

# CIMARRON DEER HERD MANAGEMENT PLAN DATA ANALYSIS UNIT D-40

GAME MANAGEMENT UNITS 64 and 65



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## EXECUTIVE SUMMARY

<b>Cimarron Mule Deer Herd (DAU D-40)</b>	<b>GMUs: 64, 65</b>
2020 post-hunt population: 6,400 deer	
2020 post-hunt observed buck ratio: 24 bucks per 100 does (estimated 3-yr average)	
Previous Objectives (2007-2021): 13,500-15,000 deer; 25-30 bucks per 100 does	
<b>Proposed Objective (2022-2032): 6,500-8,500; 25-30 Bucks per 100 Does</b>	

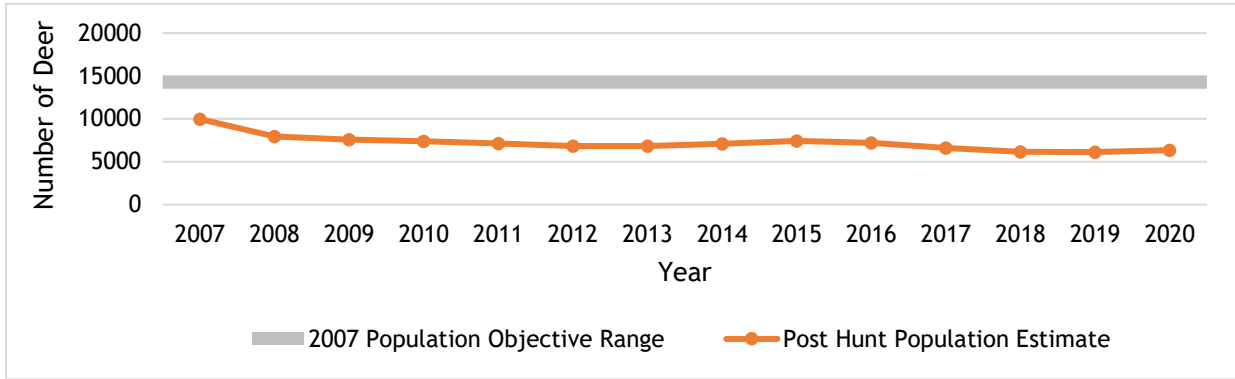


Figure 1. Deer DAU D-40 estimated post-hunt population and current objective range: 2007-2020.

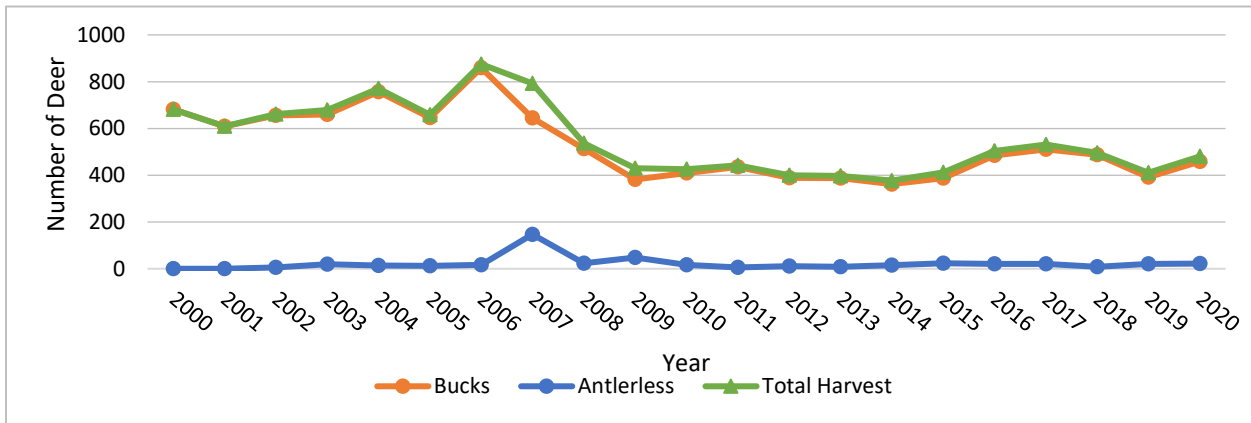


Figure 2. Deer harvest in D-40: 2000-2020.

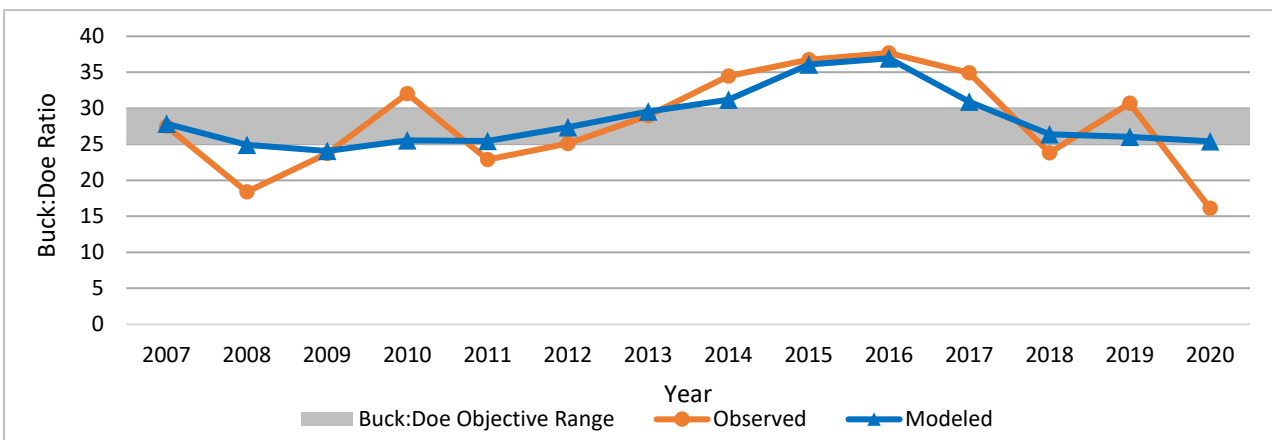


Figure 3. Deer DAU D-40 observed and modeled post-hunt buck ratio (bucks:100 does): 2007-2020.

**Background Information**

Data Analysis Unit (DAU) D-40, the Cimarron mule deer management area, consists of Game Management Units (GMU) 64 and 65. GMUs 64 and 65 were historically managed for unlimited hunter opportunity until 1999 when all buck licenses became limited statewide and licenses were reduced by 75% in an effort to increase post-hunt buck:doe ratios. Additionally, in 1998, rifle doe hunting was eliminated on public lands due to the persistent decline of this deer herd. Currently, either sex licenses are available in D-40 for the special Chronic Wasting Disease (CWD) management/youth opportunity hunt. Antlerless deer damage licenses are offered to landowners every year to mitigate impacts of deer on private lands.

From 1989 to 2007, the D-40 deer population declined steadily from approximately 14,300 to 9,900, coinciding with decreases in post-hunt fawn:doe ratios (74:100 in 1989 to 56:100 in 2007). Perhaps aided by landscape-scale habitat restoration efforts, the population has stabilized since 2007 and the 2020 post-hunt population estimate is 6,400 with an observed post-hunt buck ratio of 16 bucks:100 does and an observed post-hunt fawn ratio of 61 fawns:100 does. The proposed post-hunt population objective for D-40 is 6,500-8,500 deer. The proposed observed post-hunt buck ratio objective is 25-30 bucks:100 does.

Persistently declining deer populations on the Uncompahgre Plateau and across the west have triggered multiple actions from CPW and other agencies and organizations. CPW limited license numbers and established the Uncompahgre Plateau (D-19), adjacent to D-40, as an intense deer study area beginning in 1997 to monitor winter fawn survival and annual doe survival to better inform management of deer populations on the Plateau and in similar habitats across southwestern Colorado. Additional studies have also been completed on the Plateau to investigate declining deer populations.

**Significant Issues**

The long-term population decline of this deer herd and low fawn recruitment (survival of a fawn from birth to one year of age) over the previous 30-40 years is likely attributed to an overall decrease in carrying capacity across the landscape for a variety of reasons. Although fawn ratios are increasing, population numbers have been slow to respond. Suitable winter range habitat has diminished due to land conversions and human development. Additionally, outdoor recreation has increased dramatically over the last decade and can have many impacts including loss of effective habitat, changes in seasonal migration patterns, and potentially lower survival rates. Overgrazing by domestic livestock and persistent drought have decreased the quality of habitat across the landscape as well.

Additionally, CWD was first detected in D-40 in 2017 with a current prevalence rate of 1.7%. Although prevalence is low, CPW is taking preventative management actions to limit the spread of CWD. CPW created an August private land disease management hunt in portions of 62, 64, and 65 when only resident deer are located in the Uncompahgre Valley. This allows hunters to target deer that are more likely to transmit CWD to high elevation deer when they migrate to the valley during the winter months. Moreover, CPW has increased buck licenses to decrease spread since adult male deer are more likely to contract CWD. Proactive CWD management will be a crucial part of the D-40 herd management plan.

**Management Objectives**

CPW’s population models have been updated since the previous herd management plan was established in 2007. Adjusting the population estimate to more accurately represent the population size is the first objective for the new herd management plan. Moreover, because of low estimated populations and the desire to increase deer populations, CPW offers few antlerless deer licenses; therefore, management is limited to adjusting buck license numbers. To manage CWD, CPW will continue the disease management hunt and potentially increase licenses if prevalence increases. The buck ratio will also be managed carefully to limit CWD prevalence.

**Management Alternatives**

In Data Analysis Unit D-40, three alternatives are being considered for the post-hunt population size and three alternatives for the buck ratio objectives (Table 1):

Table 1. Population and herd composition objective alternatives for the D-40 deer herd.

Population Objective Alternatives:		Buck Ratio Objective Alternatives:	
4,500 to 6,500 (midpoint 5,500)	(1) Approximately 15% decrease in 2020 population estimate	20 to 25 bucks per 100 does	(1)
6,000 to 8,000 (midpoint 7,000)	(2) Status Quo-Updated population estimate with similar management objective from 2007 HMP (10% increase population)	25 to 30 bucks per 100 does	(2) CPW Proposed Objective- status quo from 2007 HMP
6,500 to 8,500 (midpoint 7,500)	(3) CPW Proposed Objective- Approximately 17% increase in 2020 population estimate	30 to 35 bucks per 100 does	(3)

**CPW Proposed Objectives:**

***Post-Hunt Population***

The proposed management objective for D-40 is a population of **6,500 to 8,500** mule deer. This objective range allows CPW to increase the population, but also manage the spread of Chronic Wasting Disease by having flexibility to increase buck licenses. Eventually, if carrying capacity and populations increase, more hunting opportunity will result.

***Post-Hunt Buck Ratio***

The proposed buck ratio will keep management the same as the previous herd management plan objective of **25-30 bucks:100 does**. The objective allows for a balance of opportunity for hunters, while simultaneously allowing CPW to keep CWD prevalence in check. There was little support in the stakeholder survey to decrease the buck ratio and increasing the buck:doe ratio could increase the spread of CWD.

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## INTRODUCTION AND PURPOSE

Colorado Parks and Wildlife (CPW) manages big game for the use, benefit, and enjoyment of the people of the state in accordance with the CPW’s Strategic Plan (2010-2020). Deer management is also determined by mandates from the Colorado Parks and Wildlife Commission (PWC) and the Colorado Legislature. Colorado’s wildlife species require careful and increasingly intensive management to accommodate the many and varied public demands and growing human impacts. The CPW uses a “Management by Objective” approach to manage the state’s big game populations (Figure 4).

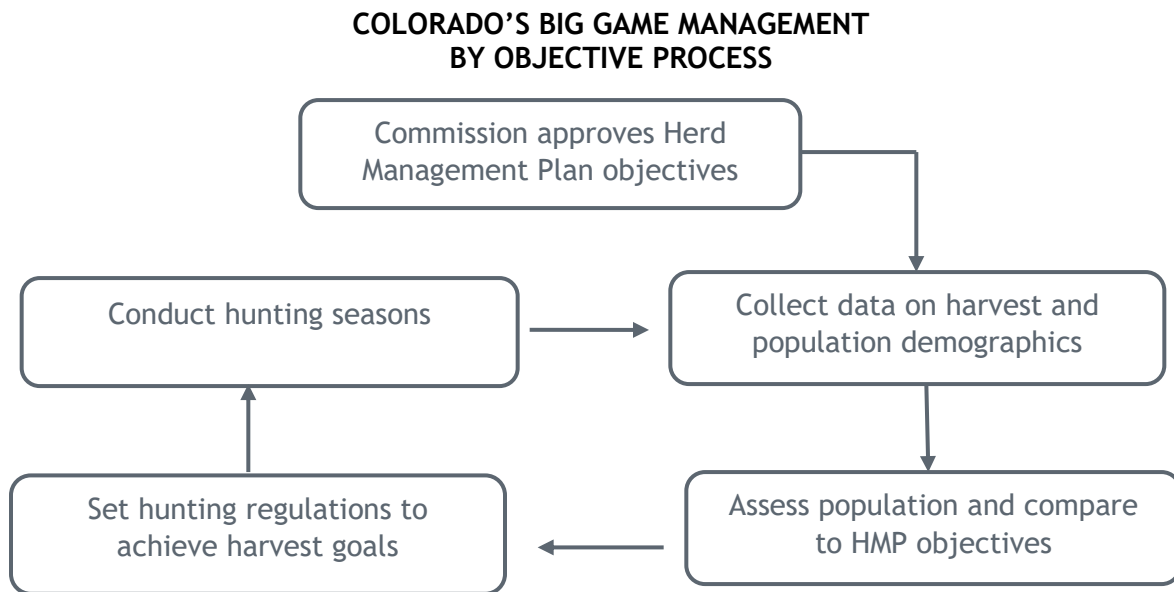


Figure 4. Management by Objective process used by Colorado Parks and Wildlife to manage big game populations by Data Analysis Unit (DAU).

With the Management by Objective approach, big game populations are managed to achieve population objectives established for a Data Analysis Unit (DAU). A DAU is the geographic area that includes the year-round range of a big game herd. A DAU includes the area where most animals in a herd are born, live and die. DAU boundaries are delineated to minimize interchange of animals between adjacent DAUs. A DAU may be divided into several Game Management Units (GMUs) to distribute hunters and harvest within a DAU.

Management decisions within a DAU are based on a Herd Management Plan (HMP). The primary purpose of a HMP is to establish population and buck ratio (i.e., the number of males per 100 females) objectives for the DAU. The HMP also describes the strategies and techniques that will be used to reach these objectives. During the HMP planning process, public input is solicited and collected through questionnaires, public meetings, and comments to the CPW staff and the PWC. The intentions of the CPW are integrated with the concerns and ideas of various stakeholders including the State Land Board (SLB), the Bureau of Land Management (BLM), United States Forest Service (USFS) city and county governments, hunters, guides and outfitters, private landowners, local chambers of commerce, and the public. In preparing a HMP, agency personnel attempt to balance the biological capabilities of



the herd and its habitat with the public's demand for wildlife recreational opportunities. HMPs are approved by the PWC and are reviewed and updated approximately every 10 years.

The HMP serves as the basis for the annual herd management cycle. In this cycle, the size and composition of the herd is assessed and compared to the objectives defined in the HMP and removal goals are set. Based on these goals, specific removal strategies are made for the coming year to either maintain the population or move it towards the established objectives (e.g., license numbers and allocation are set, translocation plans are made). Hunting seasons and/or translocations are then conducted and evaluated. The annual management cycle then begins again (Figure 4).

## CIMARRON DATA ANALYSIS UNIT

### **Purpose**

The purpose of this HMP is to set population and buck ratio objectives for the Cimarron deer herd. The HMP will be in place from 2022-2032 with the expectation that it will be reviewed and updated in 2032. This population is difficult to manage because fawn recruitment is low and other environmental factors are limiting this herds growth; therefore, CPW will manage for an increasing population, but understand that growth will be slow until habitat conditions improve. CPW will monitor buck ratios closely to discourage the spread of CWD. Both of these strategies must keep the balance between herd health and hunter opportunity in mind.

### **Strategies for Addressing Management Issues and Achieving Objectives**

CPW will continue to classify herds annually to monitor the population size and the buck ratio within D-40 and manage licenses accordingly. As populations increase toward the top end of the objective range, more doe license could be offered. More buck licenses will be offered to balance opportunity and limit the spread of CWD if the buck ratio increases towards the top end of the objective range. CPW will continue to offer licenses for the early season disease management hunt to limit spread throughout the DAU. CPW will work with land management agencies, landowners, local governments, and NGOs to protect sensitive habitat, such as winter range. To increase ailing populations, CPW will encourage landowners with suitable winter range habitat to enroll in conservation easements to protect habitat in perpetuity. CPW would support seasonal closures in these areas and work to complete habitat improvements that benefit mule deer survival and seasonal migrations. CPW will continue to work with Colorado Department of Transportation (CDOT) to increase connectivity in movement corridors along highways. CPW will continue to support recreation research to better understand impacts to wildlife and ways to mitigate these effects efficiently.

### *Location*

Data Analysis Unit D-40 is 941 miles<sup>2</sup> in southwestern Colorado and includes parts of Delta, Gunnison, Hinsdale, Montrose, and Ouray Counties (Figure 5). DAU D-40 consists of Game Management Units 64 (269 square miles) and 65 (672 square miles) and includes parts of the Uncompahgre, Gunnison, and Cimarron River drainages. The DAU is bounded on the north and east by CO Hwy 92, Gunnison River and Morrow Point Reservoir; on the east by Big Blue Creek and Big Blue Creek-Cimarron River Divide; on the south by Ouray-San Juan county line; and on west by Ouray-San Miguel county line, CO Hwy 62, CO Hwy 550 and US Hwy 50. GMUs 64 and 65 are separated by US Hwy 50.

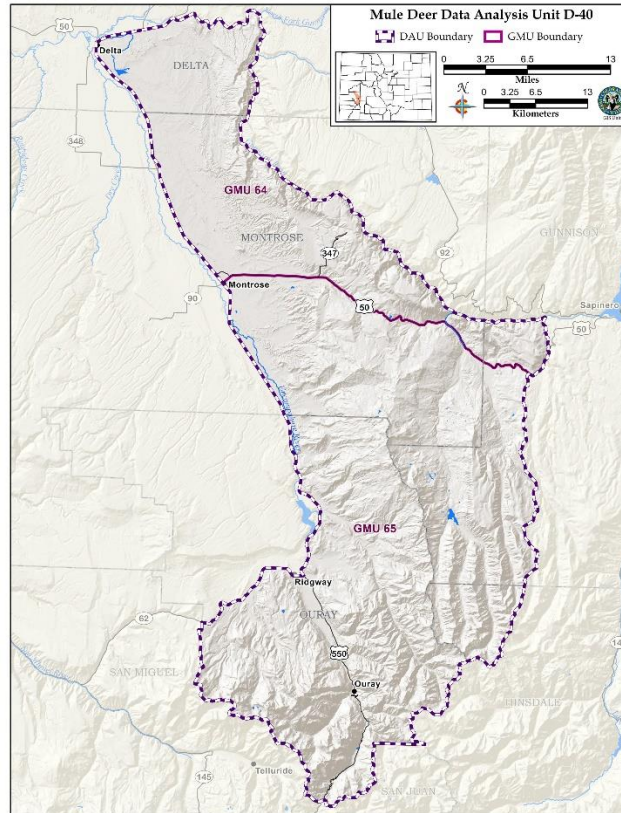


Figure 5. The Cimarron deer herd (D-40) data analysis unit (DAU) boundaries.

Elevations within the DAU range from approximately 5,000 ft in Delta to 14,150 ft at the summit of Mount Sneffels. The DAU is very diverse in topography, geology, and climate creating an area suitable to fulfill deer seasonal requirements from winter to summer. Notable features within the DAU include the Gunnison Gorge and Black Canyon of the Gunnison on the north and eastern boundary of GMU 64, Cimarron Ridge between US Hwy 550 and the Big Cimarron drainage, and the Uncompahgre and Mount Sneffels Wilderness Areas. High elevation habitats abound within the DAU providing abundant summer range for deer and elk, as well as an indigenous Rocky Mountain bighorn sheep population.

### *Vegetation*

Plant communities are diverse within the DAU (Figure 6). The community ranges from desert shrubs around Delta at an elevation of 5,000 ft. to the alpine areas in the northern San Juan range in the south end of the DAU. The high desert plant community is the predominant vegetation type between 5,000 and 6,500 ft near the Uncompahgre and Gunnison Rivers. Elevations between approximately 6,000-7,500 ft are characterized by pinyon pine and Utah juniper woodlands and grassland/shrub. From approximately 7,500 to 8,500 ft, ponderosa pine/mountain shrub is the dominant vegetation type. Elevations above 8,500 ft are generally characterized by aspen forests and a mixed spruce-fir complex. Riparian areas are also common in the lowlands of the Cimarron area. Vegetation types within the various bands provide year-round resources for deer and elk. Agricultural areas and cultivated croplands within the DAU occur primarily in the Uncompahgre Valley from Ridgway to Delta and in the Cimarron River Valley.

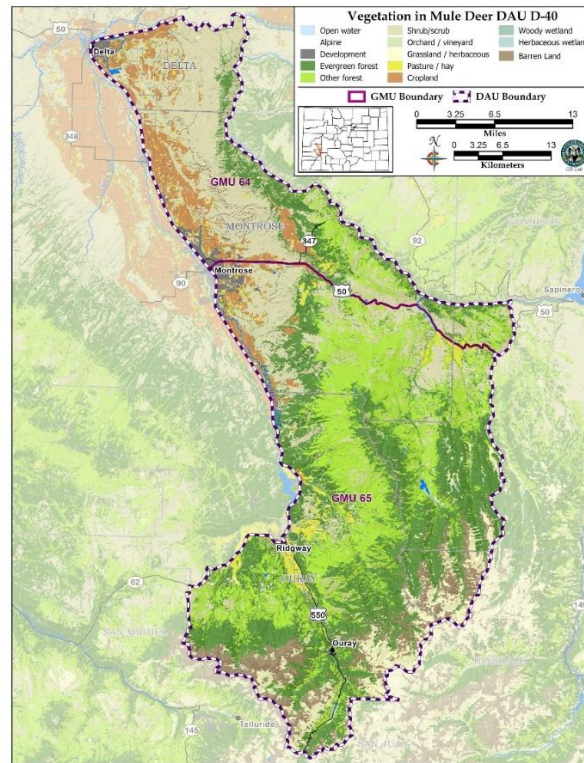


Figure 6. Vegetation classifications in DAU D-40.

### Climate

The climate of the Cimarron Ridge/ Northern San Juan area varies depending on season and elevation. Areas below 6,500 ft are usually hot and dry during the summer and generally remain free of snow during most of the winter. Elevations between 6,500-8,000 ft usually have persistent snow only between late November and March. Areas above 8,000 ft can receive heavy snowfall and from December through late April are generally inaccessible except by foot or snow-machine. Many areas of the San Juans will still hold snow into July. Mean annual precipitation varies from less than 8 inches at lower elevations to over 30 inches in the Cimarron and Dallas Creek areas. Snowfall accounts for the majority of the precipitation at the higher elevations. Monsoonal moisture between July and September is also an important source of precipitation at all elevations.

## HABITAT RESOURCE AND CAPABILITIES

### Land Use

#### *Ownership*

Land ownership in DAU D-40 is 50% private, 29% US Forest Service, 17% Bureau of Land Management, 3% National Park Service, and 2% state owned property (Figure 7). There are also two wilderness areas within the DAU: the Uncompahgre Wilderness (~99,000 acres of USFS and 3,400 acres of BLM), Mount Sneffels Wilderness (16,500 acres of USFS). Municipalities that border and/or are within the DAU include Montrose, Delta, Olathe, Ridgway, and Ouray.



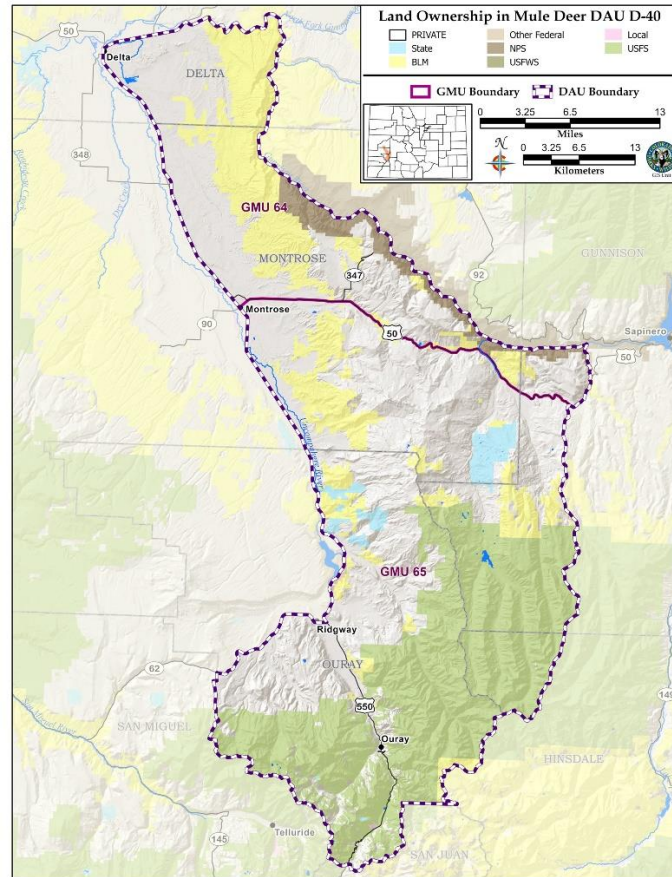


Figure 7. Land Ownership in Deer DAU D-40.

### *Human Development*

As a result of Colorado's drastic population increase, residential development is rapidly spreading into valuable wildlife habitat (Figure 8). Much like the rest of the state, the DAU is experiencing a growing human population in the Uncompahgre River Valley that is placing increased demands on D-40 for development and recreation. The human population in these counties increased 22% between 2000 and 2019 and it is expected to continue increasing at a rapid rate well into the future (Figure 9, U.S. Census Bureau 2021).

Habitat loss due to development and fragmentation is primarily occurring near the western edge of the DAU from Ridgway to Delta (Figure 10). Relatively little development is occurring on the private lands within the interior parts of the DAU; however, the potential for development is there. Most of these developments are located in important wintering areas and migration corridors for deer. Furthermore, vehicle traffic increases with rising human populations, adding another potential impact to deer survival. Roadkill along the CO Hwy 550 corridor is prevalent, especially for deer. Possible solutions to limit roadkills and human injuries occurring on roadways include wildlife overpasses and underpasses, jump-out structures, and exclusion fencing. Unfortunately, exclusion fencing designed to keep wildlife off roads can inadvertently impact movement within home ranges if there are not adequate crossing structures. CDOT, CPW, and non-government organizations (NGOs) are working diligently to improve these issues and create more permeable corridors for wildlife.

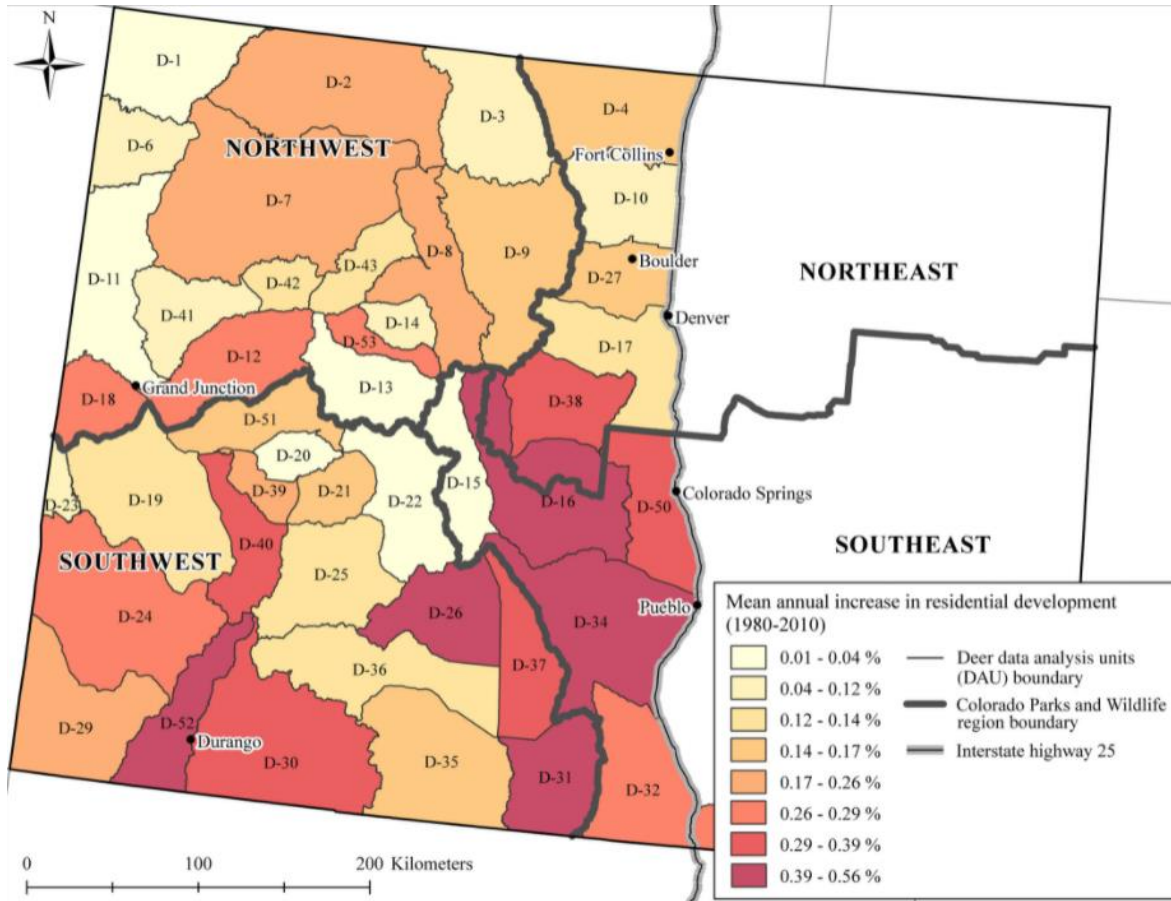


Figure 8. Deer data analysis units (DAUs) and regions in Colorado designated by Colorado Parks and Wildlife, and the percent increase in human population from 1980-2010 (Johnson et al. 2016).

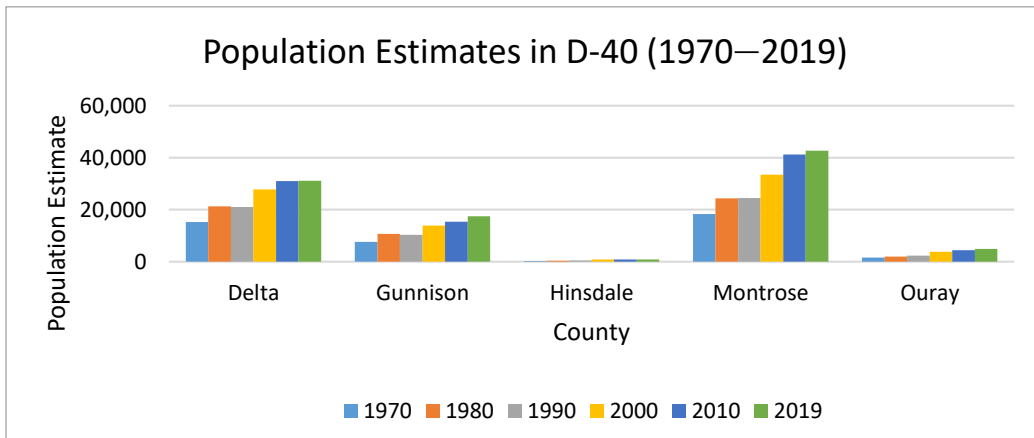


Figure 9. Population estimates from 1970–2019 in the five counties within DAU D-40 in southwestern Colorado (U.S. Census Bureau 2021).

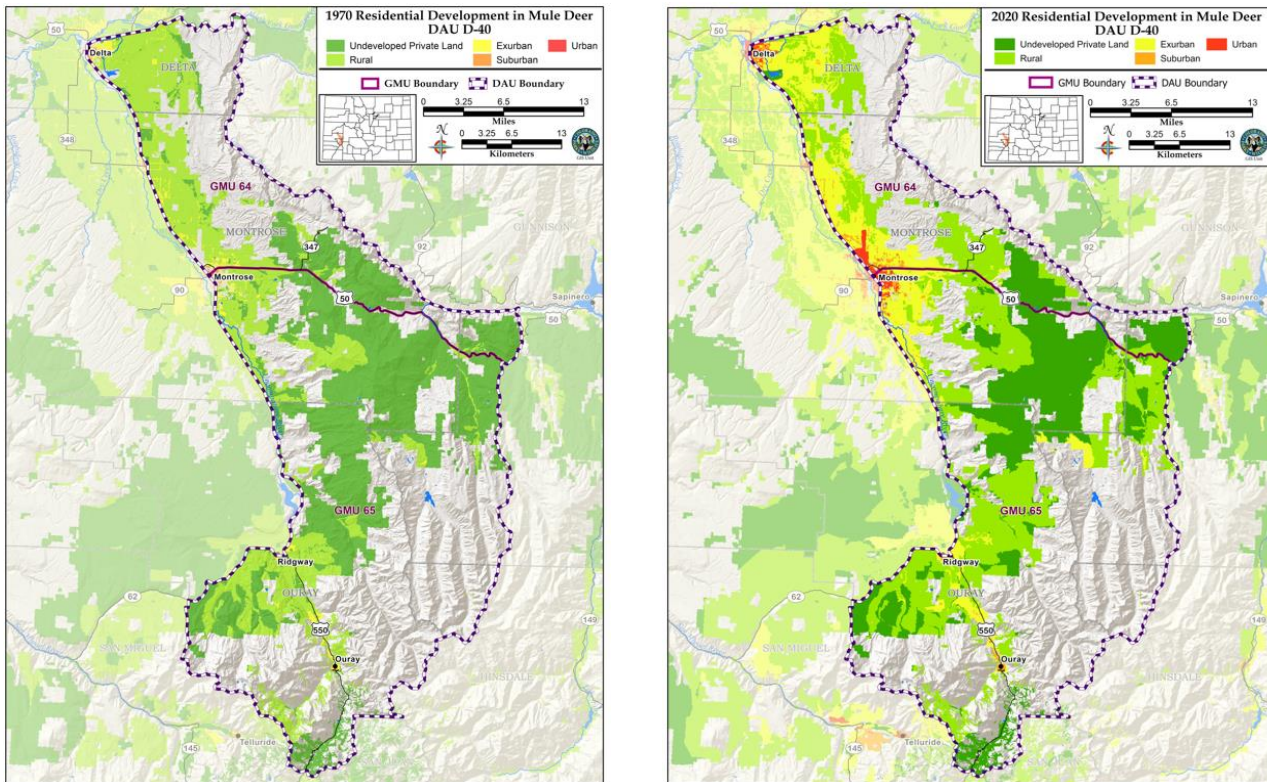


Figure 10. A side-by-side comparison of urban expansion in the Uncompahgre River Valley from 1970 to 2020 (2020 residential development was projected).

### *Agricultural*

Agricultural use in D-40 includes cultivated crop production and orchards on irrigated private lands below 6,000 ft in the Uncompahgre Valley and Cimarron area, alfalfa and grass hay production primarily on irrigated private lands below 7,500 ft, and livestock grazing throughout most of the DAU on private and public lands. As a result of extensive water distribution networks, the Uncompahgre Valley has become one of the major crop producing areas on the Western Slope and agriculture contributes greatly to the local economy. Major crops include corn, pinto beans, wheat, onions, and alfalfa. Damage by deer is a major concern in the Uncompahgre Valley. Deer often refuge on large segments of private land if hunting pressure is limited, creating additional management challenges.

Since the 1880s, livestock grazing has been a mainstay of the Cimarron and Uncompahgre region. Cattle grazing occurs throughout most of D-40 including most of the Uncompahgre National Forest and most BLM lands. Sheep grazing occurs primarily on the public land (BLM, USFS) allotments above timberline and below 7,000 ft. USFS lands are grazed by cattle primarily between mid-June and mid-September and sheep between July and September. BLM lands are generally grazed by cattle and sheep between October and June, other than a few high mountain allotments that are grazed by sheep in July and August. Competition between livestock and wild ungulates has become more common with recent drought conditions limiting adequate forage and potentially limiting the environments carrying capacity.



From the mid-1930s to the early 1970s, many range improvement projects were undertaken on private, BLM, and USFS lands to benefit livestock. Projects included contour ditching, chaining of pinyon-juniper woodlands, herbicide treatment of sagebrush and Gambel oak, water impoundments, and seeding with non-native species such as crested wheatgrass and intermediate wheatgrass. Deer and elk likely benefited from some of these livestock range improvement programs. The Habitat Partnership Program (HPP) has assisted with several projects over the last 10 years to benefit wildlife habitat (Table 2). These projects benefit wildlife and livestock simultaneously.

Table 2. Summary table of Habitat Partnership Program (HPP) projects over the last decade.

Fiscal Year	Project Name	Type of Project	Partners*	Accomplishments
FY22	Cimarron Ridge Brush	Brush thinning	LO, NRCS	260 acres thinned
	Harold Phase 3 & 4	Fencing	LO	2 miles WL-friendly fence
	Quintana Water	Water development	LO	1 water development
	Scriffiny Fence	Fencing	LO	1 mile WL-friendly fence
	Svenson Forage	Forage purchase	LO	70 acres elk winter forage
	Thorpe Fence	Fencing	LO	.5 mile WL-friendly fence
	Wofford Fence	Fencing	LO	3 miles WL-friendly fence
FY21	A Bar Fence	Fencing	LO	1 mile WL-friendly fence
	A Bar Fence Retrofit	Fencing	LO	1 WL-friendly fence repair
	Chaffin Fence	Fencing	LO	.75 mile WL-friendly fence
	Cimarron Ridge Weed	Weed control	LO, NRCS	90 acres weed control
	Harold Fence Ph 2	Fencing	LO	2.25 miles WL-friendly fence
	Silver View Ranch Fence	Fencing	LO	1.5 miles WL-friendly fence
FY20	Daniels Fence	Fencing	LO	2 miles WL-friendly fence
	Elk Springs Fence	Fencing	LO	1 mile WL-friendly fence
	Harold Fence	Fencing	LO	.5 mile WL-friendly fence
	Thorpe Fence	Fencing	LO	.5 mile WL-friendly fence
FY19	Romeo Fence	Fencing	LO	.25 mile WL-friendly fence
	Scriffiny Fence	Fencing	LO	1.25 mile WL-friendly fence
FY18	A Bar Fence	Fencing	LO	.75 mile WL-friendly fence
	Warner Fence	Fencing	LO	4.5 miles WL-friendly fence
FY17	A Bar Fence Crossings	Fencing	LO	6 fence crossings
	Dustin Mullins Hydroax	Brush thinning	LO, CSFS	240 acres thinned
	Scriffiny Fence	Fencing	LO	1.25 mile WL-friendly fence
FY16	A Bar Fence	Fencing	LO	.6 mile WL-friendly fence
	Sawtooth Ranch Fence	Fencing	LO	2 miles WL-friendly fence
	Romeo Fence	Fencing	LO	1.2 miles WL-friendly fence
FY15	Bostwick Park Hydroax & Seed	Brush thinning, seeding	LO, WRWC, CSFS, Cty	194 acres thinned & seeded
	Leben Ranch Seed	seeding	LO	11 acres seeded
	Perrin Ranch Fence	Fencing	LO	2 miles WL-friendly fence
	S-J Ranch Fence	Fencing	LO	1 mile WL-friendly fence
FY14	Daniels Fence	Fencing	LO	1 mile WL-friendly fence
	Denham Ranch Habitat	Brush thinning, seeding	LO, NRCS, RMBO, USFWS, Cty	284 acres thinned & seeded
	Leben Ranch Fence	Fencing	LO	1 mile WL-friendly fence



	Leben Trust Habitat	Brush thinning, seeding	LO, NRCS, RMBO, USFWS	295 acres thinned & seeded, 3 water developments
	Perrin Ranch Fence	Fencing	LO	.6 mile WL-friendly fence
FY13	Sawtooth Ranch Herbicide	Weed control	LO	1 weed control project
FY12	Bighorn Burn	Prescribed burn	LO	75 acres burned
	Bighorn Seed	Seeding	LO	38 acres seeded
	Quintana Farm	Weed control, seeding	LO, NRCS	1 weed control project 10 acres seeded
	Sawtooth Herbicide	Weed control	LO	1 weed control project

\*CSFS= CO State Forest Service, LO= Landowner, NRCS= Natural Resources Conservation Association, RMBO= Rocky Mountain Bird Observatory, USFWS= US Fish and Wildlife Service

### ***Habitat Capability and Condition***

#### ***Poor Fawn Recruitment***

Low reproductive success, high mortality of young, and poor body condition are indicators that a population is at or approaching the capacity of the habitat. Reproductive success and fawn survival has been increasing slightly over the last five years, possibly due to mild winters, along with habitat improvement projects, and limited harvest has allowed some recovery of population numbers. Despite these positive indicators, fawn recruitment over the last decade has been high enough to stabilize the population, but not high enough to make dramatic improvements in population size. Thus, CPW is recommending an increase in the objective population and continuing to limit antlerless licenses to help the population grow, all while understanding environmental impacts, human development, and diseases could prevent strong growth.

Degrading habitat quality could be one of the factors influencing fawn recruitment and the overall health of the deer herd. Several research studies have been completed on the Uncompahgre Plateau (D-19), which includes GMUs 61 and 62. D-19 borders D-40 and they are separated by Hwy 50 and Hwy 550. The habitats between the two DAUs are similar enough to make valuable inferences from conclusions found in these studies. Bergman et al. (2014) found that overwinter survival of fawns increased with advanced habitat treatments where mechanical disturbances, like a roller-chop or hydro-ax, were used initially and then each treatment received reseeding and weed control techniques several years apart. Furthermore, fawn survival and recruitment was impacted by does in poor body condition late into pregnancy (Pojar and Bowden 2004). If forage cannot support fawns even before birth, expecting them to survive to adulthood is unlikely. Pojar and Bowden (2004) also found that predation and production-limiting diseases, like hemorrhagic diseases, were not a leading cause of fawn mortality in that population. Finally, several studies have confirmed that altering buck ratios did not improve fawn recruitment (Bishop et al. 2005, Pojar and Bowden 2004, White et al. 2001). Thus, improving habitat quality may be the most productive way to improve overall herd health and increase fawn recruitment.

#### ***Conservation Easements and Habitat Conservation Acquisitions***

Moreover, there are several conservation easements in the DAU that are monitored by local NGOs and nonprofits, but none of them is monitored by CPW currently. Nearly 1,400 acres were in conservation easements within the DAU by 2013 and have been increasing annually.

CPW acquired an additional 180 acres to benefit big game on the Cerro State Wildlife Area in 2017. Black Canyon National Park acquired 2,000 acres of private land in 2019.

### Recreation

The Cimarron and northern San Juan area has long been a popular destination for recreation. Recreation activities include hiking, camping, hunting, fishing, wildlife viewing, photography, mountain biking, horseback riding, four-wheeling, OHV use, snowmobiling, and cross-country skiing. Recreational traffic is increasing steadily throughout the DAU especially in the higher elevations and wilderness areas. Lewis et al. (2021) found mule deer shifted their activity patterns to less crowded times of day in areas with high recreation. The impact of increased non-consumptive recreation activities on deer and other wildlife is currently being studied and results so far are inconclusive, but it is assumed to be detrimental to some degree because of increased disturbance and habitat degradation (Phillips and Alldredge 2000, Taylor and Knight 2003).

Hunting impacts to deer are not limited to actual harvest. Hunters have an effect on the distribution of deer in the fall and can affect where deer will winter (Vieira et al. 2003, Mikle et al. 2019, Figure 11). Hunters also create new roads that can increase disturbance to deer by a variety of motorized users outside of the hunting seasons. From an economic standpoint, hunting makes the greatest contribution to the local economy of any recreational activity. Many landowners also realize significant economic benefits from deer and elk by leasing hunting rights, guiding deer and elk hunts, and charging hunter trespass fees.

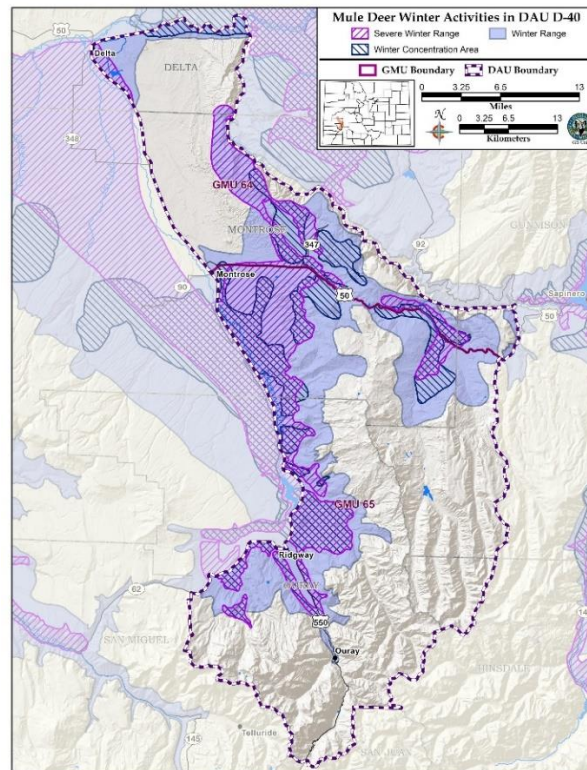


Figure 11. Deer winter range and migration patterns in D-40.

### *Mining*

Energy and mining activities in D-40 include mineral mining claims and sand and gravel extraction. Although previous gas exploration has not been productive within the area, there has been an increase in leasing mineral rights within the area. Intensive gold and silver mining activity began in the San Juan Mountains in the 1870s. The area was very active with mining thru the 1930s before mining went bust in the area. In 2018, Aurcana Silver Corporation acquired Ouray Silver Mines and planned to continue mining silver at the Revenue-Virginus mine (last active in 2015) for a minimum of five years. It is likely that unregulated market hunting and subsistence hunting associated with mining activities in the San Juan Mountains contributed to the deer and elk population decline near the turn of the 20<sup>th</sup> century. Habitat impacts (i.e. roads, runways, mines, seismic lines, tailings) from this industry are still apparent in GMU 65 south of Ouray with abandoned mine buildings, as well as tailings and high mineral loads in nearby waterways.

### *Timber Harvest*

Timber harvest in the Cimarron consists primarily of fuel wood collection on the Uncompahgre National Forest and private lands. On BLM land, timber harvest consists primarily of pinyon and Gambel oak fuel wood collection and selective cutting of juniper for posts. In 2018, commercial logging occurred on High Mesa. Commercial timber harvest is occurring on Firebox and Failes Creek.

The impact of timber harvest on deer is mostly undetermined. Deer often prefer timber harvested areas because forage production often increases following silvicultural activities, but increased activity during harvest could deter deer from the area.

### ***Conflicts with Agriculture***

#### *Game Damage*

Game damage more commonly results from deer than from elk in this DAU, but there are still claims every year. Game damage outside of the claims process is increasing in the Montrose County portion of the DAU, but decreasing in Ouray and Gunnison County portions of the DAU. The table below (Table 3) shows the claims that have been paid since the HMP plan revision. More game damage occurs than is shown in the table because occasionally, prevention materials and game damage distribution management hunts are requested and given to landowners to proactively deal with damage before a claim needs to be made. These methods also increase landowner tolerance for wildlife on private properties. HPP funds and support also help offset many game damage issues.

Table 3. Game damage claims paid in D-40 from 2007 to 2021.

Claim Date	Damage Type	Claim Paid	GMU
1 /2 /2007	Growing Crop	\$314.64	65
12/13/2007	Growing Crop	\$3,228.39	65
1 /29/2008	Growing Crop	\$1,277.64	62, 65
2 /2 /2009	Growing Crop	\$2,560.00	64
12/2 /2009	Growing Crop	\$6,643.35	65
1 /20/2010	Growing Crop	\$1,772.60	64
1 /3 /2011	Growing Crop	\$7,896.00	65
1 /13/2012	Growing Crop	\$6,322.47	64
1 /27/2012	Growing Crop	\$4,325.33	65

1 /17/2012	Growing Crop	\$1,431.94	65
10/17/2012	Growing Crop	\$341.51	65
1 /7 /2013	Growing Crop	\$2,958.46	64
2 /13/2013	Growing Crop	\$4,635.82	65
4 /4 /2013	Growing Crop	\$2,944.62	64, 65
12/16/2013	Growing Crop	\$837.76	65
1 /14/2014	Growing Crop	\$1,601.40	64
3 /3 /2014	Growing Crop	\$3,051.72	62, 65
12/15/2014	Growing Crop	\$220.89	65
2 /2 /2016	Growing Crop	\$1,849.42	62, 65
2 /27/2017	Growing Crop	\$3,350.51	65
3 /29/2018	Growing Crop	\$653.44	65
4 /10/2018	Growing Crop	\$820.78	62, 64, 411
2 /21/2019	Growing Crop	\$2,331.87	62, 64, 65
3 /12/2020	Growing Crop	\$833.36	64, 65
1 /11/2021	Growing Crop	\$779.38	65
2 /22/2021	Growing Crop	\$2,157.60	65

## Herd Management History

By the early 20<sup>th</sup> century, the number of mule deer in the Cimarron DAU had been greatly reduced due to unregulated hunting and habitat changes. Season closures, buck-only harvest, and inadvertent habitat improvement due to recovery from earlier fires, timber cutting, and overgrazing resulted in a rapidly increasing deer population by the late 1930s.

By the 1950s, the Cimarron had become a popular destination for deer hunters. Wildlife managers became concerned that the large numbers of deer in the Cimarron were over-browsing their winter range. In an effort to control the flourishing deer population, multiple, either-sex deer licenses were issued in the 1950s and early 1960s in the Cimarron DAU. From 1961-1963, an average of 2,780 deer per year was harvested in GMUs 64 and 65.

In the late 1960s, the deer population in the Cimarron began to decline and the number of antlerless deer licenses was reduced. The population again increased to large numbers in the early 1980s, but then declined sharply during the severe winter of 1983-84. The estimated, post-hunt population grew to approximately 15,000 (based on previous models) deer in the late 1980s, but then went into another decline. The estimated deer population during the winter of 1997-1998 was less than 11,500 deer (based on previous models).

The decline in the Cimarron deer herd is not entirely understood, but it is indicative of poor fawn recruitment and it is consistent with declines in mule deer populations occurring throughout the west. Habitat changes due to development, fragmentation, fire suppression, and grazing; human impacts due to commercial activities and rapidly increasing recreational use; predation from coyotes, mountain lions, and black bears; and increased elk populations are among the possible factors interacting to contribute to the decline in deer in the Cimarron DAU.

Since 1998, the mule deer population in D-40 has generally been declining, except for a few years with slight increases. The estimated post-hunt population of D-40 was approximately 13,500 (based on previous models) in 2005 (Figure 12). The increases were probably in

response to greater restrictions on licenses, male harvest, and mild winters; however, the current drought conditions, poor winter range condition due to the drought, and decreasing winter range habitat due to development will probably hinder the mule deer population from increasing to the previous objective range of 13,500-15,000.

The population for the 2022 HMP reflects the current models and stakeholder opinions on how many mule deer are on the landscape in D-40. CPW's new preferred objective is 6,500 to 8,500 deer, which should continue to allow for increased opportunity with buck licenses, while increasing the population and limiting CWD spread. It will be difficult to reach this objective since populations have been growing slowly over the last decade, but with additional protections like conservation easements, seasonal closures, and habitat-improvement projects, survival and recruitment could enable better population growth. The buck ratio will be crucial to CWD management as well, therefore, keeping the buck:doe ratio near 25:100 will help keep prevalence lower since adult males are more likely to contract CWD. The range of 25-30 was used to account for environment variations, such as severe or mild winters, forest fires, or disease outbreaks.

### *Population size and Herd Composition*

CPW biologists calculate estimated population size and the herd composition of several ungulate species every winter in order to make educated decisions when setting licenses. Biologists use aerial surveys every winter in helicopters to classify and count animals across designated GMUs. Once this field data is collected, it can be used in models developed by White and Lubow (2002) to estimate population size and buck ratio. Population size is estimated using a model because not all animals can possibly be observed during flights. The more field data that is collected consistently can help make model estimates more accurate. As more information is learned about ungulate demographics and modeling techniques, models can be updated as well with the best science available. Models were updated between the 2007 D-40 HMP revision and the 2022 current revision; therefore, deer numbers vary greatly between the two revisions (environmental impacts have also impacted these population changes), even though management has not changed drastically. Although our models are very powerful and accurate, focusing on the trend of the data presented in this revision is more valuable than raw numbers displayed. Estimates could be adjusted as technology and research advance in the future.

### *Post-hunt population size*

D-40 populations have been stable over the last 4 years after being in a gradual decline for much of the last three decades (Figure 12). With an increasing trend in fawn recruitment, the population can continue to rebound. Once the models were updated and a more accurate population estimate was determined, the post-hunt population estimate fit well within the proposed population range, leaving room for future growth. The 2020 post-hunt population estimate was 6,400, which is approximately 17% below the middle of the new objective range.

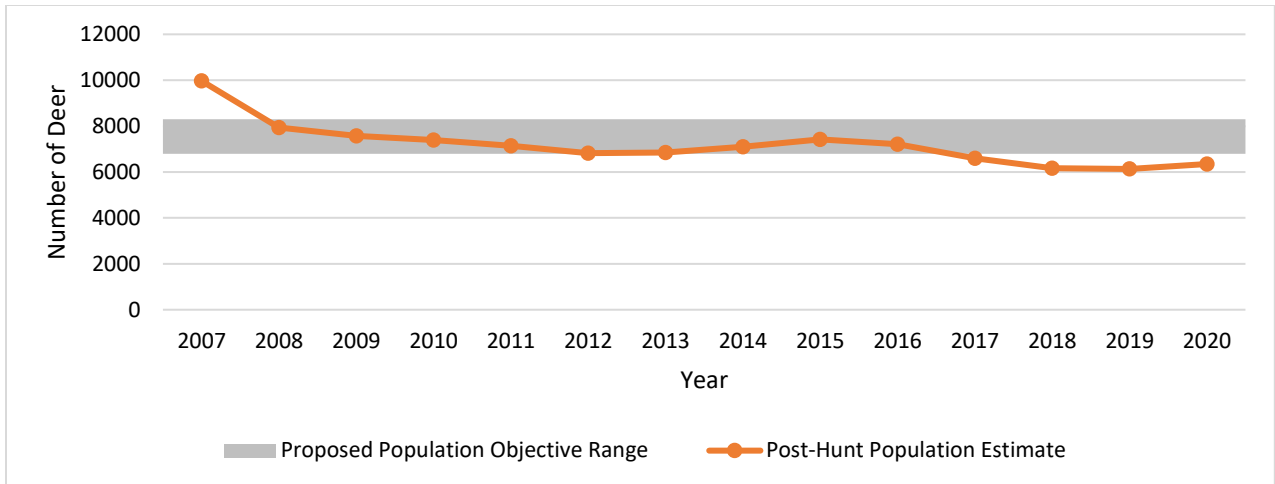


Figure 12. D-40 modeled post hunt population and proposed objective range: 2007-2020.

**Fawn Recruitment**

Winter fawn:doe ratios have varied substantially since the last plan revision (Figure 13). The three-year average is 53 fawns:100 does and there has been a slight increasing trend in fawn recruitment. This positive trend is not enough to increase this population, so efforts need to be taken to improve suitable habitat, limit fragmentation, and limit disturbance during sensitive fawning time periods to improve survival and recruitment. Habitat improvements could also encourage native plants to grow, limit forest succession, and increase habitat connectivity, resulting in an increased carrying capacity.

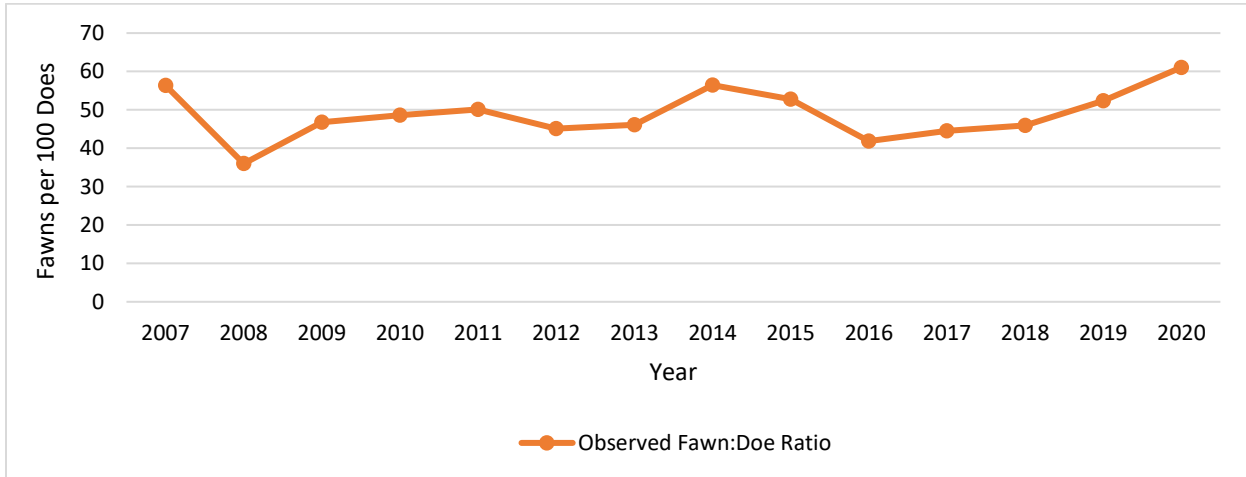


Figure 13. D-40 observed fawns per 100 does: 2007-2020. Data are from annual post-hunt (December) helicopter classification surveys.

**Buck Ratio**

The modeled buck ratio has been hovering around the objective range since 2017 (Figure 14). The observed buck ratio has varied more, but that is to be expected since classification flights can vary with weather, observer, and flight time. It also only accounts for the animals seen, not the entire population, like the modeled ratio estimates. The modeled buck ratio averaged over the last three years has been 26 bucks per 100 does. Keeping future buck ratios near this number would be ideal to balance hunting opportunity and CWD management.



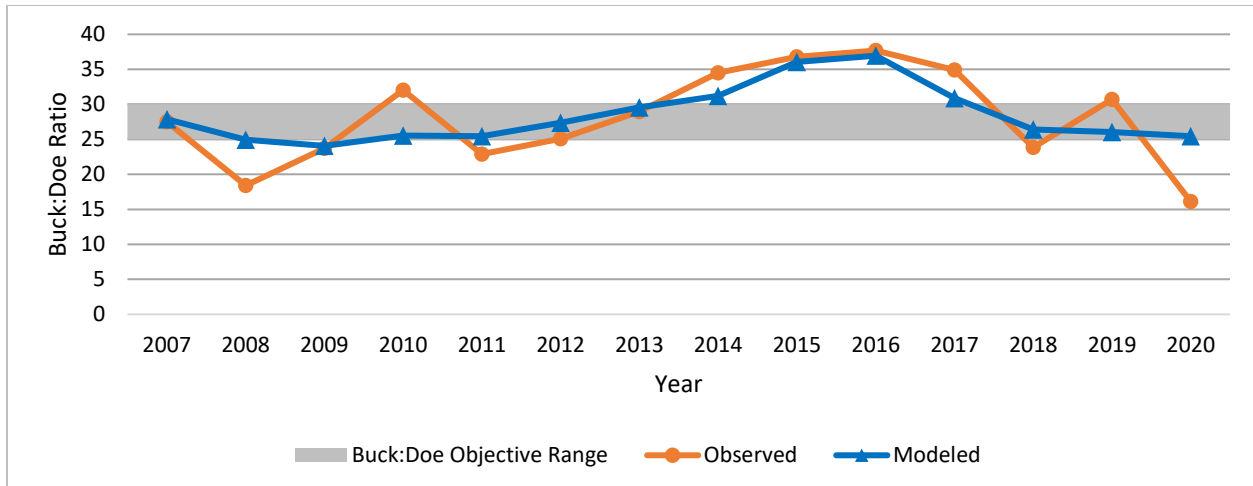


Figure 14. D-40 post-hunt observed and modeled bucks per 100 does and proposed buck ratio objective limits: 2007-2020.

## Harvest

### *Factors Affecting Harvest*

Factors affecting the number of deer harvested each year include: (1) hunting pressure in GMUs 64 and 65, which are managed for opportunity; (2) the majority of mule deer migrate to winter range, which is usually private land; (3) resident deer in the Uncompahgre Valley and increased game damage harvest; (4) season structure; (5) weather; and (6) population size and structure.

### *Harvest History*

Mule deer populations in the Cimarron DAU grew rapidly in the late 1930s due to restrictive hunting regulations and a variety of other factors after being decimated from unregulated hunting and habitat alterations. By the 1950s, the Cimarron had become a popular destination for deer hunters; however, managers became concerned that the large numbers of deer were over-browsing their winter range. Multiple either-sex licenses were issued in the late 1950s and early 1960s that allowed hunters to harvest an average of 2,780 deer per year between 1961-1963. Then, in the late 1960s harvest was limited to one deer per year and the number of antlerless licenses was reduced.

The 1970s and early 1980s saw the Cimarron mule deer population rebound again, but the observed post-hunt male/female ratio in GMUs 64/65 averaged only 14 bucks/100 does. Between 1986-1991, a 3-point minimum antler restriction was implemented for all bucks during the combined rifle seasons in GMUs 64/65. During this period the observed, post-season buck/doe ratio averaged 26 bucks:100 does. In 1992, the antler-point restriction was eliminated and the buck season was shortened to the first 3 days of each regular rifle season. In 1995, all third season buck licenses were limited statewide and a 5-day buck season was implemented. Between 1995 and 1997, an average of 2,728 hunters per year killed 880 bucks and 44 does for a 34% success rate in D-40.

In 1998, all deer licenses went limited statewide and the number of licenses was reduced to 75% of the average number of hunters from 1995-1997 in D-40. Since 2000, D-40 has had an average of 1,135 licenses available every year with an average harvest of 529 bucks per year



(Figure 15). In 2020, 1,120 hunters harvested 459 bucks and 22 does within D-40 with an overall success rate of 43%. Most licenses do not require many points for residents (Table 4). Sought after hunts, like the high elevation buck hunt (DM065E1R), can cost 6 to 11 preference points depending on residency status (Table 4).

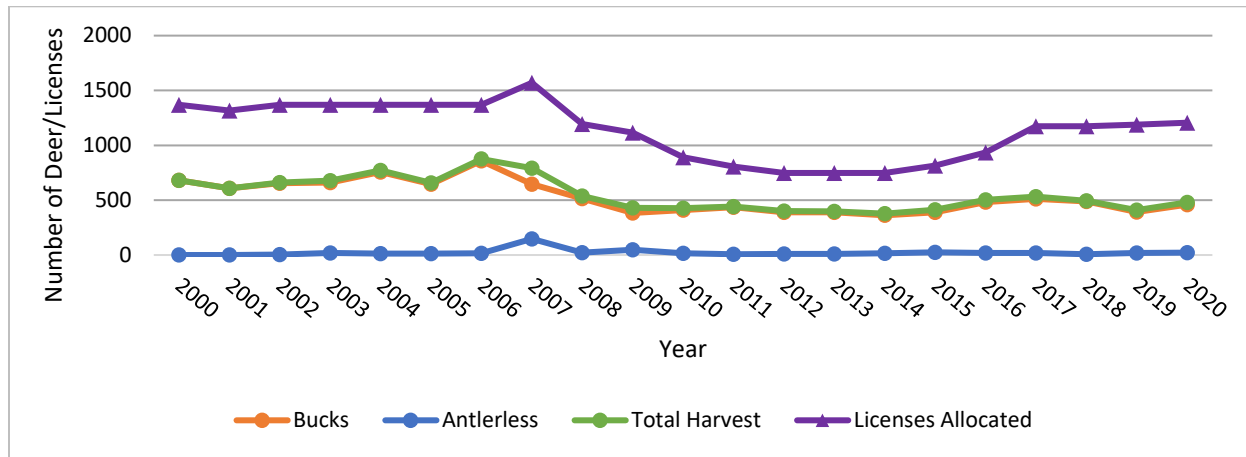


Figure 15. Deer harvest and number of licenses allocated annually in DAU D-40: 2007-2020. Licenses allocated and harvest are for all manners of take.

Table 4. Draw statistics for 2020 hunting season in D-40.

HUNT CODE	DRAWN OUT AT IN PRIMARY DRAW						
	# LICENSES SOLD	TOTAL HUNTERS*	TOTAL 1ST CHOICE APPS	ADULT RES	ADULT NR	YOUTH RES	YOUTH NR
DM064O1A	123	114	145	0 Pref Points	0 Pref Points	0 Pref Points	No Apps
DM064O1M	41	37	62	0 Pref Points	0 Pref Points	1 Pref Points	2 Pref Points
DM065E1R	19	20	96	6 Pref Points	11 Pref Points	None Drawn	No Apps
DM064O2R	426	365	324	Choice 2	Choice 2	Choice 2	Choice 2
DM064O3R	285	334	347	0 Pref Points	0 Pref Points	0 Pref Points	0 Pref Points
DM064O4R	19	19	135	3 Pref Points	6 Pref Points	None Drawn	None Drawn
DE064P6R	47	13	20	Leftover	Leftover	Leftover	Leftover
DM064P2R	66	60	45	Leftover	Leftover	Leftover	Leftover
DM064P3R	70	68	53	Choice 2	Choice 2	0 Pref Points	Choice 2

\*Does not include hunters that participated in damage hunts.

The number of antlerless licenses has been limited since 1998, other than licenses for game damage and licenses that started being issued in 2002 to control resident deer populations in the Uncompahgre Valley. Either-sex licenses are offered for the early season disease management hunt (Figure 15). Antlerless licenses may be made available again when the population trends increase toward the top of the objective range, to minimize game damage and to control resident deer populations in the Uncompahgre Valley.

## ISSUES AND STRATEGIES

Throughout this HMP, CPW has discussed many of the issues occurring within D-40 that affect management of this herd. In general, habitat loss due to development and recreation have

had a large impact on local wildlife. These impacts can lead to poor fawn recruitment and survival, which appear to be the limiting factors for this herd. Environmental stressors, like droughts or hard winters can also impact deer productivity and health.

### *Development*

The local municipalities in D-40 have seen large increases in traffic and development. Subsequent issues can arise from increased development. In the last 40 years, all types of residential development have increased except for the undeveloped category (Figure 16). This figure does not include 2020 data, but CPW would postulate that human expansion will continue at a similar, if not a faster rate.

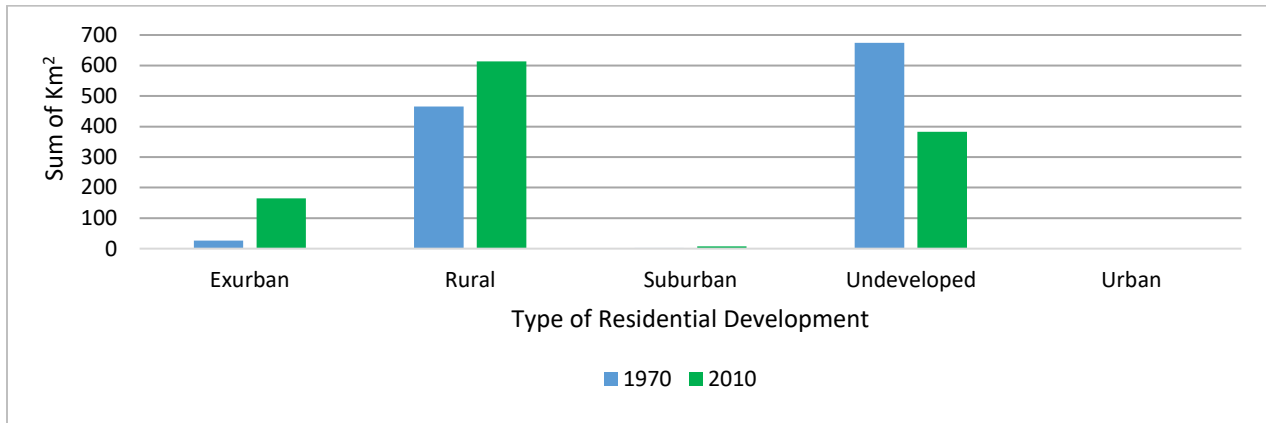


Figure 16. Change in residential development from 1970 to 2010 in D-40. (Exurban = 0.03-0.59 housing units/ha; Rural = < 0.03 housing units/ha; Suburban = 0.60-5 housing units/ha; Undeveloped = 0 housing units/ha; Urban = >5 housing units/ha; Johnson et al. 2016).

Development fragments habitat in many ways. The addition of homes, out buildings, roads, artificial lights, and excess noise and traffic all reduce habitat connectivity for wildlife and limit effective habitat and carrying capacity for deer. Deer are better adapted to urban environments than other ungulate species, but studies have shown housing density (Vogel 1989) and human activity (Lewis et al. 2021) can alter deer behavior and avoidance, creating a loss of effective habitat, even if the habitat is not directly destroyed. Unfortunately, the majority of development in D-40 occurs in the lower elevations and valley bottoms, which is predominantly deer winter range.

With increased development comes increasing traffic on local roads and highways, elevating the potential for wildlife-vehicle collisions. CO Hwy 550 is one of the major highways that goes along the boundary of D-40. CDOT determined in the Western Slope Wildlife Prioritization Study (Kintsch et al. 2019) that a section of the highway near Billy Creek SWA (mm 114.5-116) is in the top 5% priority segments in the state. The annual average daily trips (AADT) for this section of highway is 7,700, but CDOT predicts it will grow to over 9,000 AADT in the next 20 years (CDOT Pers. Comm. 2021). Any AADT value above 7,500 is interpreted as a “near-total” barrier, with a moderate-high probability of wildlife-vehicle collisions. CPW, CDOT, and NGOs gathered together in September 2021 to discuss the design plan and proposed location of a new underpass, jump-outs, and exclusion fence designed for deer and elk passage. This passage will improve winter range habitat connectivity and access to the river. CPW supports more projects like this that aid in movement across the landscape for wildlife and keep people safe on the roads.

## Recreation

As previously mentioned, recreation in this DAU is extremely popular and increasing annually. For example, the Blue Lakes trailhead near Ridgway (GMU 65) can have more than 50 cars daily in the parking lot. This area has viable summer habitat for deer and elk (Figure 17), but increased recreation could alter wildlife movements and behavior in this area. Moreover, collared does from the Uncompahgre Plateau have been tracked from their winter ranges in Montrose to Yankee Boy Basin near Ouray (GMU 65) for their summer ranges (over 56 km), showing recreationists and increased activity on the landscape can impact ungulates not only in D-40, but other DAUs as well. Studies have also shown that off-trail travel is more detrimental to wildlife than on-trail travel, so CPW should promote travel on trails only when commenting on land use documents (Taylor and Knight 2003). When planning new trails or trail improvements, CPW will consult the 2021 Trails with Wildlife in Mind Guide to aid in management decisions (Trails with Wildlife in Mind Task Force 2021).

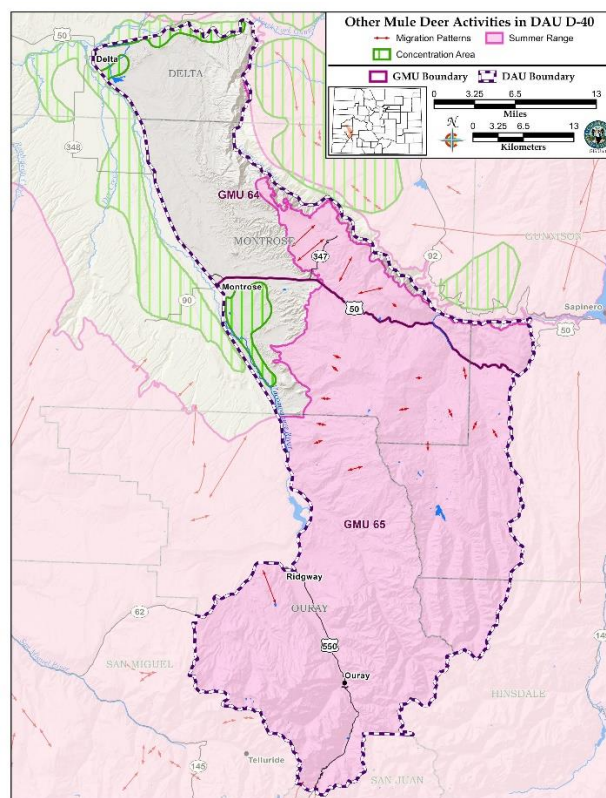


Figure 17. Summer range and migration routes for mule deer in DAU D-40.

Seasonal closures can benefit wildlife in the winter months when they are most vulnerable. Closures that occur on Forest Service and BLM lands limit activity from December 1<sup>st</sup> to April 15<sup>th</sup>. The Ridgway Area Trails (RAT) located on BLM near Ridgway State Park, are closed from December 1<sup>st</sup> to April 30<sup>th</sup>. In addition to federal land closures, Billy Creek State Wildlife Area (SWA) is closed from January 1<sup>st</sup> to April 30<sup>th</sup> to protect wildlife wintering on the SWA. Cimarron SWA is closed from January 1<sup>st</sup> until June 30<sup>th</sup> to protect big game winter range and Gunnison sage-grouse nesting season. As of 2018, CPW prohibits antler collection from January 1<sup>st</sup> through April 30<sup>th</sup> annually. This also helps reduce stress on wildlife on winter range and aids in fawn and calf survival in early spring.

### *Chronic Wasting Disease*

Chronic wasting disease (CWD) was first recognized at a captive mule deer facility near Fort Collins, CO in the 1960s, but could have been present in the environment long before this discovery. This disease occurs in deer, elk, and moose. Infections are much less common in elk and moose than in deer. Shortly after this discovery, wild deer were symptomatic of the disease. CWD is an infectious prion (misfolded protein) disease that effects the nervous system over approximately three years (Miller and Fischer 2016). CWD can spread from the host by direct contact or through resources shared with an infected individual. To add to the complexity, prions can last for many years in the environment, further challenging management. This disease is 100% fatal and a treatment has not yet been developed. CPW developed a CWD Response Plan in December 2018 to address to growing concern increasing spread throughout the state (CPW 2018). This plan contains management actions and recommendations to control CWD prevalence, while managing towards population and buck ratio objectives. One major component of the plan includes a 15-year monitoring plan to complete a 5-year rotation of mandatory testing for male deer. A 5% male prevalence threshold was set in this plan as the realistic threshold for managing CWD in a herd to minimize adult female mortality. If prevalence increases above this threshold management actions must be taken to limit the spread and lower the prevalence.

CWD was first detected in D-40 in the spring of 2017 from a deer displaying CWD symptoms (Figure 18). The overall prevalence from 2017 to 2020 was 4.9% DAU-wide. This calculation is overestimated because of the small sample size collected and it includes harvested deer, roadkill deer, and deer that were removed from the population because they were displaying symptoms of the disease. Collecting nonrandom samples, like suspect deer, inflates the prevalence rate and does not necessarily represent prevalence in the field. When only considering harvested deer sampled, the prevalence drops to 1.7% over the four-year time span. Although prevalence is low, CPW is taking preventative management actions to limit the spread of CWD. CPW created a private land disease management hunt in portions of 62, 64, and 65 when only resident deer are located in the Uncompahgre Valley. These deer have been shown to have higher prevalence than the high elevation deer on the Uncompahgre Plateau, the Cimarron Mountains, and the San Juan Mountains. By targeting low elevation, resident deer in mid-August, hunters can target deer that are more likely to transmit CWD to high elevation deer when they migrate to the lower elevations of the valley during the winter months. Moreover, CPW has increased buck licenses to decrease spread since adult male deer are more likely to contract CWD. Proactive CWD management will be a crucial part of the D-40 herd management plan to keep prevalence below the 5% threshold.

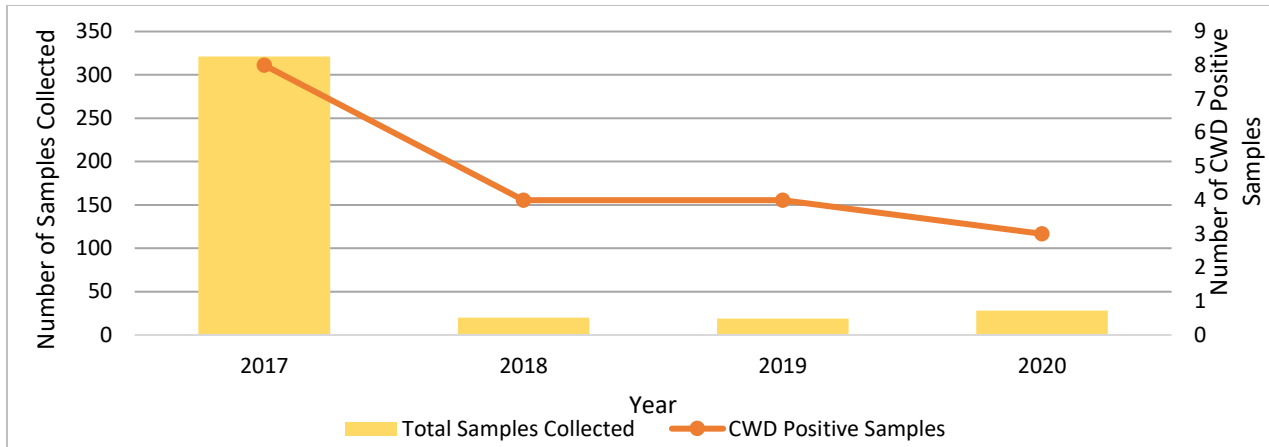


Figure 18. Total number of mule deer Chronic Wasting Disease (CWD) samples collected and the number of CWD positive samples that resulted from testing: 2017-2020 (Includes all harvest, suspect, roadkill, and other samples taken for CWD purposes).

Management strategies include increasing buck hunting licenses to keep buck ratios lower, increasing harvest in later seasons to target more mature bucks or target high prevalence areas, and increasing opportunities for harvest with PLO licenses and special disease management hunts (CPW 2018). Many of these strategies are already being utilized in D-40.

If these CWD management actions fail to reduce CWD prevalence below the management threshold (5% prevalence) within 60 months (5 years), the Herd Management Plan update should be revised to lower the population and buck ratio objectives in order to reduce CWD prevalence to below 5% (CPW 2018). Furthermore, if CWD prevalence exceeds 10%, then a Herd Management Plan revision should be done within 12-18 months (CPW 2018).

### *Predation*

The effects of predation are imperative to herd management. Many stakeholders have concerns about how predation effects big game herds and livestock as well. Coyotes are the most common predator of mule deer fawns in Colorado, but black bears and mountain lions will predate fawns as well (Pojar and Bowden 2004, White et al. 1987). Starvation can often be the leading cause of mortality in deer fawns, not predation, in certain populations (Pojar and Bowden 2004, White et al. 1987). Predation of young can be complicated by the health of the doe and fawn. Habitat characteristics can also influence susceptibility to predation. Weather can impact survival of neonates (White et al. 2010). To manage predation on young, CPW has increased black bear licenses substantially over the last five years and increased mountain lion quotas in 65, but 64 has remained the same because the quota is not usually filled each year. Harvesting coyotes remains unlimited and year round with the purchase of a small game license, a furbearer license, or an unfilled big game license for the same season and unit.

### **Management Strategies to Address Issues and Management Concerns**

Wildlife management may seem simple at face value, but population management often is effected by many environment and external human factors, with no easy solutions and trade-offs that often result in other issues. The population in D-40 has low fawn recruitment, an increase in development and recreation, a decline in habitat quality due to drought,

competition with livestock, and lack of connectivity. These impacts have resulted in slow population growth for the last decade.

CPW can manage buck ratios and populations by increasing or decreasing licenses by total quota, by season, and by sex depending on the objectives for each herd. Some issues are out of CPW control alone and rely on government agencies like the USFS and BLM, landowners, county governments, CDOT, and NGOs to help improve land management. These agencies can help with large-scale habitat management projects and regulate recreation on public lands, which could bolster struggling populations like D-40.

## **Strategies to Achieve Herd Management Objectives**

To achieve the preferred population objective of 6,500-8,500 mule deer and a buck ratio of 25-30 bucks per 100 does, CPW will continue with similar management strategies used with the previous HMP. This herd has been managed for a balance of opportunity and population growth. Additionally, the last several years have been managed proactively to limit CWD spread. Antlerless game damage licenses would still be available for landowners to deter deer from causing more damage and increase landowner tolerance, but not available in the draw for the near future until populations recover. Buck licenses will continue to be offered to keep the buck ratio near the lower end of the new objective range. Additionally, black bear and mountain lion license will be managed to keep populations in check. If conditions change, we may revise the HMP before the 10-year revision timeline.

In addition to license management, CPW will support more conservation easements that benefit big game habitat and connectivity between seasonal ranges. CPW will work with stakeholders and other land managers to improve habitat carry capacity by converting to wildlife friendly fences, adding wildlife underpasses and overpasses to busy highways, native seeding projects, prescribed burns, guzzler installments, and seasonal closures, for example. Working collaboratively with our partners can benefit local deer herds and their surrounding communities as well.

## **PUBLIC INVOLVEMENT**

### *Surveys*

After proposing three population and three buck ratio alternatives to various stakeholders, CPW finalized the D-40 draft HMP. Surveys designed with hunters and landowners in mind were sent 17 September 2021 with an input period ending 29 October 2021. Emails with a link to the online survey were sent to 2,578 first choice applicants and license holders from 2017-2020. An additional 20 survey request emails were sent to landowners and outfitters that have expressed interest in herd management. There were 374 respondents to the survey giving us a comprehensive view of stakeholder thoughts and opinions. Survey results and a comment summary are available in Appendix A.

### *Additional Outreach*

The draft HMP for D-40 was sent to local county commissioners in Delta, Gunnison, Montrose, Hinsdale, and Ouray Counties. CPW met with Montrose and Ouray County commissioners in-person to discuss plans and answer any questions. Draft plans were also sent to the USFS, the BLM, and Backcountry Hunter and Anglers (BHA). CPW also presented the draft plan to the HPP committee on 10 November 2021. The HMP was posted on the CPW website for 30 days



(15 October 2021-15 November 2021) allowing stakeholders to comment on the alternatives in the plan. The final draft will be presented to the Parks and Wildlife Commission in January 2022 to determine the management objective and buck ratio. If the plan is approved, it will be finalized and put on the website for public reference.

No comments were received from the online 30-day comment period. We received support letters from BHA, the local HPP committee, the BLM, and Montrose and Ouray County Commissions (Appendix B). The USFS reviewed the plan, but did not have any additional comments. No letters or additional comments were received from other counties.

## ALTERNATIVE DEVELOPMENT

### *Management Alternatives and Preferred Objectives:*

Table 5. The proposed population objective and buck ratio alternatives for the D-40 deer herd.

Population Objective Alternatives:		Buck ratio Objective Alternatives:	
4,500 to 6,500 (midpoint 5,500)	(1) Approximately 15% decrease in 2020 population estimate	20 to 25 bucks per 100 does	(1)
6,000 to 8,000 (midpoint 7,000)	(2) Updated population estimate with similar management objective from 2007 HMP (10% increase population)	25 to 30 bucks per 100 does	<b>(2) CPW Proposed Objective-status quo from 2007 HMP</b>
6,500 to 8,500 (midpoint 7,500)	<b>(3) CPW Proposed Objective-</b> Approximately 17% increase in 2020 population estimate	30 to 35 bucks per 100 does	(3)

#### *Population Objective Alternatives*

The post-hunt population estimate for 2020 was 6,400 with the 2007 HMP population objective of 13,500. The previous objective range was over-estimated, but models have since been updated to estimate population with more information from the field to inform the model. One objective for updating this plan was to update objective ranges to better reflect current population sizes.

**ALTERNATIVE 1:** 4,500 to 6,500 deer (Slight decrease- Approximately 15% decrease in present population estimate)

Under **Alternative 1**, deer populations would be decreased by approximately 15% of the current population estimate to be in the middle of the alternative objective range. Stakeholders have expressed a desire for more deer, so this would not be the preferred alternative. This alternative would increase hunting opportunity and benefit local economies. Populations at low densities should grow faster with less competition for resources, but this herd already has low densities and slow growth due to many environmental and human-induced factors; thus, increasing hunting opportunity in the short-term, but potentially not in the long-term. Additionally, with a smaller population, there would be less animals on the landscape to hunt, so success rates could potentially decrease and hunter crowding could increase. Game damage has been minimal under the current objective and the lower population levels would continue to keep game damage conflicts minimal.



**ALTERNATIVE 2:** 6,000 to 8,000 deer (Slight increase- Approximately 10% increase in present population estimate, status quo management approach as 2007 HMP)

Under **Alternative 2**, CPW would manage D-40 to increase the herd slightly. Population growth has been slow in this herd for the last decade due to low fawn recruitment and reduction of suitable habitat from many environmental and human-induced factors. This objective is attainable by continuing to limit antlerless licenses and promote habitat restoration, especially in winter range. Hunting opportunity would be similar to current conditions as this alternative is similar to the past HMP objectives. This alternative still allows for antlerless take when game damage does occur, which increases landowner tolerance for a growing deer herd. This alternative would satisfy stakeholders wanting to increase the population. Currently, CPW does not offer any antlerless licenses for D-40 and this would continue in the short-term until the population starts to reach the top of the objective range and then the possibility of adding antlerless licenses could be introduced. CWD prevalence rates would be similar to the current conditions, but buck ratios would be monitored to help control spread, while attempting to grow the population. This alternative would grow the population close to the habitat's carrying capacity, minimize conflict with agriculture, and sustain hunting opportunity.

**ALTERNATIVE 3 (PREFERRED ALTERNATIVE):** 6,500 to 8,500 deer (Moderate increase- Approximately 17% increase in present population estimate)

**Alternative 3** would allow for a 17% increase in the D-40 population, which seems challenging considering the slow growth of this population and decreased fawn recruitment over the last decade; however, with increased habitat improvements, literature shows that fawn recruitment could increase. The local economy and hunter opportunity would be similar to current management since CPW does not currently offer any antlerless licenses for this DAU. In the long-term, opportunity could increase with a growing population and the economy could benefit as well. Although stakeholders have expressed interest in a growing deer herd, this could increase conflicts with agriculture. Antlerless license would still be available for game damage hunts to increase landowner tolerance of increased deer herds. With current drought conditions, this many deer on the landscape in combination with livestock and other ungulates could put further strain on the habitat carrying capacity at the top of this objective range if habitat is not improved. CWD could spread with more mature animals on the landscape, despite smaller population sizes, since mature animals, especially bucks, are more likely to carry this disease; therefore, managing buck licenses will be crucial to keep the buck ratio in a reasonable range to limit CWD spread.

#### *Buck Ratio Alternatives*

The buck ratio for D-40 in the previous HMP was 25 to 30 bucks per 100 does. The three-year modeled average was 26 bucks per 100 does. We are managing to the lower end of the objective range to limit CWD prevalence, but continue to balance hunting opportunity in this unit.

**ALTERNATIVE 1:** 20 to 25 bucks per 100 does

**Alternative 1** would be lower than the current buck ratio range. This would cause an increase in buck licenses and therefore, increase hunter opportunity at least in the short-term until the objective buck ratio was reached. Increasing license could also increase hunter crowding as well. This would also limit the probability of increasing the spread of CWD with less mature

bucks on the landscape. Populations may grow slightly. This alternative could increase the local economy with the increase in opportunity.

**ALTERNATIVE 2 (Preferred alternative):** 25 to 30 bucks per 100 does (status quo)

CPW would continue to manage populations at the lower end of this range with **Alternative 2**. This alternative allows for a balance of hunter opportunity and CWD management. Licenses are able to be drawn without requiring too many points and units do not experience large-scale hunter crowding. If CWD prevalence increases at a faster rate than predicted, the HMP objective will have to be updated to reflect the environmental change.

**ALTERNATIVE 3:** 30 to 35 bucks per 100 does

Alternative 3 would decrease buck licenses and decrease opportunity. The quality of the hunt would increase and hunter crowding would decline, but it would require more points to draw a license. With CWD present in this herd, CPW would not recommend increasing buck ratios. The more mature bucks there are in the herd, the greater chance CWD will spread through the population.

#### *Preferred Population and Buck Ratio Alternatives*

CPW recommends **Alternative 3** for the preferred population estimate (**6,500-8,500**) alternative because CPW and stakeholders would like to increase the deer population, but are limited by the habitat carrying capacity and low fawn recruitment. This objective range allows for management flexibility if environmental factors cause a die off in the population. This also allows for more buck hunting opportunity to manage CWD, but antlerless license still would not be offered until populations reach the top of the objective range. Game damage may increase slightly, but antlerless tags would still be available for landowners experiencing damage. This will help increase landowner tolerance of an increasing deer population.

CPW recommends **Alternative 2** for the preferred buck ratio (**25-30 bucks:100 does, status quo**). This alternative maintains the balance of proactive CWD management and hunter opportunity. Mature bucks would still be present in the population, but not at numbers high enough to potentially increase CWD prevalence. If CWD does increase faster than originally predicted, CPW will adjust the buck ratios accordingly.

#### *Acknowledgements*

A huge thank you to Area 18 staff, Andy Holland, and SW terrestrial staff, especially Jamin Grigg, for their guidance during this process. All maps created by Michelle Flenner. HPP information provided by Katie Richman. Game Damage information provided by Beverly Herdt. Thank you to all of the public that commented or filled out surveys.  
Cover photo: Matt Ortega

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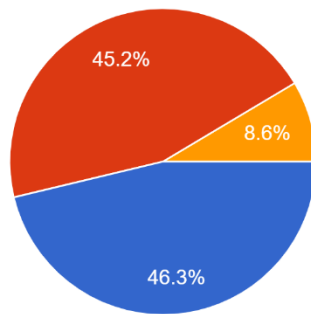
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## Appendix A

### *Herd Management Plan Survey*

1. Based on the information above, which of the following options represents how you would like to see the deer population size managed in GMU 64 and 65 over the next 10 years?

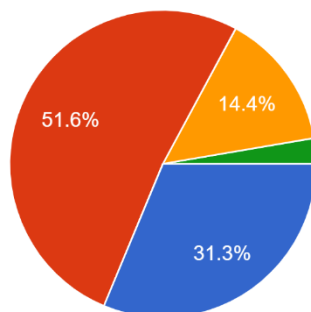
374 responses



- **Manage for maximum deer population size.** Doe licenses would continue to not be available and the population would be managed at or near the habitat carrying capacity. With a larger population, there could be more bucks available to hunt (depending on the buck ratio objective); however, at higher deer densities population growth slows, meaning fewer fawns survive and thus fewer bucks are recruited into the population annually.
- **Manage the deer population below the maximum population size.** Doe license quotas could be increased to reduce deer numbers. At a lower deer density, population growth may be faster and more doe licenses could be sustained. A lower population objective would be easier to sustain, even following severe winters. At a lower population size, there could be fewer bucks available to hunt (depending on the buck ratio objective); however, at lower deer densities population growth increases, meaning more fawns survive and thus more bucks are recruited into the population annually.
- I do not know.

2. Which of the following options represents how you would like to see the buck ratio managed in GMU 64/65 over the next 10 years?

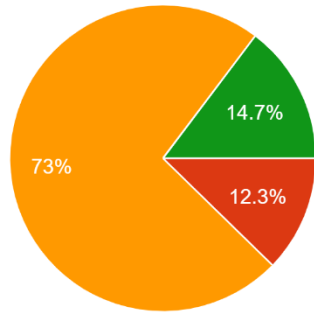
374 responses



- **Increase the buck ratio.** Buck license quotas would be decreased. The quality of the available bucks may increase, but population growth would be slower. Chronic Wasting Disease (CWD) prevalence may increase.
- **Maintain the current buck ratio.** Buck license quotas, hunting opportunity, and number of mature bucks, would be similar to current levels. CWD prevalence would likely remain similar to the current prevalence (less than 5%).
- **Decrease the buck ratio.** Buck license quotas would be increased. There would be more opportunity to hunt bucks, but fewer mature bucks would be available. Population growth would likely improve. CWD prevalence would likely
- I do not know.

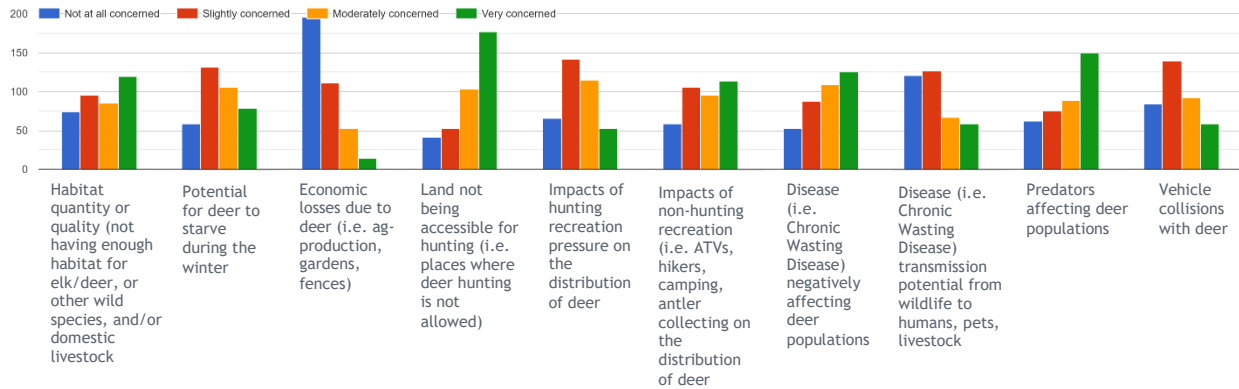
3. Which of the following best describes your general attitude toward deer in GMU 64 and 65?  
(Please check one)

374 responses



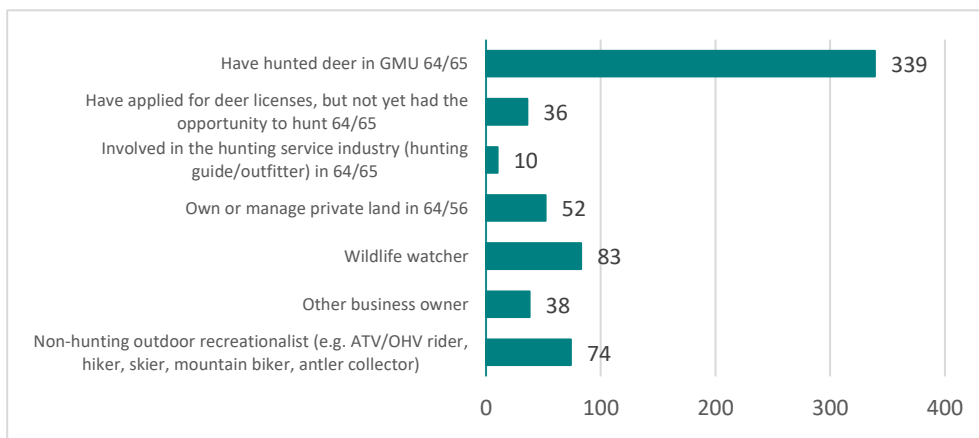
- I do not enjoy deer in GMUs 64/65 and regard them as a nuisance.
- I enjoy deer in GMUs 64/65, but worry about problems they may cause.
- I enjoy deer in GMUs 64/65 and do not worry about the problems they may cause.
- I have no particular feelings about the deer in GMUs 64/65.

4. How concerned are you about the following items:



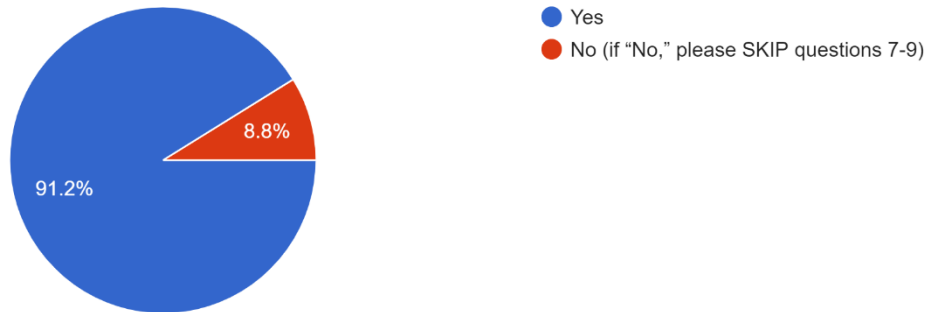
5. Which of the following best describes you (choose up to three choices):

374 responses



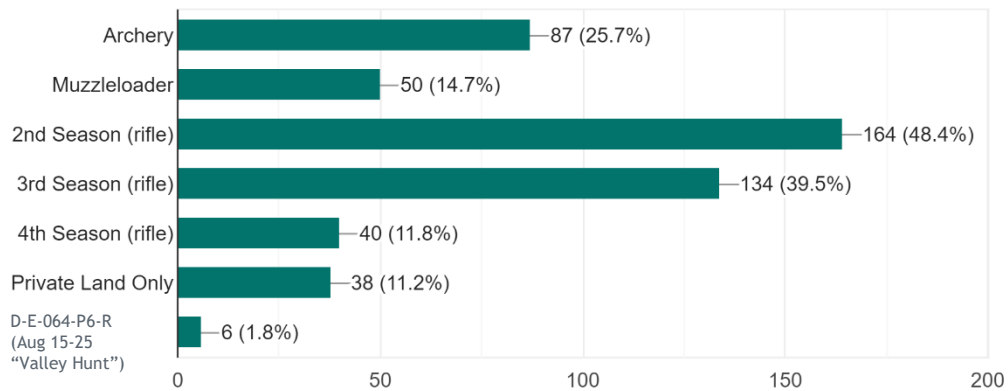
6. Have you hunted deer in GMU 64 or 65?

374 responses

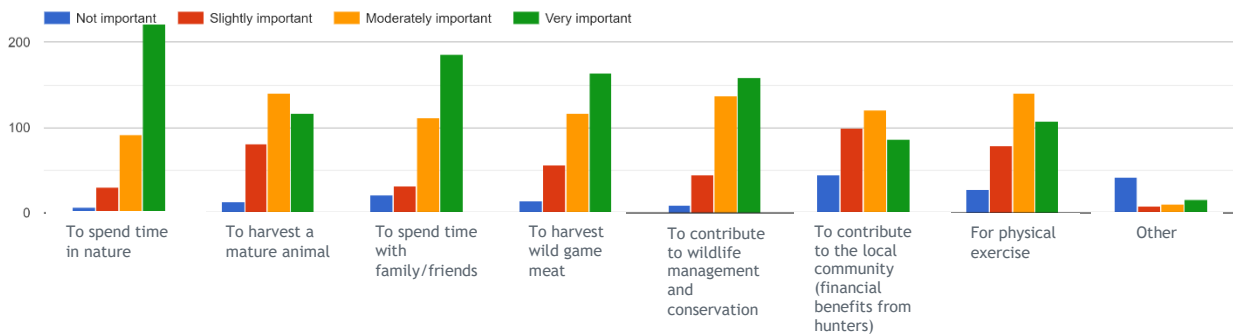


7. During which of the following seasons have you hunted deer in GMU 64 or 65? (Check all that apply)

339 responses

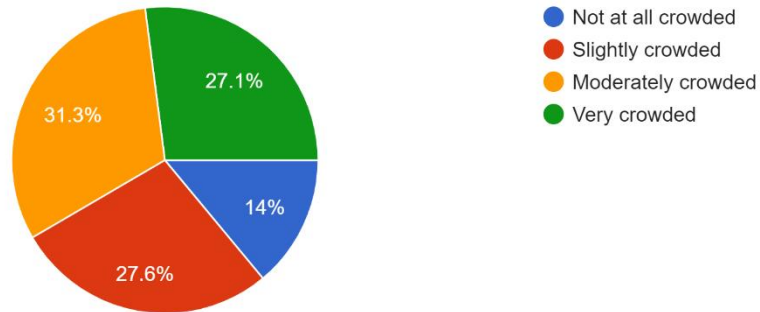


8. How important to you is each of the following reasons to hunt deer in GMU 64/65:



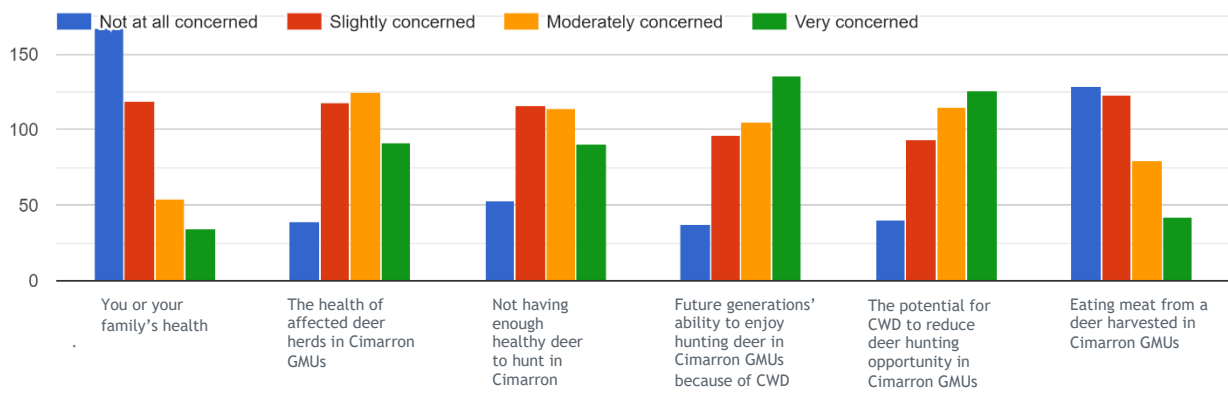
9. To what extent have you felt crowded by other hunters while hunting in GMU 64/65?

351 responses



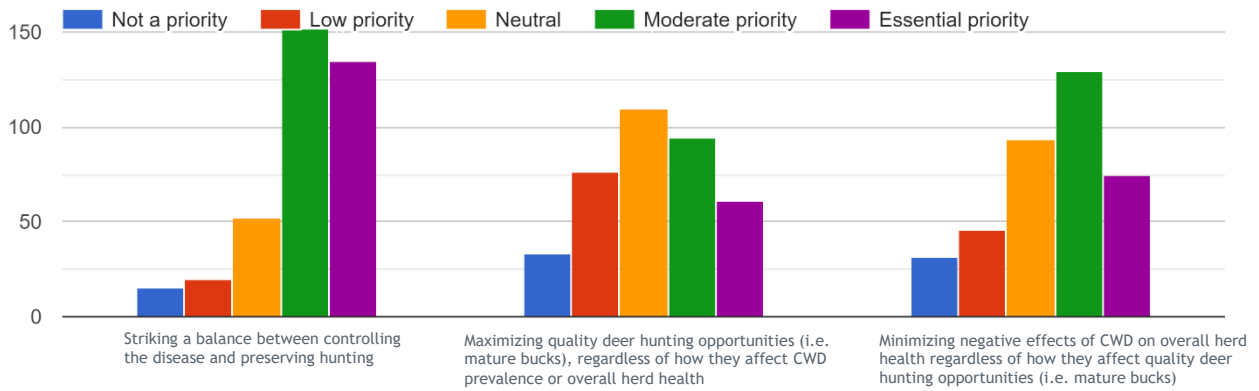
10. Because of CWD in deer (detected in less than 5% of samples collected from Cimarron deer), how concerned are you about each of the following in Cimarron deer herd GMUs?

(Please check one response for each statement.) How concerned are you about...



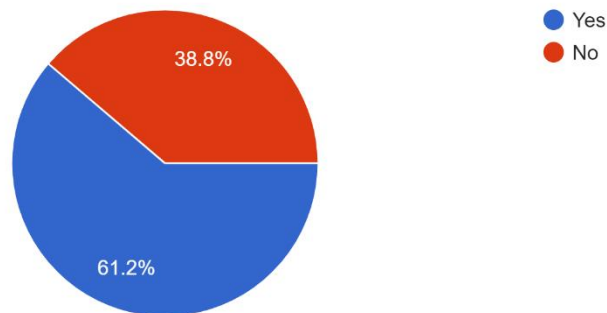


11. How much of a priority should Colorado Parks and Wildlife place on the following herd and harvest management decisions in GMUs 64 and 65 (Please check one response for each statement):



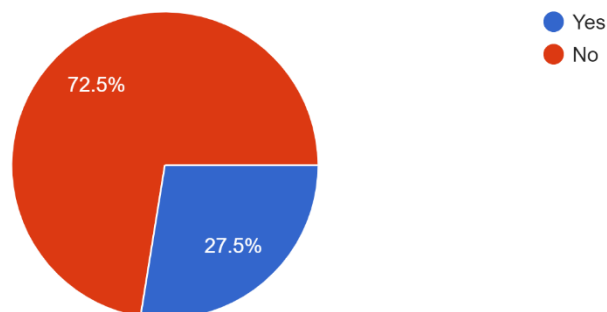
12. Are you a Colorado Resident?

374 responses



13. Do you currently live within GMUs 64/65?

374 responses



14. Please provide your zip-code: There were 201 different zip codes provided. The most common zip codes were 81401, 81403, 81432, 81416, 81425.

15. Respondents could add their name, but this was optional. (not added to summary for privacy purposes)

16. Please use the space below to provide any additional comments you may have about deer management in GMU 64 and 65 (summary of responses below).

- Remove the high elevation deer hunt (DM065E1R)
- Mining claims limit hunting access
- Too many bears and lions
- Too crowded
- Limit nonresident licenses more
- Very few bucks, but healthy doe and fawn populations
- Deer herd is too large
- Deer numbers satisfactory
- Want more mature deer
- Chronic Wasting Disease (CWD)
  - Desire to hunt areas without CWD
  - While CWD is low, focus on quality.
  - CWD management should be a priority
- Drought is impacting deer populations
- Deer refuge on private making less deer available to hunt on public land
- Too many crops standing during seasons
- Competition with livestock on public land
- Human population increase and wildlife-vehicle collision increase
- Add doe licenses for meat hunters
- Too many outfitters
- Negative impact of wolves on hunting
- Too many recreationists (ATVs, OHVs, mountain bikers, hikers etc.)
- Reinstate point restrictions
- More habitat management
- Limit over-the-counter and archery elk licenses
- Separate muzzleloader and archery season

## Appendix B

### Comment Letters

November 15, 2021

Alyssa Kircher  
Colorado Parks and Wildlife  
2300 S. Townsend Ave  
Montrose, CO 81401



**RE: Uncompahgre Habitat Partnership Program Comments - DAU D40**

Dear Ms. Kircher,

One of the initial reasons for creating the Habitat Partnership Program was to provide local landowners and other interests an opportunity for input into big game management in their areas. The diverse makeup of local HPP committees (3 livestock growers, USFS, BLM, CPW, and sportsperson representatives) provides a good cross-section of local interests to review DAU proposals and respond accordingly for CPW consideration.

HPP has two purposes: to resolve big game wildlife (deer, elk, pronghorn, moose) conflicts with agricultural landowners, and to assist CPW in meeting game management objectives for those species. From those perspectives, the Uncompahgre HPP committee has discussed your presentation, reviewed the draft alternatives, and offers these comments regarding the population range and sex ratio objectives for consideration.

The Uncompahgre committee supports the draft alternative to increase the number of deer within this DAU and within our committee area to 6,300 - 8,300 animals (approximately 17% increase). The committee does not believe this increase would create more conflicts, and we also believe we have the resources necessary to address conflicts should they occur. Increasing the population objective will ultimately lead to more hunting licenses and sportsperson opportunities.

The committee also discussed the proposed sex ratio alternative. We believe the current sex ratio of 25-30 bucks per 100 does is a good balance that provides ample hunting opportunity while also providing for a reasonable number of mature animals for those hunters who want to take a larger buck. Additionally, the current sex ratio is an important tool in suppressing the prevalence of Chronic Wasting Disease in the committee area without reducing herd size.

As stated above, HPP is also directed by statute to assist the Division to meet game management objectives. The Uncompahgre committee has worked with both public land managers and private landowners to improve the quality and quantity of the habitat in DAU D40. Adequate habitat, particularly on winter range, is critical to meeting game management objectives and we remain committed to maintaining and improving habitat in this area.

Our committee is confident that CPW will be able to achieve the proposed objectives. The Uncompahgre HPP committee will support this management effort in partnership with the numerous local landowners and federal land management agencies that place a high priority on implementing valuable habitat improvement projects, and have expressed the desire to continue this work.

Thank you for the presentation and the opportunity to provide these comments.

Sincerely,

Bobby Gray Chair  
Uncompahgre HPP Committee



Colorado Backcountry Hunters & Anglers  
*"The sportsmen's voice for our wild public lands, waters and wildlife"*  
[www.backcountryhunters.org](http://www.backcountryhunters.org)

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Colorado Parks and Wildlife  
 Attn. Alyssa Kircher  
 2300 S. Townsend Ave.  
 Montrose, CO. 81401

### **Comments on Draft Herd Management Plans for Deer and Elk in GMU 64 and 65**

Thank you for the opportunity to comment on the Draft Herd Management Plans (HMPs) for deer and elk in GMUs 64 and 65. I am submitting these comments on behalf of the Colorado Chapter of Backcountry Hunters & Anglers (CO BHA) who I represent as the Regional Director for the Central West Slope. CO BHA is one of 48 Chapters in the United States and our membership is currently at around 2,000. We are strong advocates for public land conservation, access, science-based wildlife management, and the opportunities to pursue our passion and privilege to hunt and fish in Colorado's backcountry.

GMU 64 and 65 provide important big game hunting opportunities for us and many other resident and non-resident hunters. Big game hunting is an important component of our local economy and to the livelihoods of many of our livestock producers. We greatly appreciate the past and present efforts of the Colorado Parks and Wildlife (CPW) to manage our deer and elk herds. Both of these Draft HMPs do an excellent job of describing the status and trend of our deer and elk populations as well as the challenges of a changing landscape and habitat capability. We continue to support the management principals and methods CPW is using to limit CWD in our deer herds, and strongly support the goal of increasing the population objectives for both deer and elk to provide hunter opportunity. We also understand the difficulty of increasing bull/cow ratios utilizing an over the counter license management approach.

As stated in the Draft HMPs, this area of the State is experiencing rapid growth in human population and development of private lands. We acknowledge that large ranch properties and subdivisions such as Log Hill do not provide harvest opportunities and serve as "sanctuaries" for big game. We firmly believe this loss of big game habitat and displacement of big game from public to private lands is exacerbated by the exponential growth in recreation on virtually all of our local BLM and National Forest lands.

CO BHA is extremely concerned about the impacts of trail construction and year-round recreational use on our public lands that is occurring in all habitat types and elevations. Locally, much of that trail development is fueled by grants from the CPW trails program. Our Chapter has been actively engaged in the CPW trails program as well as our local BLM and Forest Service trails and recreation planning processes. Those planning processes on public lands are highly influenced by CPW's trails program. Even though grants from this program require CPW review and approval, as well as public comment, we continue to see trails being developed in CPW high priority habitats which lead to more decline in habitat capability and displacement of big game from public lands.

We disagree with your statement in the HMPs that this development is largely out of your influence. You do have an active role in reviewing and guiding trail development and can provide a strong voice in the planning process. We have spent years working with CPW in developing the Guide to Planning Trails with Wildlife in Mind. The principals and practices included in that guide should be emphasized by CPW for all proposals. Hopefully the recently formed Ouray Recreation and Conservation Alliance funded by a CPW Partnership Grant will further provide awareness of the conflicts between recreation and wildlife and deliver more of a balance in favor of perpetuating the wildlife species of our State.

Craig Grother

*Craig Grother*

Regional Director, Central West Slope  
Backcountry Hunters & Anglers

*The Sportsman's Voice for Our Wild Public Lands, Waters and Wildlife*



## United States Department of the Interior

BUREAU OF LAND MANAGEMENT  
Uncompahgre Field Office  
2465 South Townsend Avenue  
Montrose, Colorado 80401



In Reply Refer To:  
8100 (COS050)

Rd: Draft Deer Herd (D-40) and Elk Herd (E35) management plans

Alyssa Kircher  
Wildlife Biologist  
Colorado Parks and Wildlife  
2300 S. Townsend Avenue  
Montrose, CO 81401

Dear Alyssa:

The Bureau of Land Management (BLM) Uncompahgre Field Office (UFO) appreciates the opportunity to provide comments on your draft plans for deer and elk management in hunt management units 64 and 65. The BLM provides habitat management for CPW mapped winter habitats for both species in these units and always appreciates local CPW cooperation with land use planning and habitat improvements in these areas.

Of note, our recent 2020 Uncompahgre Field Office Resource Management Plan (UFO RMP 2020) included the designation of the Kinikin Extensive Recreation Management Area (ERMA) in HMU 65. Specifically, this designation guides the BLM UFO to “focus recreation and visitor services on protecting and facilitating visitor opportunities to provide a variety of motorized and nonmotorized trail activities.” The BLM UFO is committed to working cooperatively with CPW throughout the development of this ERMA to ensure we develop recreation facilities and opportunities on this landscape in a way that protects and enhances CPW herd management objectives and achieves our corresponding agency multiple use mandates.

If you require any more specific information or have any questions, please don't hesitate to contact Suzanne Copping, UFO Field Office Manager, at (970)-240-5338 or [scopping@blm.gov](mailto:scopping@blm.gov). For specific questions regarding big game habitat management on these units, please contact Neil Perry at 970-240-5311 or [nperry@blm.gov](mailto:nperry@blm.gov).

Sincerely,

**SUZANNE  
COPPING**

Suzanne Copping  
Field Office Manager

Digitally signed by SUZANNE  
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Date: 2021.11.10 11:27:29 -0700'





**MONTROSE COUNTY**  
**BOARD OF COUNTY COMMISSIONERS**  
317 South 2nd Street  
Montrose, CO 81401  
Phone: 970-249-7755  
Fax: 970-249-7761

December 01, 2021

Alyssa Kircher  
Terrestrial Biologist  
Colorado Parks and Wildlife  
2300 South Townsend Avenue  
Montrose CO 81401

Dear Ms. Kircher:

Montrose County appreciates the opportunity to provide a letter of support for the CPW preliminary herd management plan for the Cimarron deer and elk herds on CPW managed lands located within Montrose County. The Montrose County Commissioners support this draft plan that identifies areas with quality habitat, migration corridors and areas of high conflict. This plan outlines the management steps needed to continue CPW's objectives and provides mitigation to protect this natural resource. These areas provide economic benefits to our local community by tourists and locals who participate in hunting seasons.

CPW diligently worked to prepare this plan and identify areas that needed mule deer and elk management. The wildlife areas are important for management to reduce conflicts with recreationists and to protect special habitat areas. Tourism is important to our local economy in many ways, through hunters, trail users, and outdoor enthusiasts. The demand for trails has grown and these beloved areas are seeing more use.

Supporting the CPW's capacity to manage mule deer and elk habitat within these recreational areas that benefit our local community and creates extensive economic value to our area and work with land management agencies to improve critical habitat.

Montrose County appreciates this opportunity to participate and comment on this plan. We recognize the importance of what CPW is trying to accomplish with local deer and elk herds and how to best manage them. We support the preferred alternatives as outlined in this draft herd management plan. The County appreciates the CPW's coordination in helping to ensure reduced conflict for mule deer and elk and trying to meet everyone's best interest.

Sincerely,

Sue Hansen  
Chair

Keith Caddy  
Vice Chair

Roger Rash  
Commissioner



BEN TISDEL  
LYNN PADGETT  
JAKE NIECE

**BOARD OF COUNTY COMMISSIONERS**

541 4<sup>th</sup> Street • P.O. Box C • Ouray, Colorado 81427 • 970-325-7320 • FAX: 970-325-0452

December 7, 2021

Alyssa Kircher  
Terrestrial Biologist  
Colorado Parks and Wildlife  
2300 S Townsend Ave.  
Montrose, CO 81401  
Via email to: [alyssa.kircher@state.co.us](mailto:alyssa.kircher@state.co.us)

Dear Ms. Kircher:

Ouray County appreciates the opportunity to provide a letter of support for the Colorado Parks and Wildlife (CPW) preliminary Herd Management Plan for the Cimarron deer and elk herds on CPW managed lands located within Ouray County. Ouray County supports this draft plan that identifies areas with quality habitat, migration corridors and areas of high conflict. This plan outlines the management steps needed to continue CPW's objectives and provides mitigation to protect this natural resource. These areas provide economic benefits to our local community by tourists and locals who participate in hunting seasons.

CPW diligently worked to prepare this plan and identify areas that needed mule deer and elk management. The wildlife areas are important for management to reduce conflicts with recreationalists and to protect special habitat areas. Tourism is important to our local economy in many ways, through hunters, trail users, and other outdoor enthusiasts. The demand for trails has grown and these beloved areas are seeing more use.

Supporting the CPW's capacity to manage mule deer and elk habitat within these recreational areas that benefit our local community and creates extensive economic value to our area and work with land management agencies to improve critical habitat.

Ouray County appreciates this opportunity to participate and comment on this plan. We recognize the importance of what CPW is trying to accomplish with local deer and elk herds, and how to best manage them. Ouray County supports the preferred alternatives as outlined in the draft Herd Management Plan. Ouray County appreciates CPW's coordination in helping to ensure reduced conflict for mule deer and working to meet the best interest of all users.

Sincerely,

Ben Tisdell  
Chair, Board of County Commissioners