & 3rd Rifle				Buck 2nd & 3rd Rifle			
		License Quota	Licenses Sold	Sold Out	1st Choice Applicants relative to Quota	License Quota	Licenses Sold	Sold Out	1st Choice Applicants relative to Quota
25, 26	2007	800	649	Never	12%	1,025	968	Leftovers	56%
	2008	650	642	Leftovers	12%	600	571	At Choice 2	84%
	2009	275	264	Leftovers	27%	450	426	At Choice 2	98%
34	2007	350	199	Never	7%	500	480	Leftovers	19%
	2008	250	238	Leftovers	12%	325	292	Leftovers	29%
	2009	100	89	Leftovers	29%	250	236	At Choice 6	41%

Total Harvest - Harvest under an unlimited license structure is a crude estimation of population performance over time (Figure 12). From 1953 to the early 1960s, the harvest generally increased until the mid-1960s when the total harvest began a general decline. In 1971, the Wildlife Commission was concerned enough about the mule deer decline that they instituted a statewide bucks-only season and hence the very low harvest that year. In 1999, CDOW limited all deer licenses statewide and also restricted the take of antlerless deer. Harvest declined in the past 2 years because of license reductions in 2008 and 2009.

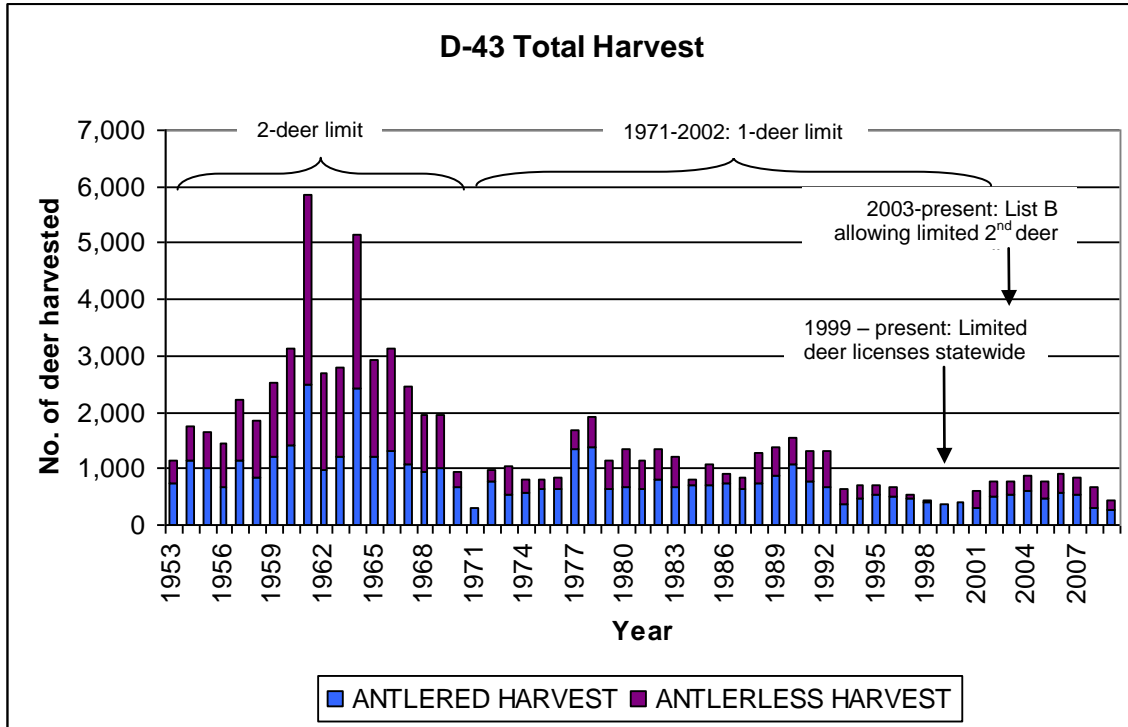


Figure 12. Total deer harvest in DAU D-43, 1953-2009.

Buck Harvest – Historically, buck harvest was greater when hunters were allowed 2 deer licenses until 1971. Since 1971, the buck harvest has averaged 618 bucks per year with a peak of 2,493 in 1961 and a low of 263 in 2009 (Figure 13). From the 1970s to early 1990s, buck harvest remained fairly stable with peaks in 1977, 1978 and 1990 of over 1,000 bucks. From the mid-1990s to 2007, buck harvest was slightly lower but generally stable. In 2008 and 2009, buck harvest was lower because of license reductions in those years, as well as unfavorably mild fall weather in 2008 and reduced hunter participation due to the nationwide economic recession in 2009. The 10-year, 5-year, and 3-year average buck harvest in D-43 is 445, 425, and 365, respectively.

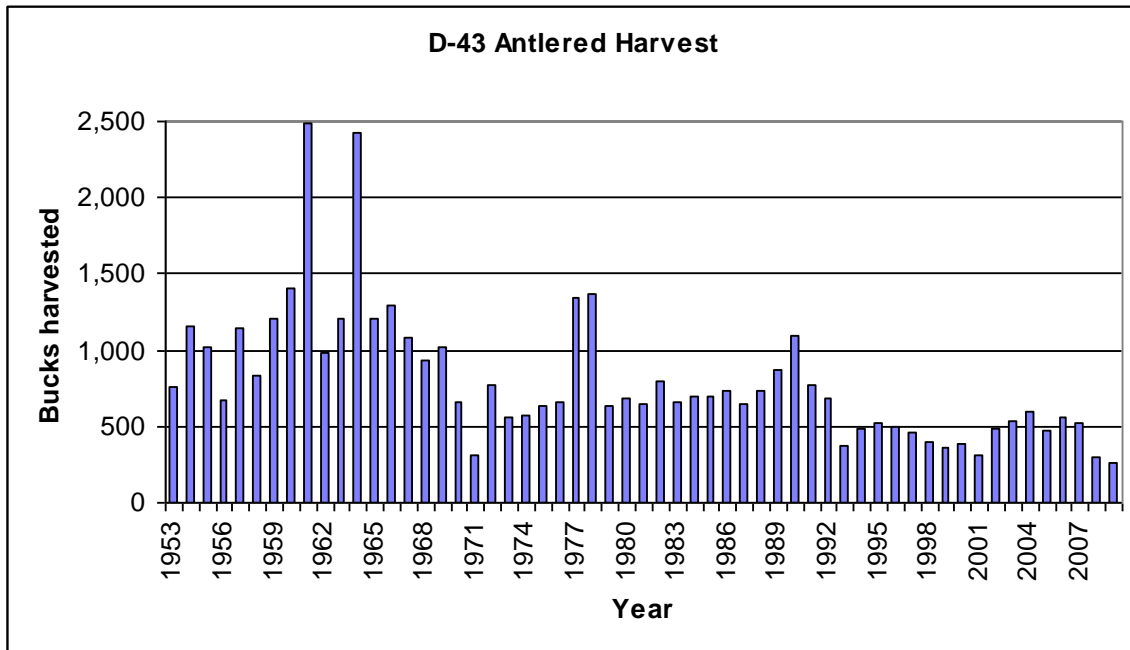


Figure 13. Antlered deer harvest in DAU D-43, 1953 – 2009.

Antlerless Harvest - Antlerless harvest shows a similar trend to total harvest, increasing during the period 1953 to the early 1960s, then declining. As mentioned earlier, antlerless harvest was prohibited in 1971. Because of restrictive management, antlerless harvest has been low since 1971. The Colorado Wildlife Commission in 1999 approved more restrictive rules and since then, there has been limited antlerless harvest in the DAU. Antlerless licenses were increased in the 2000s (Figure 14) in response to a growing population that was approaching objective (Figure 7), but the resulting increased doe harvest, combined with diminishing habitat quality, probably exceeded the population's recruitment rate, causing the population to decline. Antlerless harvest dropped in 2009 due to the large reduction in antlerless licenses.

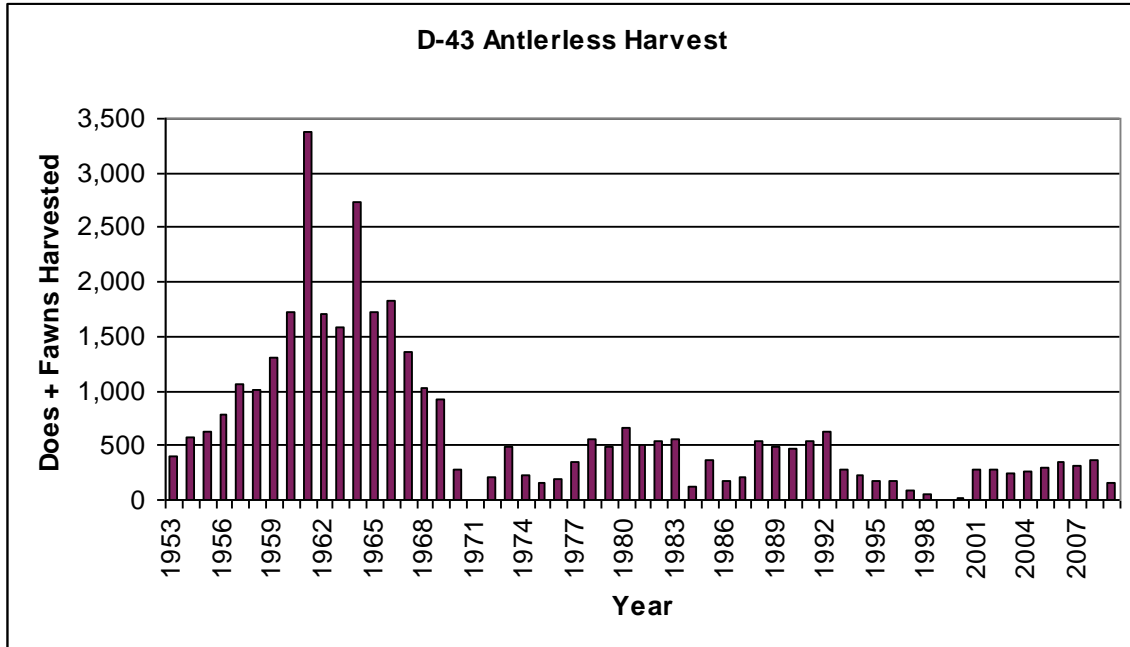


Figure 14. Antlerless deer harvest in DAU D-43, 1953 – 2009.

Hunting Pressure - Hunting pressure has averaged 3,161 hunters since 1954. The highest number of hunters was 6,823 in 1964 and the lowest was 945 in 1971 when the whole state had a buck-only hunting season. The hunting pressure has exhibited four distinct peaks (Figure 15). The first peak was in the early 1960s, the second occurred in late 1970s/early 1980s, the third was in the early 1990s, and the fourth yet smallest peak was in the 2000s when licenses were increased in the DAU, but has dropped off since 2009 when licenses were drastically reduced.

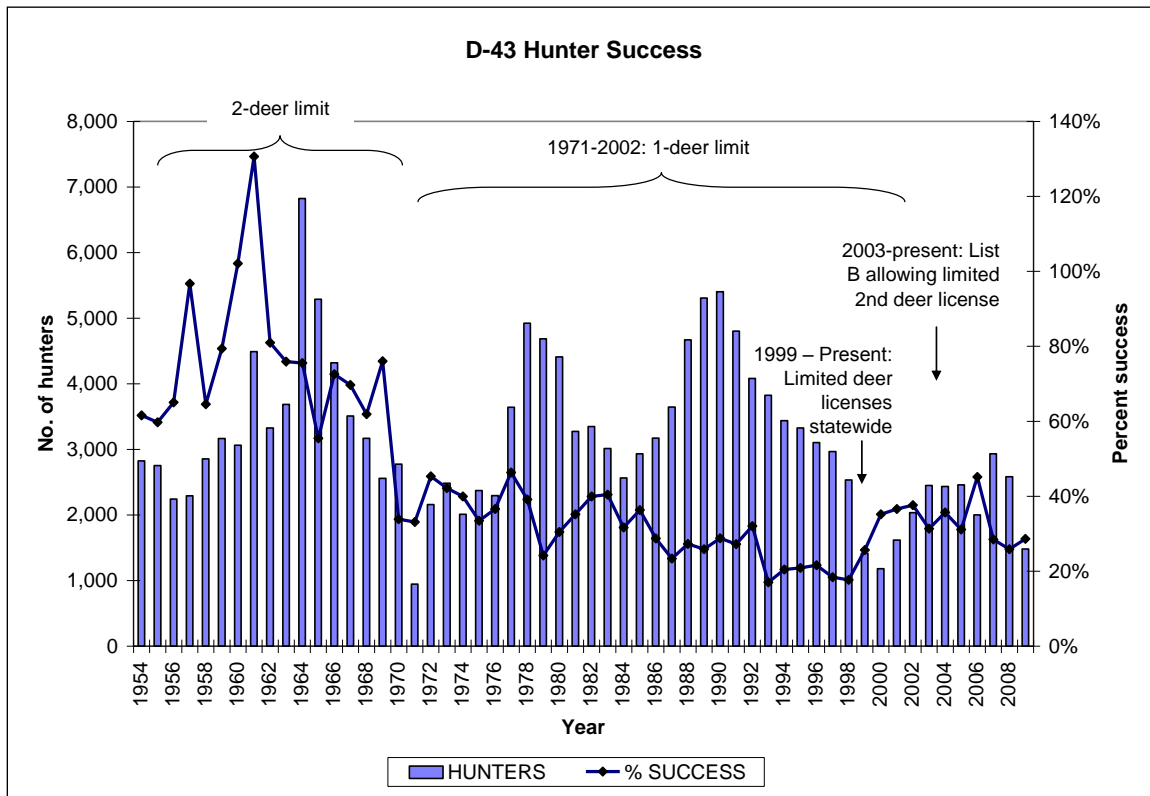


Figure 15. Number of hunters and hunter success rate in deer DAU D-43, 1954-2009.

Hunter Success

Deer hunting success peaked in the early 1960s when a hunter could take 2 or more deer and since then was on a steady decline until the mid to late 1990s when success rate averaged around 20% (Figure 15). Since 1999, when the totally limited license system was implemented, individual hunter success has increased. The 10-year, 5-year, and 3-year averages for hunter success have been 34%, 32%, and 28%, respectively.

V. Current Management Status

Previous (1988 DAU Plan) Objectives

Population Objective = 8,100 deer

Sex ratio Objective = 24 bucks/100 does

Current Population (up to 2009 data)

Population Estimate = 4,700 deer

5-year Average Sex Ratio = 30 bucks/100 does

Current Management Problems

1. Unfavorable Winter Range Conditions – As previously discussed in the Habitat Resource (Section IV), big game habitat condition on winter ranges is declining throughout the DAU. The causes of most habitat problems in D-43 include plant successional movement towards more late seral stage or climax communities and inappropriate historic livestock grazing (up to the 1960s). Because winter range is considered the most limiting factor for deer, improvement of winter range condition through habitat projects, such as prescribed fire, mechanical/chemical treatments, and re-seeding, would benefit mule deer (Watkins et al. 2007), although treatments may also lead to unintended consequences including noxious weed invasions. Private lands constitute 39% of deer winter range in the DAU, with only 1% protected under Conservation Easements, so collaboration with private landowners to improve habitat condition is essential.
2. Potential for Land Development - Because of the proximity to I-70, development of agricultural lands into residential homes remains a high risk in the Sweetwater and Burns area and along the Colorado River Road. Over the past 3 decades, ranches in the nearby Eagle Valley have been sold and rapid development occurred. So far development has been slow coming to this area but continuing to rely on private land as winter range or severe winter range may result in severe consequences. Population objectives need to reflect a reasonable number of animals that can be supported on public lands designated as winter range.
3. Competition with Elk – Deer in D-43 overlap with an estimated 9.7% of the White River elk herd (DAU E-6). This elk herd resides in the Flat Tops Wilderness Area and surrounding lands and is considered the largest elk herd in North America, currently numbering almost 43,000 elk. Elk numbers have steadily increased from very few elk a century ago to currently around 4,160 elk overlapping with deer in D-43. Elk may have been forced to expand their historic winter ranges and move to lower elevations where they have competed with deer on the limited winter ranges. Elk have more versatile food habits and are a stronger and more aggressive animal than deer. The resulting increase in elk has probably been to the detriment of deer.

VII. Issues and Strategies

Issue Solicitation Process

An important aspect of the DAU planning process is obtaining input from all segments of the affected local populations, including the BLM, US Forest Service, HPP committees, and the interested public. In 2002, a DAU Plan for D-43 was written and agency, HPP, and public comments were received (Appendix D). However, due to management concerns associated with the discovery of CWD on the western slope of Colorado, the DAU planning process was put on hold until the present time.

In 2010, CDOW requested input from the federal agencies, HPP committees, county commissioners, and the general public. A new draft DAU plan was posted on the CDOW website for 30 days, and the plan alternatives were presented in a public meeting in Burns on August 25, 2010. A press release was issued to solicit input on deer issues in D-43 and to encourage members of the public to attend the public meeting, review the draft plan and the proposed alternatives, and to submit comments and fill out the questionnaire to state their preferences on deer management. Issues and alternatives were also presented to the Eagle and Garfield Boards of County Commissioners in August and October 2010. Written comments and a compilation of the public questionnaires are attached in Appendix E. Written comments from the federal agencies are attached in Appendix F (BLM-Colorado River Valley Field Office) and Appendix G (USFS-Eagle/Holy Cross Ranger District).

Public Issues and Concerns

Ten people attended the public meeting in Burns. Comments from participants included:

- Habitat is not the issue, but rather predators. There are more lions and coyotes now that there is not as much predator control as in the past.
- Quality of bucks is low.
- Reduce 4th season buck tags.
- Ranching for Wildlife season is too long. They shouldn't be allowed to hunt during the rut.

Five questionnaire responses with written comments were received (Appendix E). The respondents were all deer hunters and most considered deer hunting to be one of their more important recreational activities. On average, seeing more mature bucks and seeing more deer overall were the most important aspects of deer hunting. Being able to draw a buck license every year and experiencing less hunter crowding were moderately important. And harvesting a deer every year and being able to draw a doe license every year were less important to the respondents. Among the population objective alternatives presented, Alternative 3 (6,000-7,000 deer) was most preferred, followed by an overall neutral opinion of Alternative 2 (5,000-6,000 deer) and opposition to Alternative 1 (4,000-5,000 deer). For the sex ratio objective, Alternative 2 (28-32 bucks/100 does) and Alternative 3 (32-36 bucks/100 does) were both supported, and Alternative 1 (24-28 bucks/100 does) was generally not supported.

Federal Agencies' Issues and Concerns

BLM's Colorado River Valley Field Office emphasized several issues regarding habitat condition in D-43. Although the BLM's land health assessments evaluated habitat to be meeting standards at the landscape scale, there are smaller scale habitat concerns including: noxious weeds, pinon-juniper encroachment into sagebrush shrublands, sagebrush decadence, localized over-browsing of shrubs by deer and elk, lack of plant diversity, and private land development on deer and elk winter range (Appendix F).

The White River National Forest supports Alternatives 2 for both the population objective and sex ratio objective (see next section for Alternatives) on the basis that these objective ranges would balance several factors: winter range habitat conditions and the efficacy of habitat improvement projects; economic and social benefits of deer hunting; and range conservation (Appendix G). The Forest Service also supports continuing to reduce the sympatric elk population to reduce competition with mule deer.

HPP Committee's Issues and Concerns

The Lower Colorado River Habitat Partnership Program (HPP) expressed concern about mule deer winter range. The HPP committee intends to participate in habitat projects that would benefit mule deer winter range, as well as to help establish conservation easements to protect existing winter range. The committee supports Alternative 2 (5,000-6,000 deer) for the population objective and Alternative 3 (32-36 bucks/100 does) for the sex ratio objective (Appendix H).

VIII. Alternative Development

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 is reasonable to adjust or index population objectives relative to the new modeled estimate accordingly. 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.

The following is an example of objective indexing:

In 2007, a population objective range of 5,000 to 6,000 animals based on an estimated population of 8,000 animals is approved by the Wildlife Commission. However, based on newer information (e.g., occasional sample-based population estimates) the 2010 population model shows a 2007 population estimate of 10,000 animals is more defensible. In this case the objective would be indexed by multiplying $10,000/8,000$ by the original objective range to yield a new objective range of 6250-7500.

Indexed objectives will be rounded to the nearest multiple of 10, 50, 100, 500, or 1,000 based on whether 10% of the objective is < 50, <100, < 500, < 1000, or ≥ 1000 , respectively. For example, if a new indexed objective is 5433, 10% would be 543. Therefore, the objective would be rounded to the nearest 500 (i.e., 5,500). Median values will be rounded up (e.g., 6250 from the indexing example would be rounded to 6,500).

Post-hunt Population and Sex Ratio Objective Alternatives

Population size and composition must be considered when determining objectives and management strategies. Both of these characteristics can dramatically influence management regimes. The objectives we are considering to guide deer management in D-43 for the next 10 years are listed below.

- **Population Objective Alternatives**
4,000-5,000 deer; 5,000-6,000 deer; 6,000-7,000 deer
- **Sex Ratio Objective Alternatives**
24-28 bucks:100 does; 28-32 bucks:100 does; 32-36 bucks:100 does

Impacts of Population Objective Alternatives

The population objective determines the targeted overall number of deer in the herd, regardless of sex or age class. Changes in population size objectives will impact intraspecific competition, body condition of deer, quality of the habitat, and available licenses. Because native winter range habitat has degraded over the past several decades primarily due to fire suppression, the population objective (8,100 deer) established in the 1988 DAU plan is not

sustainable.

Alternative 1: 4,000-5,000 deer:

This alternative would result in a slight decrease in the population size or would maintain a status quo (-15% to +6% change) relative to current (2009) post-hunt population estimate of 4,700 deer. At this reduced population density, deer should be in better body condition due to lower competition among deer for forage and space, although annual variation in weather conditions and future habitat conditions can affect the health and productivity of the herd. The fawn ratio could increase if does are in better body condition to nurse their young, resulting in fawns experiencing higher survival rates. In general, the herd at this reduced density should be more resilient to severe winter conditions than in the past and should be able to sustain a higher level of harvest and other mortality.

To achieve this population objective, antlerless license quotas could increase slightly. Depending on which sex ratio objective is selected, it could be more difficult to draw a buck license at this smaller population size because there would be fewer bucks on the landscape. Harvest success rate may decline because of having more hunters in the field seeking out relatively fewer animals, and hunter crowding may be an issue. On the other hand, the economic impact of deer hunting in the community could increase with more hunters visiting the area.

Alternative 2: 5,000-6,000 deer:

This alternative would maintain or slightly increase (+6 to +28%) the current population size of this herd. There would be less competition for forage and habitat among deer than in the past because the population would be slightly lower than the long-term average (~6,500 over the last 20 years). In severe winters, some deer may die due to poor body condition, but in general, the population should be able to rebound to this level fairly quickly under average weather conditions.

To achieve this population objective, antlerless licenses could increase slightly over time. In the short term, licenses may be maintained for a year or so at the current quotas to allow population growth. If the high fawn ratio seen last year continues, the population should reach this objective quickly. Licenses could increase thereafter to stabilize the population size. Hunting opportunity, harvest success rates, and economic impact would be intermediate under this alternative compared to Alternatives 1 and 3.

Alternative 3: 6,000-7,000 deer:

This alternative would increase the current population size by 28% to 38%. The past 10-year and 20-year averages for population size fall within this range. This population level probably is at the upper end of what is achievable and sustainable long-term while still maintaining adequate hunting opportunity. There would be more competition among deer, and the population would be less resilient to severe winters compared to Alternatives 1 and 2. Thus, the population size may fluctuate more in response to weather conditions and may be slower to recover following a harsh winter.

To achieve this population objective, license numbers would be reduced or maintained at

the currently low quota for several years, possibly long-term, to allow population growth. There would be less opportunity to draw a license and hunters might not be able to draw a license every year. However, those who do successfully draw would likely have a better chance of harvesting a deer because there would be more deer. Also, hunters would experience less crowding. At a higher population size, there would be more bucks on the landscape, so it could be easier to maintain a higher buck ratio. If the population size drops due to a harsh winter, both doe and buck license numbers would likely be reduced until the population recovers, so license numbers may be less consistent from year to year. Economic benefits from hunting would be reduced because there would be fewer hunters contributing to local establishments.

Impacts of Sex Ratio Objective Alternatives

The sex ratio objective determines the desired number of bucks per 100 does. This characteristic most directly impacts the number of antlered licenses issued and the quality and quantity of bucks that are available to be harvested. Since the population size objective is established separately, the total number of deer would remain the same. Therefore there would not be any effect of different levels of sex ratio on the habitat, the need for habitat improvement projects, or game damage/human conflicts.

Alternative 1: 24-28 bucks per 100 does:

This alternative would reduce the current observed sex ratio by 7% to 20%, and would primarily focus on providing hunting opportunity. Buck licenses available in the 2nd, 3rd, and possibly 4th seasons would increase. More bucks could be harvested than in the past, but fewer bucks would survive to maturity, so there would be fewer trophy bucks available in the population. This alternative would increase hunting opportunity and total harvest. However, hunter crowding could be a problem.

Alternative 2: 28-32 bucks per 100 does:

This alternative would maintain the sex ratio at the current level of about 30 bucks per 100 does. There would be no change in the season structure. Under this alternative, the buck ratio would be managed for a balance between quality buck hunting and opportunity to draw a buck license.

Alternative 3: 32-36 bucks per 100 does:

This alternative would increase the current observed sex ratio by 7% to 20%. The goal would be to produce high quality bucks, but would limit hunter opportunity. Buck licenses in 2nd and 3rd seasons would be reduced (or maintained at the lower quotas set in 2008 and 2009) to relieve hunting pressure on bucks. The opportunity to draw a buck license would be lower than in the past, so hunters should expect that they might not be able to hunt for bucks in the DAU every year. However, more bucks would survive to maturity, so those hunters who drew a buck license would have more opportunity to harvest a quality buck.

IX. CDOW Recommended Objectives

Current Population Estimate: 4,700 deer (post-hunt 2009)
10-year Average Population Estimate: 6,600 deer (post-hunt 2000-2009)
Previous (1988 DAU Plan) Population Objective: 8,100 deer
Current (2011 DAU Plan) Population Objective: 5,000-6,000 deer

Current Sex Ratio Estimate: 30 bucks/100 does (5-year average)
10-year Average Sex Ratio: 30 bucks/100 does (post-hunt 2000-2009)
Previous (1988 DAU Plan) Sex Ratio Objective: 23 bucks/100does
Current (2011 DAU Plan) Sex Ratio Objective: 28-32 bucks/100 does

Justification and Rationale:

Population Size Objective: The selected post-hunt population objective of 5,000-6,000 deer is a 6-28% increase from the 2009 post-hunt population estimate of 4,700 deer, a 9-24% decrease from the 10-year average population estimate of 6,600, and a 26-38% decrease from the previous objective of 8,100 deer. Population estimates indicate that the previous population objective of 8,100 has not been sustainable over the past 2 decades, nor is it a practical long-term objective given the multitude of mule deer habitat issues in the DAU. Although it may be possible to achieve a higher population for a short time under certain ideal environmental conditions (e.g. a series of mild winters combined with moderate moisture in the summertime), being able to hold a population at a high density long-term is unlikely. The occasional severe weather event, such as high snowfall, freezing rain, or several years of drought, can combine with density-dependent competition and mortality (including predation and hunting) to yield low fawn survival and sometimes reduced adult survival. A population managed at a high density has a lower growth rate than a population at an intermediate density and will experience wider population fluctuations in response to changes in weather, harvest, and other mortality factors. License numbers and hunting opportunity would likewise fluctuate more widely in response to population size.

Instead, at an intermediate population density, the deer population will have a higher intrinsic growth rate, will rebound more quickly following a severe winter or other extreme weather event, and deer license quotas should likewise be more consistent between years. The general public would like to see more deer than there currently are, so the selected population objective would aim to increase the current population, but only to a level that is realistically achievable and sustainable.

Habitat improvement and protection will facilitate an increase from the current population size. Existing winter range habitat should be treated to rejuvenate browse plants and any habitat loss due to land development should be mitigated with habitat improvements elsewhere. Timing restrictions on recreation activities during fawning and early summer should be implemented and/or enforced.

In the immediate future, antlerless licenses will likely remain at their currently low quota until the new population objective is reached. At that point, antlerless licenses could be increased to stabilize the population within the new objective range. Having some level of antlerless harvest is useful for maintaining a population at an intermediate density, at which deer body

condition, fawn production, and survival rates are generally highest.

Sex Ratio Objective: The selected sex ratio of 28-32 bucks:100 does would maintain the current 5-year and 10-year average buck ratio of 30 bucks:100 does, and would be an increase of 17-33% over the previous objective of 23 bucks:100 does. Prior to 1999, it was not practical to attempt to increase the sex ratio above a range of 15-25 bucks:100 does. After 1999, deer hunting in this DAU was changed to totally limited licenses and the number of buck licenses and the amount of the buck harvest could be controlled. Public opinion surveys have indicated that most hunters want both the opportunity to hunt every year and to see more and larger bucks. Maintaining the ratio at 28-32 bucks:100 does will strike a balance between buck hunting opportunity and quality of bucks. The number of buck licenses available each year would likely remain the same initially, and as the overall population increases, buck licenses could be increased to maintain the currently observed sex ratio.

X. Approval Page

This plan was approved by the Colorado Wildlife Commission on March 10, 2011.

XI. LITERATURE CITED

- Bartmann, R.M., G.C. White, L.H. Carpenter. 1992. Compensatory mortality in a Colorado mule deer population. Wildlife Monographs No. 121. 39 pp.
- Bureau of Land Management (BLM). 2006. Burns to State Bridge Watershed, 2006 Land Health Assessment Final Report. Glenwood Springs Field Office.
- Bureau of Land Management (BLM). 2009. Deep Creek Land Health Assessment 2008. Glenwood Springs Field Office.
- Cox, M., D.W. Lutz, T. Wasley, M. Fleming, B.B. Compton, T. Keegan, D. Stroud, S. Kilpatrick, K. Gray, J. Carlson, L. Carpenter, K. Urquhart, B. Johnson, and C. McLaughlin. 2009. Habitat Guidelines for Mule Deer: Intermountain West Ecoregion. Mule Deer Working Group, Western Association of Fish and Wildlife Agencies.
- Miller, M.W. 2008. Chronic Wasting Disease in Colorado, 2005–2007. 5 pp.
<http://wildlife.state.co.us/NR/rdonlyres/763F5731-F895-4D52-9F27-2B8D5BE91175/0/CWDRreport0507.pdf>
- Pickton, T., and L. Sikorowski. 2004. The Economic Impacts of Hunting, Fishing and Wildlife Watching in Colorado. BB&C Research and Consulting. 25 pp.
- White, G.C., and B.C. Lubow. 2002. Fitting population models to multiple sources of observed data. Journal of Wildlife Management 66:300-309.

APPENDIX A: BLM grazing allotments within DAU D-43

Permitted Allotments

Allotment Number	Allotment Name	Percent area within D-43	Area (km2) within D-43	Area (acres) within D-43	AUMs in D-43	CATTLE	YEARLING CATTLE	HORSE	SHEEP
03530	Albertson-King Mtn	100%	4.5	1,114	133	YES			
08653	Albertson-Maiden Spg	100%	3.3	820	53	YES			
08661	Antelope Cr	100%	15.5	3,821	324	YES			
08654	Benton	100%	6.1	1,500	161	YES			
08228	Canyon Ck	68%	2.0	496	50		YES		
08207	Canyon Creek	100%	10.0	2,480	144	YES			YES
08618	Derby Ridge	100%	6.9	1,695	26	YES			
08610	E Sunnyside	100%	2.1	525	40	YES	YES		
08650	Egeria Park	100%	0.7	167	25	YES			
08663	Elk Cr	55%	5.2	1,286	40	YES			
08656	Gates	100%	0.7	164	13	YES			
08632	Hack Cr	100%	20.7	5,105	531	YES			
08631	Horse Cr	100%	40.6	10,026	355	YES			
08666	King Mtn	100%	37.3	9,222	147	YES			
08649	Lower Coffeepot	100%	26.9	6,658	430				YES
08672	Luark	100%	6.0	1,490	84	YES			
08636	McKeen Cr	100%	1.5	368	103	YES			
08644	Moniger Ridge 1	100%	4.0	999	34	YES			
08646	Moniger Ridge 2	100%	2.9	720	27	YES			
08635	Mooney	100%	2.2	554	30	YES			
08604	North King Mtn	100%	16.6	4,108	575		YES		
08647	Onion Ridge	100%	30.1	7,435	475	YES			
08626	Red Dirt	100%	11.9	2,949	50	YES			
08615	River Com	100%	15.7	3,885	38	YES			
08637	S McKeen Cr	100%	6.5	1,604	5	YES			
08614	Spring Cr	100%	20.3	5,012	152	YES		YES	
08203	Storm King	100%	23.9	5,916	112				YES
08665	Strubi A Nick	100%	0.8	204	30	YES			
08613	Sunnyside	100%	2.7	669	25	YES			
08611	Sunnyside Ind	100%	7.5	1,856	98	YES			
08645	Upper Jack Spring	100%	0.3	77	49	YES			
08612	W Sunnyside	100%	1.5	375	22	YES			
08629	Willow Cr	100%	13.4	3,316	212	YES			
TOTALS:			351	86,618	4,593				

Vacant Allotments

Allotment Number	Allotment Name	Percent area within D-43	Area (km2) within D-43	Area (acres) within D-43	
08602	H&H Ind	100%	5	1,143	
08201	Kaiser Hells Hole	100%	6	1,399	
08652	McCoy	75%	1	263	
08205	Mitchell Oasis	100%	9	2,110	
08651	North McCoy	9%	0	104	
08206	Oasis Cr	100%	6	1,434	
08202	Possum Cr	100%	8	1,855	
08628	Sheep Cr G&F	100%	9	2,214	
08648	Upper Coffeepot	100%	4	908	
		TOTALS:	46	11,431	

APPENDIX B: U.S. Forest Service grazing allotments within DAU D-43

Permitted Allotments

Allotment Number	Allotment Name	Status	Percent area in D-43	Area (km2) in D-43	Area (acres) in D-43	AUMs in D-43	Cattle	Sheep	Goats	Horses	Mules
00401	Coffee Pot S&G	Active	100%	125	30,864	2,515	NO	YES	NO	YES	NO
00404	Derby C&H	Active	100%	198	48,955	5,700	YES	NO	NO	YES	NO
00410	Heart Lake/Patterson Cr S&G	Active	26%	22	5,419	123	NO	YES	NO	YES	NO
00411	Hunns Peak S&G	Active	3%	1	217	12	NO	YES	NO	YES	NO
00412	Deep Lake S&G	Active	80%	32	7,950	617	NO	YES	NO	YES	NO
00413	Lake Creek/Deep Creek C&H	Active	100%	76	18,871	2,700	YES	NO	NO	YES	NO
00419	Sunnyside C&H	Active	100%	24	5,990	2,235	YES	NO	NO	NO	NO
00825	Grizzly/Johnson S&G	Active	100%	36	9,009	3,037	NO	YES	NO	YES	NO
00221	Derby Peaks S&G	Active	46%	15	3,720	*	NO	YES	NO	YES	NO
00235	Shingle Peak S&G	Active	13%	3	852	*	NO	YES	NO	YES	NO
00239	Trappers Peak S&G	Active	2%	1	205	*	NO	YES	NO	YES	NO
00832	Quartzite S&G	Active	100%	76	18,660	*	NO	YES	NO	YES	NO
00420	Sweetwater C&H	Forage Reserve	100%	40	9,993	*	YES	NO	NO	NO	NO
TOTAL:				650	160,706	minimum 16939 (Lacking data for several allotments)					

Vacant/Closed Allotments

Allotment Number	Allotment Name	Status	Percent area in D-43	Area (km2) in D-43	Area (acres) in D-43
00406	Fawn Creek/Rim Lake	Vacant	70%	37	9,117
00808	Grizzly Creek C&H	Vacant	100%	11	2,837
00812	No Name C&H	Vacant	100%	40	9,975
00818	Blue Lake	Vacant	100%	19	4,793
	North _W_ Mtn	Closed	100%	13	3,160
	South _W_ Mtn	Closed	100%	14	3,516
	Misc-5	Closed	100%	17	4,236
	Sweetwater	Closed	100%	12	2,924
	Grizzly Creek	Closed	100%	5	1,148
	Misc-13	Closed	85%	33	8,220
TOTAL:				202	49,927

* = Data not available

APPENDIX C: License draw information for D-43, 2007-2009. RFW = Ranching for Wildlife program. “# of Licenses Sold” is sometimes less than “License Quota” because of licenses that were voided or returned.

2007 DAU D-43 DRAW INFORMATION											
Hunt Code	Method/Season	Sex	Quota	# of Lics Sold	Sold Out	# of 1st Choice Applicants			Min Pref Pts		
						resident	nonres	total	resident	nonres	
DE025O1A	Archery	Either	230	174	Never	35	24	59	0	0	
DE034O1A			150	131	Never	24	6	30	0	0	
DM025O1M	Muzzleloader	Buck	100	83	At Choice 2	48	51	99	0	0	
DM034O1M			100	96	Leftovers	49	18	67	0	0	
DF025O1M		Doe	100	38	Never	8	0	8	0	0	
DF034O1M			100	58	Never	23	0	23	0	0	
DE025P2R		Rifle-2nd-PLO	Either	140	98	Never	8	14	22	0	0
DE025P3R		Rifle-3rd-PLO				Never	6	5	11	0	0
DE034P2R	Rifle-2nd-PLO	50		13	Never	2	0	2	0	0	
DE034P3R	Rifle-3rd-PLO				Never	0	0	0	0	0	
DF025O2R	Rifle-2nd	Doe	800	649	Never	39	6	45	0	0	
DF025O3R	Rifle-3rd				Never	45	2	47	0	0	
DF034O2R	Rifle-2nd		350	199	Never	12	2	14	0	0	
DF034O3R	Rifle-3rd				Never	12	0	12	0	0	
DM025O2R	Rifle-2nd	Buck	1025	968	Leftovers	134	151	285	0	0	
DM025O3R	Rifle-3rd				Leftovers	126	161	287	0	0	
DM025O4R	Rifle-4th		50	46	At Choice 1	78	81	159	1	1	
DM034O2R	Rifle-2nd		500	480	Leftovers	42	24	66	0	0	
DM034O3R	Rifle-3rd				Leftovers	24	4	28	0	0	
DM034O4R	Rifle-4th		30	28	At Choice 2	17	12	29	0	0	
DE025M1R	RFW-Private	Either	50	50	N/A						
DE025W1R	RFW-Public		6	6	At Choice 1	100	0	100	11	0	
DF025W1R	RFW-Public	Doe	60	60	At Choice 1	61	0	61	0	0	
DF0251MR	RFW-Private, Donated		5		N/A						
DF025M2R	RFW- Private, Youth Donated		5		N/A						

2008 DAU D-43 DRAW INFORMATION										
Hunt Code	Method/Season	Sex	Quota	# of Lics Sold	Sold Out	# of 1st Choice Applicants			Min Pref Pts	
						resident	nonres	total	resident	nonres
DE025O1A	Archery	Either	230	228	Leftovers	38	22	60	0	0
DE034O1A			150	149	Leftovers	32	1	33	0	0
DM025O1M	Muzzleloader	Buck	100	90	At Choice 5	34	31	65	0	0
DM034O1M			100	95	Leftovers	41	22	63	0	0
DF025O1M		Doe	100	70	Never	6	0	6	0	0
DF034O1M			100	89	Never	24	0	24	0	0
DE025P2R	Rifle-2nd-PLO	Either	140	136	Leftovers	7	10	17	0	0
DE025P3R	Rifle-3rd-PLO				Leftovers	4	6	10	0	0
DE034P2R	Rifle-2nd-PLO		50	32	Never	2	0	2	0	0
DE034P3R	Rifle-3rd-PLO				Never	0	0	0	0	0
DF025O2R	Rifle-2nd	Doe	650	642	Leftovers	58	3	61	0	0
DF025O3R	Rifle-3rd				Leftovers	18	0	18	0	0
DF034O2R	Rifle-2nd		250	238	Leftovers	12	0	12	0	0
DF034O3R	Rifle-3rd				Leftovers	19	0	19	0	0
DM025O2R	Rifle-2nd	Buck	600	571	At Choice 2	172	123	295	0	0

DM025O3R	Rifle-3rd				At Choice 2	87	122	209	0	0
DM025O4R	Rifle-4th		50	43	At Choice 1	65	55	120	0	1
DM034O2R	Rifle-2nd		325	292	Leftovers	47	21	68	0	0
DM034O3R	Rifle-3rd	Leftovers			20	7	27	0	0	
DM034O4R	Rifle-4th		30	30	At Choice 2	14	5	19	0	0
DE025M1R	RFW-Private	Either	50	50	N/A					
DE025W1R	RFW-Public		6	4	At Choice 1	107	0	107	11	0
DF025W1R	RFW-Public	Doe	60	60	At Choice 2	59	0	59	0	0
DF025M2R	RFW-Private, Donated		5		N/A					
DF0251MR	RFW- Private, Youth Donated		5		N/A					

2009 DAU D-43 DRAW INFORMATION

Hunt Code	Method/Season	Sex	Quota	# of Lics Sold	Sold Out	# of 1st Choice Applicants			Min Pref Pts	
						resident	nonres	total	resident	nonres
DE025O1A	Archery	Either	115	110	Leftovers	25	13	38	0	0
DE034O1A			75	72	Leftovers	33	6	39	0	0
DM025O1M	Muzzleloader	Buck	50	47	At Choice 2	32	21	53	0	0
DM034O1M			50	45	At Choice 2	40	11	51	0	0
DF025O1M		Doe	50	50	Leftovers	5	0	5	0	0
DF034O1M			50	49	Leftovers	19	1	20	0	0
DE025P2R			Either	75	73	Leftovers	7	10	17	0
DE025P3R	Leftovers	6		4	10	0	0			
DE034P2R	25	25		Leftovers	1	0	1	0	0	
DE034P3R	Leftovers	1		0	1	0	0			
DF025O2R	Rifle-2nd	Doe	275	264	Leftovers	51	2	53	0	0
DF025O3R					Leftovers	22	0	22	0	0
DF034O2R			100	89	Leftovers	19	0	19	0	0
DF034O3R					Leftovers	10	0	10	0	0
DM025O2R	Rifle-2nd	Buck	450	426	At Choice 2	135	115	250	0	0
DM025O3R					At Choice 2	75	116	191	0	0
DM025O4R			35	31	At Choice 1	73	32	105	1	1
DM034O2R			250	236	At Choice 6	54	20	74	0	0
DM034O3R					At Choice 6	17	11	28	0	0
DM034O4R	20	20	At Choice 1	23	3	26	0	0		
DE025M1R	RFW-Private	Either	50	50	N/A					
DE025W1R	RFW-Public		6	6	At Choice 1	109	0	109	12	0
DF025W1R	RFW-Public	Doe	30	29	At Choice 1	53	0	53	0	0
DF025M2R	RFW-Private, Donated		5		N/A					
DF0251MR	RFW- Private, Youth Donated		5		N/A					

APPENDIX D: Federal Agency and Public comments from 2002

Input from Federal land management agencies, HPP committee, and the general public was sought in 2002 when Gene Byrne, now-retired Terrestrial Biologist, was preparing earlier draft DAU plans for several elk and deer herds. However, due to management concerns associated with the discovery of CWD on the western slope of Colorado, the DAU planning process was put on hold until the present time. Below is a selected summary of issues and concerns raised in 2002.

Glenwood Springs meeting with Federal Agencies, 7/16/02

This meeting was attended by 6 people from the White River National Forest: Vernon Phinney, Thomas Matza, Joe Doerr, Keith Giezentanner, Wayne Nelson, and Phil Nyland. There were two people from the BLM Glenwood Spring Resource Area: Tom Fresques and Mike Kinser. The White River Elk herd (E-6) and the Brush Creek Deer herd (D-14) were specifically discussed while the other DAUs (D-8, D-13, D-43, D-53, E-12, E-15 & E-16) were discussed in general with similar trends and issues that apply to E-6 and D-14.

Deer Issues:

- ❑ Mountain mahogany browse plants are generally in excellent condition in the Glenwood Springs Resource Area.
- ❑ Fire suppression has hurt the long-term condition and trend of mule deer ranges in these DAUs.
- ❑ Intense land development and related issues have removed and degraded mule deer winter ranges in these DAUs.
- ❑ High elk populations will compete with mule deer especially in recently treated areas such as prescribed burns and on winter range areas.
- ❑ There was general approval of everyone in the meeting that an average 10% reduction in the current deer population and an increase in the sex ratio objective by an average of 14% for all of the DAU plans are reasonable goals.

HPP Meeting, 4/10/02

A meeting with the Burns Hole HPP was held on April 10, 2002 at the Burns Baptist Church to solicit comments concerning DAU plans E6, E12, D8, and D43. These comments, suggestion and recommendation were recorded on a flip chart. Some of the comments have been edited or expanded to preserve the meaning. Some of the comments apply more to the five-year season structure discussion. The next new season structure will be implemented in the 2005. These comments should be reviewed and presented as part of these deliberations.

D-43 Comments:

- ❑ Need to obtain older age classes of buck deer in the population
- ❑ Does DOW consider how many licenses they issue and the affect on the buck population?
- ❑ The biggest problem facing deer is predators (coyote and mountain lions) not loss of deer habitat
- ❑ Need more buck deer

Public Meetings, 5/8/02 and 5/9/02

Two public meetings were held to determine public issues and concerns. Both meetings were advertised in the local newspapers and on the local radio stations. The first meeting was on 5/8/02 at the Carbondale Days Inn from 4 pm to 8 pm. The second meeting was at the Gypsum Town Hall on 5/9/02 from 4 pm to 8 pm. Both meetings were conducted in the open house format. There was a station and posters for each DAU and DAU plan. Additional stations were set up to explain the DAU planning process and population dynamics. Questionnaires for deer and elk were provided and attendees were encouraged to fill them out at the meeting. Some preferred to take the questionnaires and mail them back to the DOW. All of the local DWMs, Pat Tucker, AWM and Gene Byrne, terrestrial Biologist were in attendance to answer questions and serve the public. Additionally, the DAU plans and questionnaires were made available at the Glenwood Springs office.

Results:

Attendance – only two people showed up at the Carbondale meeting and 5 people at the Gypsum meeting. Only 4 questionnaires were completed and turned in for analysis.

1. Are you...
 4 a resident of Colorado? 0 a non-resident of Colorado?

2. Do you live in GMUs 25, 26, 34, 35, 36, 43, 44, 45, 47, 444, 471?
 4 Yes
 0 No

3. Do you own or lease property in GMUs 25, 26, 34, 35, 36, 43, 44, 45, 47, 444, 471?
 1 No
 3 Yes, If yes, how many acres 3.5, 1,580?

4. Which group(s) do your opinions about deer management most represent?
(Check all that apply)
 1. 2 Rancher/farmer
 2. 1 Business owner
 3. 1 Landowner
 4. 1 Guide/outfitter
 5. Government employee
 6. 3 Hunter/sportsperson
 7. 1 Environmental/conservation interest
 8. Other, please explain: BS in Wildlife Biology

If you checked more than one response in Question 4 above, write the number of the ONE GROUP listed that you **most represent** –

1. Rancher/farmer
2. Business owner
3. Landowner
4. Guide/outfitter
5. Government employee

- 6. 2 Hunter/sportsperson
- 7. Environmental/conservation interest
- 8. Other, please explain

5. Please indicate, by order of preference, what seasons you prefer to hunt (with “1” being the highest preference and “4” being the lowest preference).

Type Hunter				
Archery	3	4	2	
Muzzleloading	2	3		
Regular	1	1	1	1
Other		2		
Do Not Hunt				

DEER MANAGEMENT

1. Over the past 40 years, deer populations have been up and down but mostly in a general decline. Even though we have fewer deer than we had 40 years ago, the Colorado Division of Wildlife believes that it would be unwise to attempt to increase deer numbers at this time. Deer habitat quantity and quality has been reduced or lost by land development, highways, fire suppression and competition with increasing elk herds, etc. For the health of all wildlife, it is very important to maintain forage in good condition. Also, the CDOW believes that with smaller deer herds, there will be higher reproduction and survival rates. In many cases, having smaller herds should result in the same or even more surplus deer for the hunters to harvest. The CDOW is not recommending an increase in the deer population objective at this time and feels that a decrease is necessary. With this in mind, how would you like the deer populations to change?

Check only one for each DAU:

	D8	D13	D14	D43	D53
DOW Rec. Decrease*	-16%	-15%	-10%	-15%	-8%
Decrease over 25%					
Decrease 11-25%	1		1		
Decrease 1-10%		1			
No Change	2	1	1	1	1
Feel Deer population Objectives should increase	1	1	1	1	1

* % Decrease compared to the current (2001) post-hunting season population

2. The Glenwood Springs area deer herds are currently managed for a sex ratio objective of 23-35 bucks per 100 does. This is the ratio of buck deer to doe deer at the end of the fall hunting season. The current regulations allow a buck deer hunters to harvest any antlered deer with a minimum of 5-inch antler. Because all deer hunting in the Glenwood Springs area is now totally limited (no more over-the-counter licenses), the DOW is able to manipulate the buck:doe ratio by the number of licenses that are issued. Therefore, with the exception of D14 and D53, the DOW is considering increasing the buck ratios to a range of 25-35 bucks per 100 does per DAU. How satisfied are you with these recommendations? (Please check one box per DAU):

Deer Herd (DAU)	Current Sex Ratio Obj.	DOW Recommend Sex Ratio Obj.	Very Dissatisfied	Somewhat Dissatisfied	Slightly Dissatisfied	Neutral	Slightly Satisfied	Somewhat Satisfied	Very Satisfied
D8	23	30		1		1			2
D13	23	30		1		1			1
D14*	35	35		1		1			1
D43	24	30		1		1			1
D53*	30	25		1		1			1

* D14 has been managed as a trophy deer area since 1992 with a sex ratio objective of 35 bucks:100 does
 * D53 – despite 39% drop in buck harvest over the past 3 years, the buck ratio has remained at an average of 25.6 bucks:100 does

DEER HUNTING

1. Overall, how satisfied or dissatisfied have you been with the deer hunting in the Glenwood Springs area deer herds in the past 5 seasons? **(Please check one box per herd that you have personally hunted)**

Deer Herd (DAU)	Very Dissatisfied	Somewhat Dissatisfied	Slightly Dissatisfied	Neutral	Slightly Satisfied	Somewhat Satisfied	Very Satisfied
D8						2	1
D13						1	
D14						1	1
D43						1	1
D53		1				1	1

2. Overall, how satisfied or dissatisfied have you been with the hunter crowding while deer hunting in the Glenwood Springs area deer herds in the past 5 seasons? **(Please check one box per herd that you have personally hunted)**

Deer Herd (DAU)	Very Dissatisfied	Somewhat Dissatisfied	Slightly Dissatisfied	Neutral	Slightly Satisfied	Somewhat Satisfied	Very Satisfied
D8		1	1			1	
D13						1	
D14		1				1	
D43		1				1	
D53			2			1	

3. Overall, how would you rate the deer hunting opportunities in the Glenwood Springs area deer herds?

Deer Herd (DAU)	Very Dissatisfied	Somewhat Dissatisfied	Slightly Dissatisfied	Neutral	Slightly Satisfied	Somewhat Satisfied	Very Satisfied
D8					1	1	1
D13					1		
D14					1		1
D43					1		1
D53					2	1	

Additional Comments:

1. Leave the draw for bucks only on all seasons until November 10
2. No deer hunting in the mating season – after November 10
3. Have 3-point antler or better restriction for deer hunting

Appendix E: 2010 Public questionnaire responses and comments

Text of public comment questionnaire:

1. Are you a deer hunter?
 YES (CONTINUE WITH QUESTION 2) NO (GO TO QUESTION 9)

2. As a recreational activity, how important is deer hunting for you compared to your other recreational activities? (check one)
 MY MOST IMPORTANT RECREATIONAL ACTIVITY
 ONE OF MY MORE IMPORTANT RECREATIONAL ACTIVITIES
 NO MORE IMPORTANT THAN ANY OTHER RECREATIONAL ACTIVITY
 LESS IMPORTANT THAN MOST OF MY OTHER RECREATIONAL ACTIVITIES
 NOT AT ALL IMPORTANT TO ME AS A RECREATIONAL ACTIVITY

3. Which aspects of deer hunting are most important to you?
Rank the following from MOST important (1) to LEAST important (6):
 HARVESTING A DEER EVERY YEAR
 BEING ABLE TO DRAW A BUCK LICENSE EVERY YEAR
 BEING ABLE TO DRAW A DOE LICENSE EVERY YEAR
 SEEING MORE MATURE BUCKS
 SEEING MORE DEER
 EXPERIENCING LESS HUNTER CROWDING

4. Please indicate how many seasons you have hunted deer in each of the following GMUs.
GMU 25: _____ SEASONS GMU 26: _____ SEASONS GMU 34: _____ SEASONS

5. Which of the following GMUs did you hunt deer in 2009?
 GMU 25 GMU 26 GMU 34 none of these GMUs

6. Which best describes the land you deer hunt in GMU 25, 26, or 34? (check all that apply)
 PRIVATE LAND WHICH I OWN
 PRIVATE LAND THAT I LEASE
 PRIVATE LAND I DON'T OWN BUT HUNT FOR FREE
 FEDERAL, STATE OR COUNTY PUBLIC LANDS
 UNSURE

7. In how many years of the past 3 have you applied for antlerless deer permits in GMUs 25, 26, and/or 34?
 0 YEARS 1 YEAR 2 YEARS 3 YEARS

8. Which best describes your 2009 deer harvest in GMUs 25, 26, and/or 34?
 I DID NOT HUNT DEER IN GMUS 25, 26, OR 34 (GO TO QUESTION 8)
 I HUNTED BUT DID NOT HARVEST A DEER.
 I HARVESTED A BUCK
 I HARVESTED A DOE

9. Overall, how satisfied or dissatisfied were you with your 2009 deer hunting experience in GMUs 25, 26, and/or 34?
 VERY SATISFIED SOMEWHAT SATISFIED NEITHER SATISFIED NOR DISSATISFIED SOMEWHAT DISSATISFIED VERY DISSATISFIED

10. Do you live in GMU 25, 26, or 34? (see attached map) YES NO

11. Do you own huntable property in GMU 25, 26, or 34? YES NO

12. Do you guide or outfit for deer in GMU 25, 26, or 34? YES NO

HERD POPULATION ALTERNATIVES

Alternative 1: 4,000-5,000 deer:

This alternative would result in a slight decrease in the population size or would maintain a status quo relative to current

population estimate of 4,700 deer. In general, the herd at this reduced density should be more resilient to severe winter conditions than in the past and should be able to sustain a higher level of harvest and other mortality. To achieve this population objective, antlerless license quotas could increase slightly. Depending on which sex ratio objective is selected, it could be more difficult to draw a buck license at this smaller population size because there would be fewer bucks on the landscape. Harvest success rate may decline because of having more hunters in the field seeking out relatively fewer animals, and hunter crowding may be an issue. On the other hand, the economic impact of deer hunting in the community could increase with more hunters visiting the area.

Alternative 2: 5,000-6,000 deer:

This alternative would maintain or slightly increase the current population size of this herd. There would be less competition for forage and habitat among deer than in the past. In severe winters, some deer may die due to poor body condition, but in general, the population should be able to rebound to this level fairly quickly under average weather conditions.

To achieve this population objective, antlerless licenses could increase slightly over time. In the short term, licenses may be maintained for a year or so at the current quotas to allow population growth. If the high fawn ratio seen last year continues, the population should reach this objective quickly. Licenses could increase thereafter to stabilize the population size. Hunting opportunity, harvest success rates, and economic impact would be intermediate compared to Alternatives 1 and 3.

Alternative 3: 6,000-7,000 deer:

This alternative would increase the current population size. This population level probably is at the upper end of what is achievable and sustainable long-term while still maintaining adequate hunting opportunity. There would be more competition among deer, and the population would be less resilient to severe winters compared to Alternatives 1 and 2. Thus, the population size may fluctuate more in response to weather conditions and may be slower to recover following a harsh winter.

To achieve this population objective, license numbers would be reduced or maintained at the currently low quota for several years, possibly long-term, to allow population growth. There would be less opportunity to draw a license and hunters might not be able to draw a license every year. However, those who do successfully draw would likely have a better chance of harvesting a deer because there would be more deer. Also, hunters would experience less crowding. At a higher population size, there would be more bucks on the landscape, so it could be easier to maintain a higher buck ratio. If the population size drops due to a harsh winter, both doe and buck license numbers would likely be reduced until the population recovers, so license numbers may be less consistent from year to year. Economic benefits from hunting would be reduced because there would be fewer hunters contributing to local establishments.

13. After reading the text box above, please indicate your support/opposition for the following population alternatives for GMUs 25, 26, and 34.

	<u>STRONGLY</u> <u>SUPPORT</u>	<u>SOMEWHAT</u> <u>SUPPORT</u>	<u>NEITHER</u> <u>SUPPORT NOR</u> <u>OPPOSE</u>	<u>SOMEWHAT</u> <u>OPPOSE</u>	<u>STRONGLY</u> <u>OPPOSE</u>
Alternative 1: 4,000-5,000 deer Slight decrease / maintain current population size	1	2	3	4	5
Alternative 2: 5,000-6,000 deer Maintain current population size / slight increase	1	2	3	4	5
Alternative 3: 6,000-7,000 deer Increase the population size	1	2	3	4	5

Herd Composition Alternatives

Alternative 1: 24-28 bucks per 100 does:

This alternative would reduce the current observed sex ratio by 7% to 20%, and would primarily focus on providing hunting opportunity. Buck licenses available in the 2nd, 3rd, and possibly 4th seasons would increase. More bucks could be harvested than in the past, but fewer bucks would survive to maturity, so there would be fewer trophy bucks available in the population. This alternative would increase hunting opportunity and total harvest. However, hunter crowding could be a problem.

Alternative 2: 28-32 bucks per 100 does:

This alternative would maintain the sex ratio at the current level of about 30 bucks per 100 does. There would be no change in the season structure. Under this alternative, the buck ratio would be managed for a balance between quality buck hunting and opportunity to draw a buck license.

Alternative 3: 32-36 bucks per 100 does:

This alternative would increase the current observed sex ratio by 7% to 20%. The goal would be to produce high quality bucks, but would limit hunter opportunity. Buck licenses in 2nd and 3rd seasons would be reduced (or maintained at the lower quotas set in 2008 and 2009) to relieve hunting pressure on bucks. The opportunity to draw a buck license would be lower than in the past, so hunters should expect that they might not be able to hunt for bucks in the DAU every year. However, more bucks would survive to maturity, so those hunters who drew a buck license would have more opportunity to harvest a quality buck.

14. After reading the text box above, please indicate your support/opposition for the following buck to doe ratio alternatives for GMUs 25, 26, and 34.

	<u>STRONGLY</u> <u>SUPPORT</u>	<u>SOMEWHAT</u> <u>SUPPORT</u>	<u>NEITHER</u> <u>SUPPORT NOR</u> <u>OPPOSE</u>	<u>SOMEWHAT</u> <u>OPPOSE</u>	<u>STRONGLY</u> <u>OPPOSE</u>
Alternative 1: decrease the sex ratio to 24-28 bucks/100 does	1	2	3	4	5
Alternative 2: maintain the current sex ratio of 28-32 bucks/100 does	1	2	3	4	5
Alternative 3: increase the sex ratio to 32-36 bucks/100 does	1	2	3	4	5

Questionnaire responses:

Question	1	2	3	4	5	Summary/averaged responses
1. Are you a deer hunter?	Y	Y	Y	Y	Y	Y (5)
2. As a recreational activity, how important is deer hunting for you compared to your other recreational activities? a = most important; b = one of my more important; c= no more important than any other; d = less important; e= not at all important	b	b	b	b	c	b (4); c(1)
3. Which aspects of deer hunting are most important to you? (1) most important to (6) least important						
harvesting a deer every year	6	4	6	4	5	5.0
being able to draw a buck license every year	2	3	5	1	4	3.0
being able to draw a doe license every year	5	6	4	4	6	5.0
seeing more mature bucks	3	1	1	4	1	2.0
seeing more deer	1	2	2	4	3	2.4
experiencing less hunter crowding	4	5	3	4	2	3.6
4. Please indicate how many seasons you have hunted deer in each of the following GMUs.						
GMU 25	1	4	2	0	6	3
GMU 26	1	12	0	0	0	3
GMU 34	2	0	0	6	0	2
5. Which of the following GMUs did you hunt deer in 2009?						
GMU 25	N	N	N	N	Y	N (4); Y(1)
GMU 26	N	Y	N	N	N	N (4); Y(1)
GMU 34	N	N	N	Y	N	N (4); Y(1)
none	Y	N	Y	N	N	N (3); Y(2)
6. Which best describes the land you deer hunt in GMU 25, 26, or 34? (check all that apply) a = private land which I own; b = private land that I lease; c = private land I don't own but hunt for free; d = public land; e = unsure	d	a	a, d	d	d	public (4); private/own (2)
7. In how many years of the past 3 have you applied for antlerless deer permits in GMUs 25, 26, or 34?	0	0	0	0	2	0.4
8. Which best describes your 2009 deer harvest in GMUs 25, 26, or 34? a = I did not hunt deer in GMUs 25, 26, or 34; b = I hunted but did not harvest; c = I harvested a buck; d = I harvested a doe	a	b	a	c	b	did not hunt deer in D-43 (2); hunted but did not harvest (2); harvested a buck (1)
9. Overall, how satisfied or dissatisfied were you with your 2009 deer hunting experience in GMUs 25, 26, and/or 34? a = very satisfied; b = somewhat satisfied; c = neutral; d = somewhat dissatisfied; e = very dissatisfied						did not hunt deer in D-43 (2); hunted but did not harvest (2); harvested a buck (1)
		d		b	d	somewhat dissatisfied (2); somewhat satisfied (1)
10. Do you live in GMU 25, 26, or 34? (see attached map)	N	Y	Y	N	Y	Y (3); N (2)
11. Do you own huntable property in GMU 25, 26, or 34?	N	Y	Y	N	N	N (3); Y(2)
12. Do you guide or outfit for deer in GMU 25, 26, or 34?	N	Y	N	N	N	N (4); Y(1)
13. After reading the text box above, please indicate your support/opposition for the following population alternatives for GMUs 25, 26, and 34. 1 = strongly support; 2 = somewhat support; 3 = neutral; 4 = somewhat oppose; 5 = strongly oppose						
Alternative 1: 4,000-5,000 deer	5	5	4	3	5	4.4
Alternative 2: 5,000-6,000 deer	4	2	4	1	3	2.8
Alternative 3: 6,000-7,000 deer	1	1	1	4	1	1.6
14. After reading the text box above, please indicate your support/opposition for the following buck to doe ratio alternatives for GMUs 25, 26, and 34. 1 = strongly support; 2 = somewhat support; 3 = neutral; 4 = somewhat oppose; 5 = strongly oppose						
Alternative 1: 24-28 bucks/100 does	4		5	2	4	3.8
Alternative 2: 28-32 bucks/100 does	2	2	4	1	2	2.2
Alternative 3: 32-36 bucks/100 does	4	2	1	5	1	2.6

Public input comments:

Comment 1: When possible, I like to be able to have quality hunts with leftover and 2nd choice buck tags. To me, 34 is good bet for hunting with a leftover tag, but there seem to be far fewer deer available there than in nearby units (especially 33, but also 25 and 26). I believe statistics also support this theory of mine. I enjoy the lower hunting pressure in 34 compared to the rest of the Flat Tops, but the success rates are abysmal, and I would like to see fewer public land doe tags issued for this unit. Whack all the private land does that the landowners want, but it's the public land deer that most hunters are after. Many of those private land deer will never set foot on public land anyway. The 5 year average 2nd season buck only success rate in 34 is just 16.6% and only 3% last year, which is considerably less than half the average 2nd season success rate of 43% throughout the rest of Western Colorado. 3rd season doesn't average much better at just 23.8% for bucks only for the last 5 years, which is about half the average 3rd season success rate among units West of I25. Anyway, I think 34 could benefit from a reduction in public land doe licenses in order to improve the public land buck hunting. Reducing doe licenses unit wide is helpful for the whole area, but since you already localize your doe management, I feel like 34 could use a little extra caution with doe harvest. I realize there were only 100 licenses issued for 2nd and 3rd season these past two years, but it wouldn't break my heart if you reduced those even further. Going back to 250 licenses(2008), 350 licenses (2007) or 500 licenses (2004-2006) seems excessive to me at this point and it will take a long time to rebuild to where you will be able to do so, if ever.

Comment 2: I feel the deer (and elk) population, both in quantity and quality, is very poor in areas 25 & 26. I know that the winter several years ago was very hard on the deer, yet you kept giving out doe permits like nothing had happened. I feel there are two main problems:

(1) Ranching for wildlife

- Their season is way too long (5+ months)
- They shoot way too many quality bucks
- They pressure the elk for 5 plus months a year, pushing them into big herds and finally pressuring them out [of] the area that Ranching for Wildlife hunts

(2) Predators

- Way too many coyotes, way too many bears

I want to see a lot more deer. The elk are all but kicked out of here so there should be plenty more for the deer.

Comment 3: As a ranchland owner of 5000 acres in unit 25, I feel we need a change in lion hunting regulations so younger houndsmen (greater endurance, ambition...) can outfit hunters. I also am dissatisfied when "ranching for wildlife" hunts deer later than others can, I feel this is very unfair, I've not allowed deer hunting on my property since 1987. Yet bucks we try to grow up follow does onto this property and are harvested. Public & private hunting needs to stop on the same date with no hunting during the "rut".

Comment 4:

Overall, support alternative 2 to maintain a deer herd of 5000-6000 deer with buck to doe ratios of 28-32 bucks per 100 does. Maintaining 30 bucks per 100 does would be preferable, even though DAU43 deer numbers are not as high as other DAU's in the state.

My hunting experience is in GMU 34, which is a difficult unit to hunt for deer. Deer tend to hold their elevation as long as possible before moving onto the transitional and winter range. This is probably due to the short migration distance that deer have to travel from their summer range. The terrain also makes deer hunting in GMU 34 difficult due to the steep terrain, dense vegetation and limited glassing opportunities. Late season access can also be limited due to deep snow. I am familiar with GMU 25 and GMU 26, but have not had the opportunity to hunt in these units due to the limitations on buck tags to draw within these units without any preference points.

Main limitation on maintaining or increasing deer numbers in DAU43 is the transitional habitat and winter range. The transitional habitat consisting of aspen and mountain shrubs is in pretty poor shape for DAU as a whole. Mature aspen with little regeneration and the onset of sudden aspen decline has reduced the carrying capacity for transitional range. The aspen, mixed with mountain shrubs and winter range is probably one of the most important habitats since it provides food and shelter during spring, fall and winter months. This zone is also heavily used by elk, cattle and sheep during various portions of the year. The competing uses of this transitional/winter range is potentially at risk from being lost from so much ungulate use. Once this is lost, a resultant decline in deer numbers would most likely result.

Since the CDOW is not responsible for management of the habitat, the only control factors CDOW can implement is managing deer and elk numbers. Federal agencies have the ability to affect the habitat through cattle and sheep management plans, and of course, habitat management. Habitat management may consist of vegetation treatments, such as prescribed fire, prescribed natural fire. Small treatments of a couple hundred acres would have some benefits, but would also concentrate ungulate use during certain times of the year. For treatments to be effective, large areas (tens of thousands of acres) would need to be treated across the DAU43 to spread out the potential for concentrated use. This in itself would be a great challenge to pull off, but one that could benefit deer herd numbers within DAU43. It is possible though, as land managers are assessing resource management options during wildfire starts, risks and benefits on federal lands. One good example of resource management decisions that improved habitat for deer is the Spring Creek fire area in GMU34. Also, the Meadow Creek fire could potentially benefit deer habitat in GMU33.

Right now, since the transitional/winter range deer habitat in DAU43 is limited, the CDOW should focus on reducing elk numbers in DAU43 if the management goal is to increase deer herd numbers. Elk can easily out compete deer in this transitional/winter habitat zone. Alternative 2 for DAU43, may not even be attainable in respect to meeting a deer herd of 5000-6000 animals due to the poor conditions of the current transitional/winter habitat. Therefore, in support of keeping deer herd numbers at status quo or slightly increasing, I would support a reduction in the elk numbers in DAU43, and a more proactive prescribed fire management program instituted by the Forest Service and BLM for habitat improvement. I would not support reducing doe deer numbers in an effort to increase the buck to doe ratio.

Comment 5: Shut off the late hunt. Need lots more predator control. To[o] many lions!

Appendix F. BLM comments



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Colorado River Valley Field Office
2300 River Frontage Rd.
Silt, Colorado 81652
970-876-9000



IN REPLY TO:
CON040
CO-140
1110

November 4, 2010

Perry Will - Area Wildlife Manager
Colorado Division of Wildlife
50633 Highway 6 & 24
Glenwood Springs, CO 81601

Dear Mr. Will,

The Bureau of Land Management (BLM), Colorado River Valley Field Office (CRVFO) appreciates the opportunity to comment on the Data Analysis Unit (DAU) plans for the Maroon Bells deer herd (D-13) and the Sweetwater Creek deer herd (D-43). BLM lands within D-13 and D-43 are the center of both conflict and opportunity. BLM land management issues are complex due to: changing regional and local economies, population growth, shifting demographics, the expansion of residential areas on private lands, tourism, and local and destination-based recreation demand.

Acknowledging the states' role in managing big game populations, the CRVFO would like to provide information on habitat conditions in D-13 and D-43. BLM utilizes land health standards to describe conditions needed to sustain public land health. The standards are applied on a landscape scale, address the potential of the landscape, and relate to all uses of the public lands. Land health assessments were completed in D-43 in 2006 and 2008. A land health assessment was performed in D-13 in 2010, however a report of the findings will not be available until spring of 2011.

On a watershed basis, standards for public land health are being achieved on BLM lands at the time of the land health assessment in D-43 and preliminarily indications are that land health standards are being achieved in D-13 also. No forage issues between livestock and big game were identified. The interdisciplinary team did note certain localized land health concerns, which were not severe or widespread enough to rate any of the landscapes as not meeting the standards. These include:

- Presence of noxious weeds and undesirable species such as cheatgrass,
- Pinyon-juniper woodland encroachment into sagebrush shrublands,
- Sagebrush decadence,
- Locally heavy browsing (hedging) of shrubs due to concentrated winter use by both mule deer and elk,
- Lack of vegetative diversity, and

- Private land development in winter range (predominantly D-13)

The CRVFO has been performing habitat treatments and adjusting livestock allotment management plans to address these localized concerns. We appreciate your consideration of these habitat issues as you establish mule deer population and sex ratio objectives. Please direct any questions to Brian Hopkins of my staff. He can be reached at (970) 876-9073 or brian_hopkins@blm.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Matt Thorburn", written in a cursive style.

Matthew Thorburn
Supervisory Natural Resource Specialist

Appendix G. USFS comments



Forest
Service

White River
National
Forest

Eagle/Holy Cross Ranger District
125 West Fifth Street
P.O. Box 720
Eagle, CO 81631-0720
(970) 328-6388
(970) 827-5715
FAX (970) 328-6448
FAX (970) 827-9343

File Code: 2650

Date: November 9, 2010

Perry Will
Area Wildlife Manager
Colorado Division of Wildlife
50633 Hwy 6 & 24
Glenwood Springs, CO 81601

Dear Perry:

Thank you for the opportunity to comment on the draft Sweet Creek Deer Herd Data Analysis Unit Plan (DAU-43). The White River National Forest recognizes the important role we play in supporting the Colorado Department of Wildlife (CDOW) Mule Deer herd management strategy.

The White River National Forest Land and Resource Management Plan identifies Mule Deer as a Species of Concern due to declining populations and habitat conditions across the forest. We have a clear, common interest in ensuring a sustainable deer population is maintained on the lands we manage.

We would encourage the adoption of management alternative 2 to maintain herd strength within the 5000-6000 range, and Impacts of Sex Ratio alternative 2— buck to doe ratios of 28-32 bucks per 100. We support these alternatives based on the following factors:

- Habitat Improvement
Surveys of mule deer winter range indicate piñon-juniper encroachment into areas historically dominated by sagebrush. This and other factors have negatively influenced deer forage and habitat. Slightly increasing herd size above current populations will reduce forage and habitat competition allowing isolated habitat preservation and improvement activities (pg 16) such as prescribed fire, piñon -juniper removal and invasive weed eradication to be in balance with herd pressures.
- Economic and Social
In addition to supporting public hunting opportunities, the Eagle-Holy Cross Ranger District currently manages Outfitter and Guide permits active within DAU-43. Our permit holders rely on access to productive and reliable deer hunts. Deer herds that provide sustainable harvest opportunities are desirable to maintain this important natural resource benefit for the public. Management Alternative 2 would provide a positive balance between population improvement and impacts to both private and guided hunting opportunities (pg 32).



Caring for the Land and Serving People

Printed on Recycled Paper



- Range Conservation

Forage competition and habitat incursions by elk populations on identified deer transitional and winter range suggests a significant increase in deer herd size would be unsustainable, as the equivalent deer AUM's would have negative impacts on range conditions. We support a limited and sustainable herd population increase. However, we recommend this increase be in combination with a reduction in elk populations through a short-term increase in annual elk harvests to reduce unbalanced competition between the two species.

Finally, as National Forest lands comprise over 52% of the DAU we recognize our important role in managing the habitat on which these species rely. I look forward to working with CDOW as well as our other federal and private partners to continue improving habitat conditions for deer populations. Landscape scale conservation and range improvements will have long-term positive impacts improving species vitality and recreational opportunities. I look forward to seeking opportunities to combine resources and expertise to achieve beneficial characteristics out on the ground.

Thank you again for the opportunity to provide comments on the DAU-43 draft management plan.

Sincerely,



DAVID NEELY
District Ranger

Appendix H. HPP Committee Comments



COLORADO DIVISION OF WILDLIFE HABITAT PARTNERSHIP PROGRAM

Lower CO River Habitat Partnership Program
PO Box 1124
Silt, CO 81652

Julie Mao, Terrestrial Biologist
Colorado Division of Wildlife
50633 US Hwy 6 & 24
Glenwood Springs, CO 81601

December 7, 2010

RE: D-13 and D-43 Management Updates

Dear Julie,

After reviewing and discussing the information that was presented regarding the D-13 and D-43 management units, below is the consensus of the Lower CO River HPP Committee.

For management unit D-13 the committee supports maintaining the current population. This would be population objective alternative 2, 6,500 – 7,500 total deer population. The committee agrees that the buck/doe ratio needs to be increased so, we suggest alternative 2 for the buck/doe ratio, 30-35 bucks per 100 does.

For management unit D-43 the committee supports alternative 2 for the population objective, 5,000-6,000 total deer. The committee would like to see an increase in the buck/doe ratio, so the committee supports alternative 3, 32-36 bucks per 100 does.

The committee agrees that a great concern and limiting factor for the deer populations in these management units is winter range. This committee would like to help improve the current winter range conditions, by looking to participate in large scale habitat projects that are focused on improving the quality and quantity of the forage on the winter range for mule deer in these areas. As well the committee would like to help sustain winter range through participating in securing land in Conservation Easements to help ensure the availability of future winter range in these management units to future deer populations. This would help to sustain the deer populations at the objective with quality mule deer that are healthy. Increasing the quality and quantity of the winter range habitat would also help to reduce the impact on the deer population from competition from elk for this habitat.

Thank you for your time.

Lower CO River HPP Committee