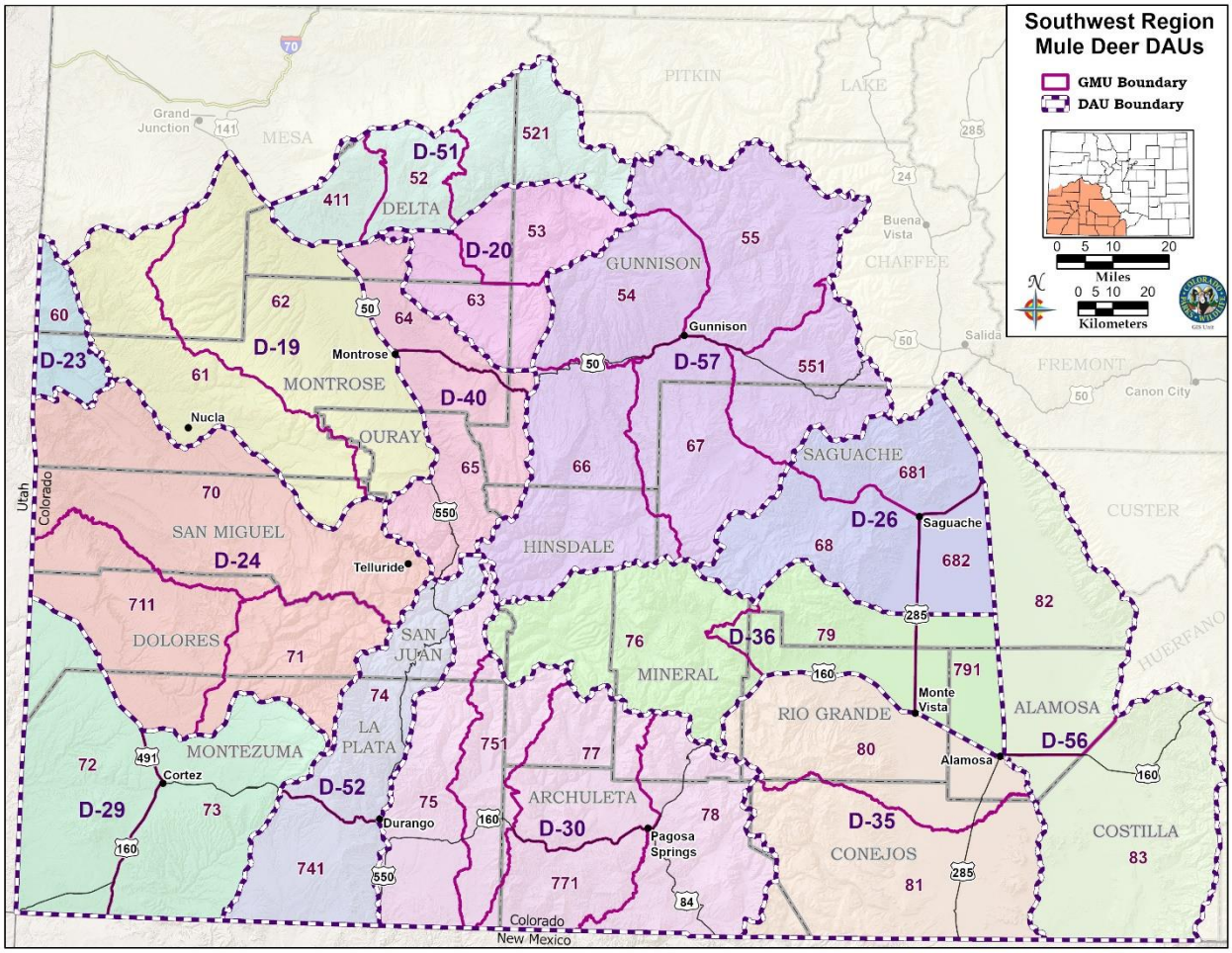
DRAFT Mule Deer Herd Management Plans

Colorado Parks and Wildlife

Southwest Region



PREPARED FOR
COLORADO PARKS AND WILDLIFE

BY
SOUTHWEST REGION WILDLIFE BIOLOGISTS

This plan was approved by the Colorado Parks and Wildlife Commission on Month Date, 2024

Executive Summary

Colorado's mule deer populations are iconic and known throughout the United States and the world. Today, Colorado maintains a herd of approximately 400,000 mule deer, the largest population in North America. However, mule deer populations in Colorado and throughout the western United States have steadily declined since the 1960s and 1970s, likely numbering less than half of historic highs. As recently as 2006, Colorado is estimated to have sustained a mule deer population of approximately 600,000 animals. Wildlife biologists, researchers, landowners and land management agencies, hunters, and wildlife watchers have put considerable resources and effort into maintaining mule deer populations in recent decades in an effort to mitigate growing and increasing threats to healthy mule deer populations and wildlife habitat in Colorado and across the western United States.

Hunting and angling, and other wildlife-related recreation, contribute over $5 billion annually to Colorado's economy. Funds generated by big game hunting license sales are used in the conservation of Colorado's wildlife in numerous ways, including habitat improvement and conservation projects that benefit a diversity of species. However, mule deer populations face significant ongoing and often growing threats, including habitat loss and fragmentation to development on public and private lands, increasing recreation pressure and recreational development, traditional and renewable energy development and production, highways and fencing bisecting migration routes, conflict with agricultural interests, disease, and decline in habitat quality related to invasive weeds replacing preferred forage plants, persistent drought, and climate change. All of these threats are compounded by booming human population growth across Colorado. These challenges present mule deer and wildlife managers with an uncertain future as we work to manage and conserve mule deer populations, other wildlife, minimally fragmented and secure wildlife habitats, and naturally functioning ecosystems for generations to come.

Mule deer have been widely studied in Colorado and elsewhere. CPW has taken numerous measures to attempt to understand and slow down population declines and has implemented long-term mule deer monitoring studies in five herds across the state (including the D-19 Uncompahgre Plateau and D-57 Gunnison Basin herds in southwest Colorado) to monitor annual adult doe survival and over-winter fawn survival annually since 1997. The state has conducted numerous studies to understand the relationship between habitat and predators on mule deer populations. We have completed thousands of acres of conservation easements to protect private lands from development. The state also developed a West Slope Mule Deer Strategy in 2014, which incorporated public input to guide the stabilization and recovery of deer populations that would, in turn, increase hunting and other wildlife-related recreation opportunities in the state. Following the guidance of the mule deer strategy, funds have also been made available and matched, to improve habitat across large parts of western Colorado. All of the efforts have contributed significantly to mule deer conservation and management and to the benefit of other species using similar habitat types. Through all of the monitoring efforts, research, and public input, CPW staff have identified issues impacting deer populations and herd health in southwest Colorado. In addition, CPW and partnering organizations have initiated thousands of conservation easements to protect private lands from future development. CPW and partner organizations are also continually engaged with federal and state land management agencies and private landowners to promote habitat improvement projects that benefit deer and other wildlife species. These ongoing efforts help

ensure a future for deer and other wildlife in Colorado. Conservation of Colorado's big game herds and overall wildlife habitat protection are among CPW's highest priorities[1].

The Herd Management Plans (HMPs) contained in this document will guide the management of 14 mule deer herds occurring in the Southwest Region for a 10-year period through 2034. In sum, these 14 deer herds contain an estimated 130,000 animals, representing 33% of the statewide total population estimate of 400,000 deer. Of the 14 draft HMPs contained herein, CPW staff are proposing extensions of recently approved management objectives for six of them. HMP extensions are recommended when CPW staff believe a continuation of the previous objectives, course of management actions, and strategies are supported for a given herd. Therefore, we are not proposing any changes to the objectives or management approach for six of these HMPs, all approved by the Parks and Wildlife Commission within the last few years. Extensions have reduced public levels of involvement compared to full HMP revisions, as those processes were recently completed. CPW proposes revising HMPs for the remaining eight herds, which include new management objective alternatives, whose current management objectives are more than 10 years old (Table 1). Revisions include public involvement and may result in changes to any aspect of the plan including the numerical objectives (such as population and sex ratio objective ranges) and management approach (increasing, maintaining, or reducing). Therefore, CPW may modify the population objectives or management strategies.

Management objectives established in these plans must abide by statutes and policies set forth by CPW's Big Game Season Structure, CPW's Strategic Plan, the Parks and Wildlife Commission, and the Colorado State Legislature. The primary purpose of HMPs is to establish management objectives for each herd in terms of a desired population size range and observed sex ratio (bucks:100 does) range. The management alternatives selected in these plans will drive annual elk license-setting decisions. License-setting and the resultant annual harvest modulate elk population numbers to meet population and sex ratio objectives. Each plan also describes additional strategies and techniques that will be used to achieve the desired herd objectives. The goal for the ten-year term of these plans is to manage to the most appropriate population level within the objective range based on climatic patterns, habitat conditions, forage availability, and public desires. CPW may consider revisiting an HMP prior to the end of the ten-year term of the plan if outstanding circumstances arise and a revision is deemed necessary.

Local CPW staff have conducted extensive public and stakeholder outreach to inform the various proposed management objective alternatives for each HMP. Evaluation of newly available optional hunter satisfaction data from annual hunter harvest surveys, as well as meetings with the public, local governments and organizations, and other stakeholders, have guided the development of these plans and management alternatives. In addition, the draft plan was posted on the CPW website and advertised with press releases from November 1, 2023 – December 15, 2023, for another public comment period to evaluate the proposed objective alternatives. The draft plan was presented to the Parks and Wildlife Commission on Month Date, 2024, for final review and comment, and was formally approved on Month Date, 2024.

[1] https://cpw.state.co.us/Documents/About/StrategicPlan/CPWStrategicPlan.pdf

Table 1. Population and management status of 14 mule deer herds occurring in SW Colorado.

DAU	Mule Deer Herd	Current Herd Management Plan Approved	Current Population Objective	2022 Post-hunt Population Estimate	Current Buck Ratio Objective	3-Yr Avg Observed Buck Ratio	Proposed Population Objective	Proposed Buck Ratio Objective
D-19	Uncompahgre Plateau	2006	36,000-38,000	10,300	34-36	32	12,000-15,000	30-35
D-20	North Fork Gunnison River	2018	7,500-9,500	8,700	33-38	34	Extension	Extension
D-23	La Sal	2008	2,500-3,000	1,500	25-30	32	1,500-1,800	20-25
D-24	Groundhog	2014	15,000-19,000	18,300	23-28	27	19,000-23,000	23-28
D-26	Saguache	2019	5,500-6,500	5,500	26-29	29	Extension	Extension
D-29	Mesa Verde	2014	5,500-7,000	9,300	23-28	30	9,000-12,000	23-28
D-30	San Juan Basin	2020	23,000-27,000	22,700	25-30	31	Extension	Extension
D-35	Lower Rio Grande	2018	5,500-6,500	6,800	23-25	30	6,000-8,000	25-30
D-36	Upper Rio Grande	2022	2,200-2,800	2,600	23-28	29	Extension	Extension
D-40	Cimarron	2022	6,500-8,500	6,900	25-30	23	Extension	22-27
D-51	South Grand Mesa	2018	8,000-10,000	9,100	25-30	26	Extension	Extension
D-52	Hermosa	2010	4,000-6,000	4,500	25-30	31	Extension	Extension
D-56	Sand Dunes	2010	4,300-5,500	3,400	25-40	35	4,300-5,500	30-35
D-57	Gunnison Basin	2013	15,400-16,900	18,900	35-40	45	17,000-20,000	35-40

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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 following CPW's Strategic Plan (2015). 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 varied public demands and growing human impacts. CPW uses a "Management by Objective" approach to managing the State's big game populations (Figure 1).

Figure 1. Management by Objective process used by Colorado Parks and Wildlife to manage big game populations by Data Analysis Unit (DAU).

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

The primary purpose of HMPs is to establish population size and buck ratio (i.e., the number of males per 100 females) objectives for each DAU. The HMP also describes the strategies and techniques that will be used to reach these objectives. During the HMP planning process, CPW solicits and collects public input through questionnaires, public meetings, and comments to CPW staff and the PWC. CPW's mission as wildlife stewards is integrated with the concerns and ideas of various stakeholders, including the State Land Board (SLB), the Bureau of Land Management (BLM), the United States Forest Service (USFS), the Habitat Partnership Program (HPP), agricultural producers, city and county governments, hunters, guides and outfitters, private landowners, local chambers of commerce, the Southern Ute Indian Tribe (SUIT), the Ute Mountain Tribe (UMT), and the public. In preparing an 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 purpose of these HMPs is to set estimated population and observed buck ratio objectives for mule deer herds in southwest Colorado from 2024-2034, with the expectation that they will be reviewed and updated in 2034.

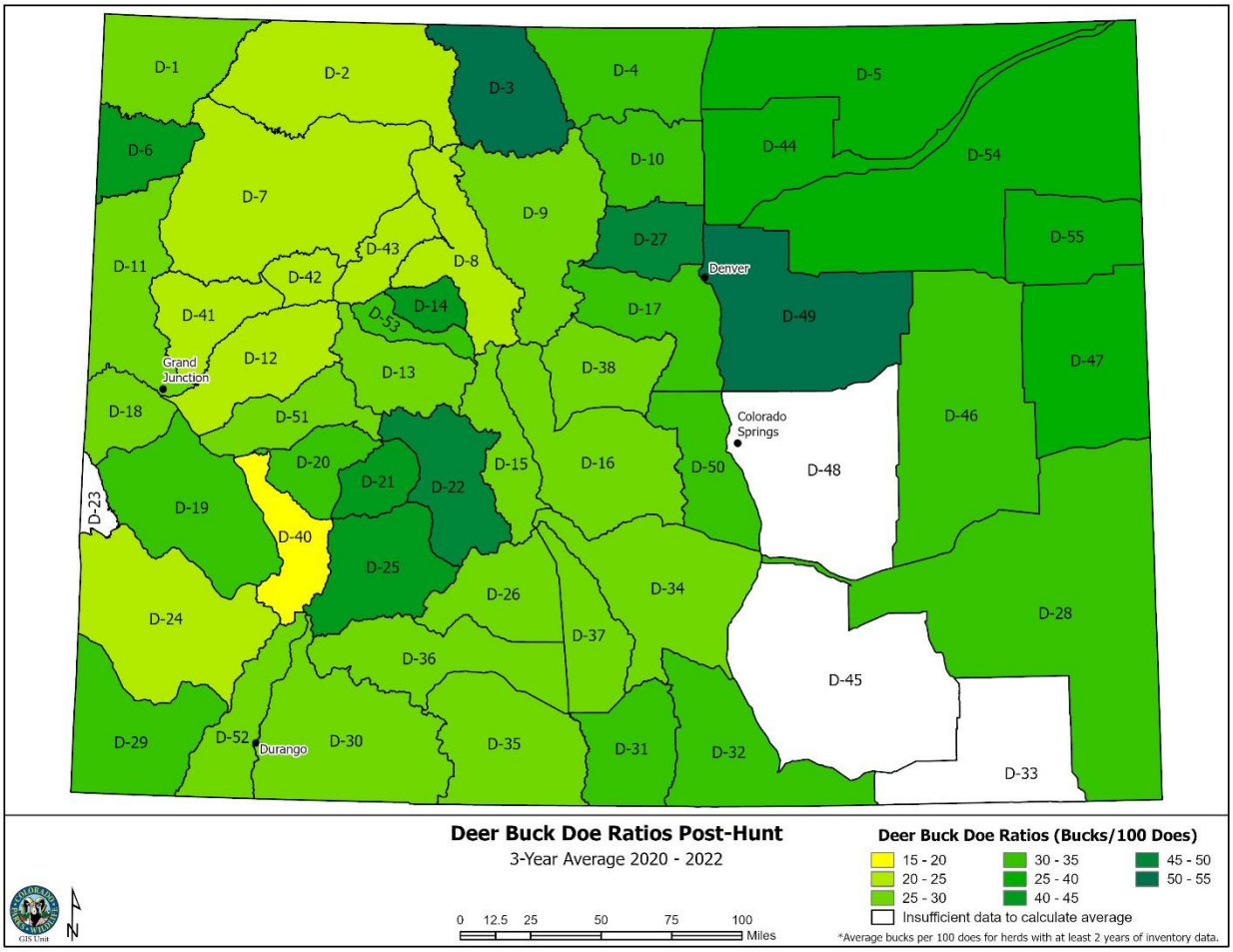


Figure 2. Average post-hunt (winter) buck:doe ratios for Colorado deer herds, 2018-2022.

Common Management Issues and Strategies

Mule deer populations peaked most recently in the 1940s through the 1960s, sustained by irrigated agricultural fields and expansive landscapes, and have slowly but steadily declined since then. Historic populations in Colorado were likely more than double the current population estimate of 400,000 animals statewide. As recently as 2006, Colorado's mule deer population estimate was approximately 600,000 animals. These declining trends have generally occurred throughout the 14 deer herds existing in Colorado's Southwest Region. As one example, the D-19 Uncompahgre Plateau mule deer population has declined from approximately 60,000 deer in 1980 to an estimated 10,000 deer currently. The current

combined population estimate for the southwest deer herds is 130,000 deer. Mule deer declines in Colorado and across the western United States have been exacerbated by habitat loss due to anthropogenic changes to the landscape, including housing and energy development, increasing recreation pressure, and loss of connectivity and movement corridors. Noxious weed invasion replacing natural forage, drought, disease, competition with livestock and elk, and predation, are other important factors impacting mule deer populations. Wildlife enthusiasts, landowners, and hunters often support increases in population objectives. However, how many deer Colorado can support in the future, given current and expanding levels of anthropogenic disturbance and influence, is currently in question. In 2014, Colorado Parks and Wildlife completed the West Slope Mule Deer Strategy, which guides management decisions to help rebuild our mule deer populations. The Strategy states: Together with the public and stakeholders, CPW will work to stabilize, sustain, and increase mule deer populations in Western Colorado and, in turn, increase hunting and wildlife-related recreational opportunities. The West Slope Mule Deer Strategy outlined seven strategic priorities to address the many threats facing mule deer populations. To learn more, read Colorado's Mule Deer Story and Colorado's West Slope Mule Deer Strategy at: https://cpw.state.co.us/learn/Pages/CO-WestSlopeMuleDeerStrategySummit.aspx

CPW also has a long history of mule deer research in Western Colorado. For publications and more information, visit
https://cpw.state.co.us/learn/Pages/ResearchMammalsPubs.aspx

Habitat Availability and Quality

Mule deer abundance is ultimately limited by the availability and quality of habitat. The habitat available to mule deer in Colorado has changed significantly over the last century. However, the rate at which habitat loss has occurred within the last 50 years has accelerated considerably compared to the homesteading days of the late 1800s – early 1900s. Settlement of the West resulted in intensive livestock grazing through the 1930s that increased the size, density, and vigor of shrub communities in Colorado and increased the amount of habitat available to mule deer. These increases in habitat contrast greatly with the losses of mule deer habitat within the last 50 years. Changes in climate and weather patterns and the direct and indirect losses of mule deer habitat due to the growth of Colorado's human population have been driving factors in mule deer population trends.

Factors influencing habitat quality include extreme weather conditions, invasive noxious weeds, fire, shrub eradication, overgrazing, and fragmentation. Quality habitat allows an animal to physically access the biological components for survival, including nutritious vegetation for growth and sustenance and security cover for thermal protection and predator avoidance. Mule deer are selective feeders with a diverse diet. Functionally, a mule deer's digestive system depends upon high-quality forage and low consumption rates when compared to more generalist grazers, such as cattle and elk. Nutritional requirements for mule deer require various plant types including shrubs, forbs, and grasses, which vary across seasonal ranges.

Colorado's population increased from 1.3 million people in 1950 to 4.3 million people in 2000 to 5.8 million people in 2021. The human population on Colorado's western slope is projected to grow by another 67% between 2020 and 2050 (US Census Bureau, 2021), presenting increasing pressures on wildlife and the habitats they rely on. Increased housing developments, infrastructure, traffic, and recreation activities, come with a growing human population. Factors such as competition with livestock, fences, vehicle collisions, disease,

and predation all contribute to deer population declines; however, habitat loss and fragmentation stemming from residential, recreational, and industrial development - compounded by the long-term effects of human population growth and climate change - present the greatest risks to Colorado's deer population.

Mule deer habitat quantity has further been reduced by traditional and renewable energy exploitation in Colorado. There are currently over 37,000 producing natural gas wells in Colorado, compared to 5,125 in 1989. There are also three surface coal mines in Colorado. Oil shale exploration and oil wells are also expected to increase in the future. These activities reduce the amount of available habitat through pads, roads, pipelines, and open mine pits. Proposed renewable energy projects have increased significantly in the past several years, with a focus on utility-scale photovoltaic (PV) solar projects in Western Colorado. Of particular concern for big game species, the National Electric Code (NEC) requires that solar energy facilities be fenced for security purposes. This exclusionary fencing requirement results in a complete loss of habitat for big game and frequently creates a significant barrier to daily and/or seasonal movement patterns. When siting locations for utility-scale solar projects, developers typically seek areas close to existing electrical transmission lines and substations, flat topography, southern exposures, and limited forest canopy cover. Frequently, these landscape characteristics also represent high-quality winter range areas for big game in Western Colorado. Additionally, to avoid lengthy federal permitting processes, most of these proposed projects have been located on privately owned lands with 20 to 30-year lease agreements.

CPW intensively monitors annual adult doe survival and winter fawn survival in five Intensive Mule Deer Monitoring Areas (Figures 3 and 4). We also monitor buck survival in two of these herds. CPW annually monitors well over 1,000 radio-collared mule deer in the five monitoring areas, and annual survival rates from these herds are used in deer population models for the rest of the herds west of I-25. CPW conducts winter herd classification inventories with helicopters to estimate the sex ratios of males/100 females and the age ratios of young/100 females. Ratios of fawns/100 does are an index of annual fawn production and survival to December, which indicates the "fitness" of an individual herd. The ratio of mule deer fawns/100 does has declined slowly but steadily since the early 1970s. CPW continues to monitor and evaluate the factors influencing fawn and adult deer survival rates in Colorado; these factors include declining quality and availability of winter ranges due to human development and fragmentation, increasing recreation pressure on public-lands, noxious weed invasion replacing native forage, persistent drought that influences forage quality and hiding cover for fawns, disease, and predation.

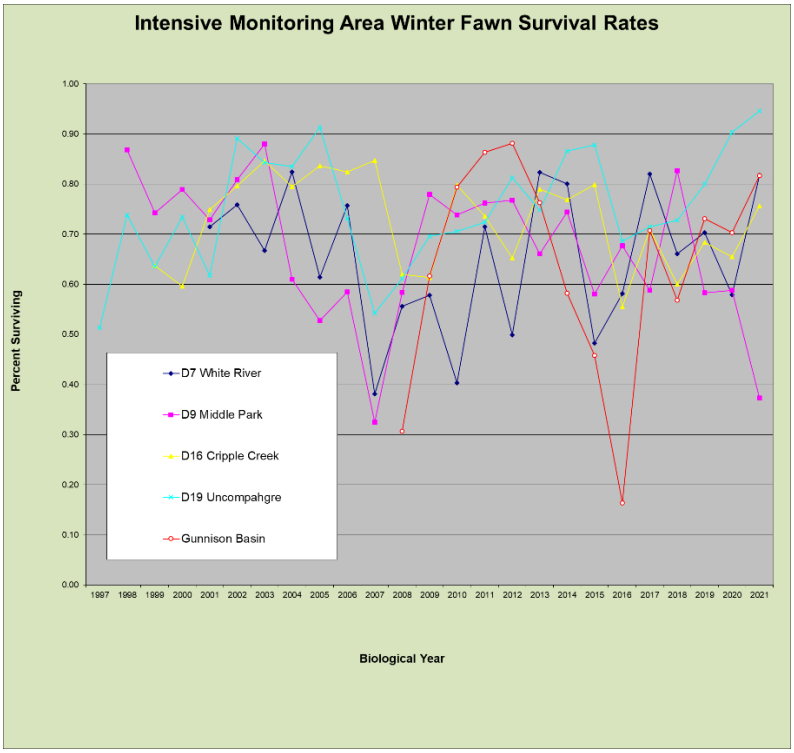


Figure 3. Overwinter (Dec 15 – June 15) fawn survival rates for Colorado's five intensive monitoring areas, biological years 1997-2021.

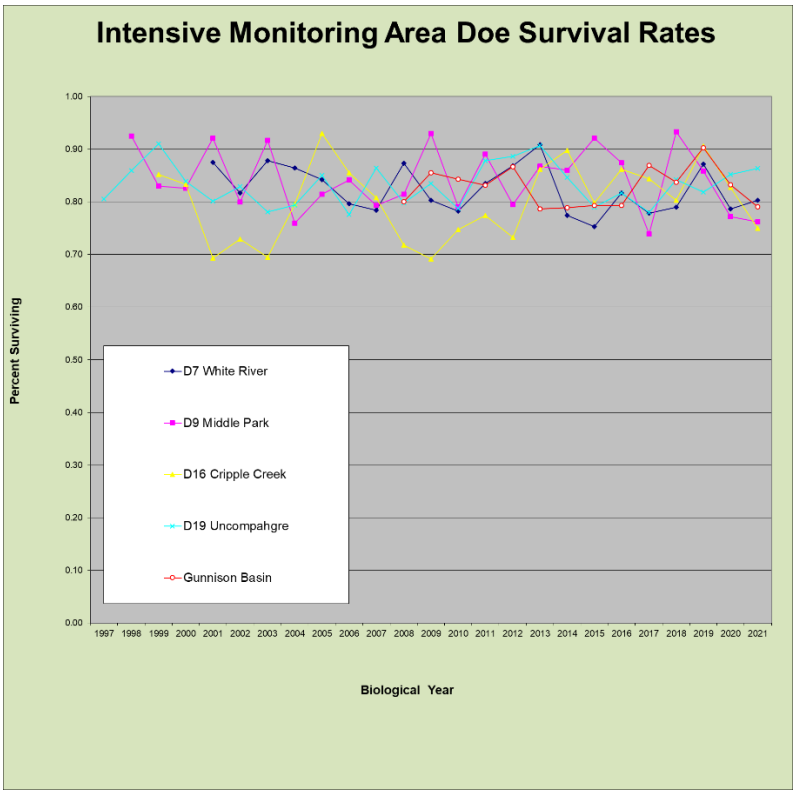


Figure 4. Annual (Dec 15 – Dec 15) doe survival rates for Colorado's five intensive monitoring areas, biological years 1997-2021.

Altering habitat quality and quantity through land use activities can have significant and long-term impacts (both positive and negative) on big game habitats and populations (Johnson et al., 2016). Examples of habitat alteration include, but are not limited to, land use conversion from agriculture to residential, habitat type change by natural causes such as wildfires, habitat quality change as a result of domestic grazing practices, habitat fragmentation, and climate change. Recreation and energy development, occurring at unprecedented levels in Colorado, are two examples of human uses on the landscape that increasingly overlap with, fragment, and negatively impact big game habitats. Colorado has a network of roads that total approximately 90,000 miles. Road construction directly removes available habitat, results in population loss from road kill, and indirectly affects ungulate migration patterns and behavior. Roads are continually expanding into deer range from housing, energy development, and recreation.

Converting rural and agricultural lands that once functioned as wildlife habitat amounts to a permanent loss of habitat. Real estate values have increased exorbitantly, so the financial incentive for ranch owners to subdivide and sell their properties has been immense. The cost to deer and other wildlife is the likely irreversible loss of habitat and, therefore, decreased carrying capacity across the landscape for many wildlife species. Conservation of private lands should be a priority in order to protect and maintain connectivity of the remaining undeveloped lands for wildlife use. The Colorado Wildlife Habitat Program ("Habitat Stamp") and Great Outdoors Colorado (GOCO), as well as federal programs and non-governmental organizations such as land trusts, provide funding and mechanisms to help private landowners set up conservation easements. The challenge, however, is that conservation easement efforts must compete with the region's extremely high real estate prices.

The above impacts have cumulatively resulted in the direct loss of habitat available to deer and other wildlife. Furthermore, the direct loss of wildlife habitat is often amplified by the indirect losses that occur due to noise pollution, disturbance, and the overall fragmentation of remaining habitat. Habitat fragmentation and reduced connectivity are increasingly concerning as Colorado's deer attempt to navigate through their annual cycles between seasonal ranges. The connectivity between the available habitat that is left is fractured, impacting the quality of habitat deer use through their life cycle from summer to winter ranges. Ultimately, these impacts and ongoing habitat loss will continue to reduce Colorado's carrying capacity for the renowned deer population we presently support.

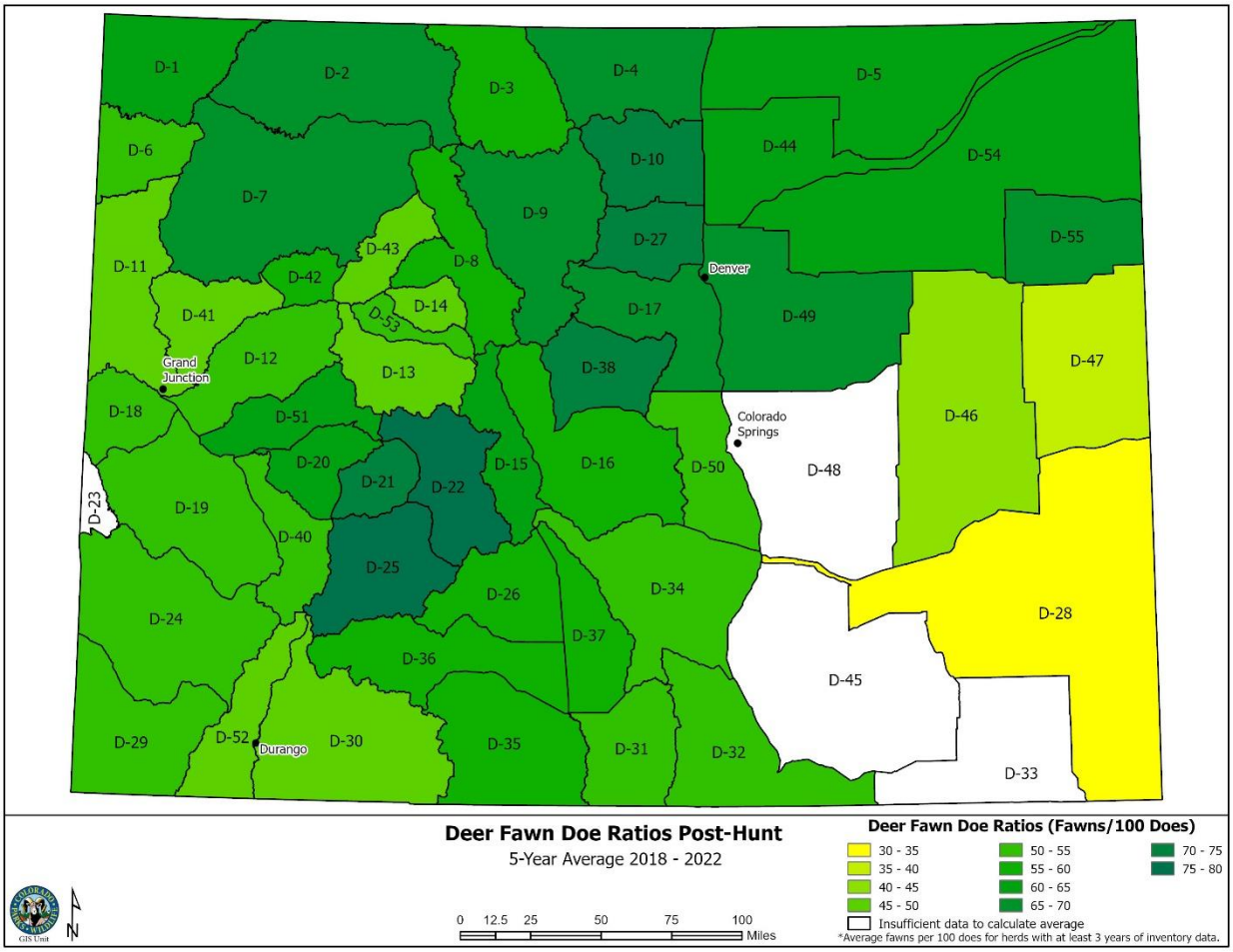


Figure 5. Average post-hunt (winter) fawn:doe ratios for Colorado deer herds, 2018-2022.

Recreation

Human recreation causes both direct loss of habitat from the development of infrastructure (roads, trails, parking areas, etc.), and indirect loss of habitat through the behavioral avoidance of these areas by wildlife. Human presence on the landscape in the form of recreation evokes a physiological stress response for mule deer that impacts habitat usage, activity times, competition, foraging, reproduction, and body condition. Wild animals minimize energy expenditure by reducing their spatial and temporal activity, but human disturbance disrupts this energy-saving behavior by causing extra movement to escape or find cover. Deer react to the presence and activity of humans either by fleeing or by being vigilant, both of which detract from the animal's ability to feed and rest. These disturbances on the scale of individual encounters between an animal and a human recreationist may seem minor in isolation, but when translated to the lifetime of the animal or even to the scale of the whole deer population, the cumulative effects of year-round disturbance will lead to lower recruitment of fawns, higher mortality, and overall decline in population fitness over time. Disturbance from human activity can make what would otherwise be suitable habitat from a forage standpoint into poor quality habitat from a behavioral standpoint.

Avoidance of recreationists effectively decreases the carrying capacity of an area, as mule deer and elk generally do not habituate to hiking or mountain biking. Distances from roads and trails are an essential habitat feature for wildlife, and large-scale patches of land that

remain un-fragmented by routes in Colorado are becoming increasingly rare, even in protected areas such as Wilderness. When route densities increase to the point that the predicted behavioral avoidance zone overlaps or intersects with another route, habitat effectiveness is severely reduced or eliminated and can result in a barrier to movement and seasonal migrations for ungulates. Often, the indirect impacts associated with noise and avoidance buffers greatly outweighs the direct habitat loss associated with recreation trails. Increased recreational activity associated with increased density of routes (roads and trails) leads to both immediate and long-term impacts on individual animals and populations by displacing wildlife into less-optimal habitats. The result is a decrease in available energy for winter survival, growth and reproduction, and ultimately reduced fitness of a population.

Winter range forage and habitat for mule deer are becoming increasingly limited in Colorado due to recreation, roads, and residential development. Mule deer are highly vulnerable to disturbance during the winter and early spring when they struggle to maintain body condition and have limited energy reserves. Snow depths restrict animals to lower elevations where higher densities of roads and trails exist and subsequently have greater human use. The combination of deep snow, cold temperatures, and limited forage requires animals to expend higher amounts of energy for thermal regulation, daily movement, and feeding. Recreation on winter ranges, including hiking, snowshoeing, snow/fat-biking, skiing, snowmobiling, and shed antler gathering, can negatively impact ungulate behavior by causing them to flee and altering their feeding, resting, and travel patterns. When a deer is disturbed, it forgoes foraging in favor of hiding until the disturbance has ended. Even low levels of disturbance from human recreation can negatively impact mule deer during winter months and decrease survival. While some animals show no apparent behavioral response, ungulates may still experience physiological stress and elevated heart rates, resulting in relatively high energy expenditures. CPW established a shed antler gathering season, an activity which CPW can regulate, prohibiting shed antler gathering on public lands from January 1st to May 1st annually. The presence of dogs accompanying recreationists increases the zone of influence, flushing distances, and temporal displacement for ungulates. Dogs are efficient at chasing deer, causing extreme energy expenditure and potential mortality, particularly for fawns. Deer concentrated on winter ranges are especially vulnerable to harassment and predation by dogs. Avoidance behavior can be critically impactful during the winter if deer spend time and energy evading dogs when they need to be foraging for food and expending as little energy as possible.

To ensure that essential habitats remain connected and usable for elk and other big game animals, CPW recommends the following when planning for recreation infrastructure:

- Federal land management agencies should consult the 2021 Trails with Wildlife in Mind Guide (Trails with Wildlife in Mind Task Force 2021) to aid in management decisions when planning new trails or trail improvements.
- Avoid the highest-priority deer habitats when planning recreation infrastructure, wherever possible.
- Limit the density of motorized and non-motorized roads and trails in important wildlife habitats.
- Seasonal closures should be considered to benefit deer and other wildlife in the winter months and during calving when they are most vulnerable.
- Strategic seasonal closures of motorized routes should be considered during annual hunting seasons to promote big game use and fidelity to public lands where they are available for harvest.

Preserving contiguous swaths of the sagebrush, grassland, mountain shrub, and forest landscapes that deer rely on for habitat, and facilitating safe passage along migration and movement routes - within and between seasonal ranges - are priorities for wildlife and land managers in Colorado as well as other western states. CPW relies heavily on federal land management agencies as well as private property owners to conserve and enhance habitats for elk and other wildlife species. In 2017 and 2018, several secretarial orders issued by the U.S. Department of Interior (DOI) directed federal land managers to work with states to protect big game species and their habitat within the region. Secretarial Order (SO) 3356: Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories, and SO 3362: Improving Habitat Quality in Western Big-Game Winter Range and Migration Corridors, respectively, provided direction to federal land managers for improving access to lands for recreational activities, particularly hunting and fishing. SO 3362 also directed DOI agencies to improve habitat quality to ensure the long-term viability of big game and other wildlife populations, particularly migration corridors and sensitive winter ranges for elk, deer, and pronghorn. Various solutions are being considered at all levels of government and by private sector stakeholders to enhance the protection of big game winter range and migration and movement routes. These policies aim to foster collaboration, expand data collection and research, incentivize participation in habitat connectivity programs, and implement targeted infrastructure solutions.

Chronic Wasting Disease

University scientists studying captive mule deer in facilities west of Fort Collins, CO, first recognized Chronic Wasting Disease (CWD) in the 1960s. Within a few years thereafter, symptomatic CWD cases were diagnosed in free-ranging deer and elk in northcentral Colorado and southeastern Wyoming. By the early 1990s, the growing number of documented cases compelled early attempts to estimate infection rates (prevalence) by sampling harvested and vehicle-killed deer and elk. Applying diagnostic advances that afforded more accurate detection of infected animals, surveys in the late 1990s revealed that CWD was already well-established in much of northeastern Colorado and southeastern Wyoming. This disease occurs in deer, elk, and moose. Infections are much less common in elk and moose than in deer. CWD is an infectious prion (misfolded protein) disease that affects 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 growing concerns of increasing spread throughout the state (CPW, 2018). This plan contains management actions and recommendations to control CWD prevalence while managing towards population and sex ratio objectives. The plan established a schedule to monitor deer herds every five years for prevalence rates. In addition, if prevalence is determined to be at 5% or greater in the two-year old and older adult male segment of the population, management actions should be taken to reduce that prevalence to below the 5% benchmark. The primary recommendations to manage CWD prevalence in deer herds are: 1) Reduce population and density, 2) Reduce male/female ratios, 3) Change age structure, 4) Maximize ability to remove diseased animals at the smallest scale possible (hot spot management), 5) Remove motivations that cause animals to congregate, 6) Minimize prion point sources, and 7) Incorporate CWD management actions and prevalence threshold into herd management plans. The Southwest deer management plan objectives have been developed to reflect the recommendations from the

CWD response plan and attempt to reduce prevalence rates to or below the 5% benchmark. The primary tool for CWD management at the herd level is to manage for lower buck:doe ratios, as bucks carry CWD at approximately twice the rate of females. Furthermore, managing for lower population densities can also help reduce the prevalence of CWD. When possible, license allocation will be directed to later seasons and locations to best address hot spots of higher CWD prevalence. When harvest is sufficient and sustained, it can be a tool for attenuating CWD prevalence in adult male mule deer, especially early in the course of an epidemic (Miller et al. 2020 and Conner et al. 2021). Increasing male harvest reduces male and overall deer abundance and density, male age structure, and the number of infected deer, all of which appear to reduce disease. Likewise, timing hunting seasons closer to the breeding season when mature males are more vulnerable to harvest is another strategy to reduce CWD prevalence (Miller et al. 2020 and Conner et al. 2021).

As of April 2022, CWD has been detected in 40 of Colorado's 54 deer herds, 17 of 42 elk herds, and 2 of 9 moose herds (Figures 4 and 5). Disease prevalence is highest in deer and lowest in moose. Prevalence appears to be rising in many affected Colorado herds.

For more information on Chronic Wasting Disease in Colorado, visit:
https://cpw.state.co.us/learn/Pages/About-CWD-in-Colorado.aspx

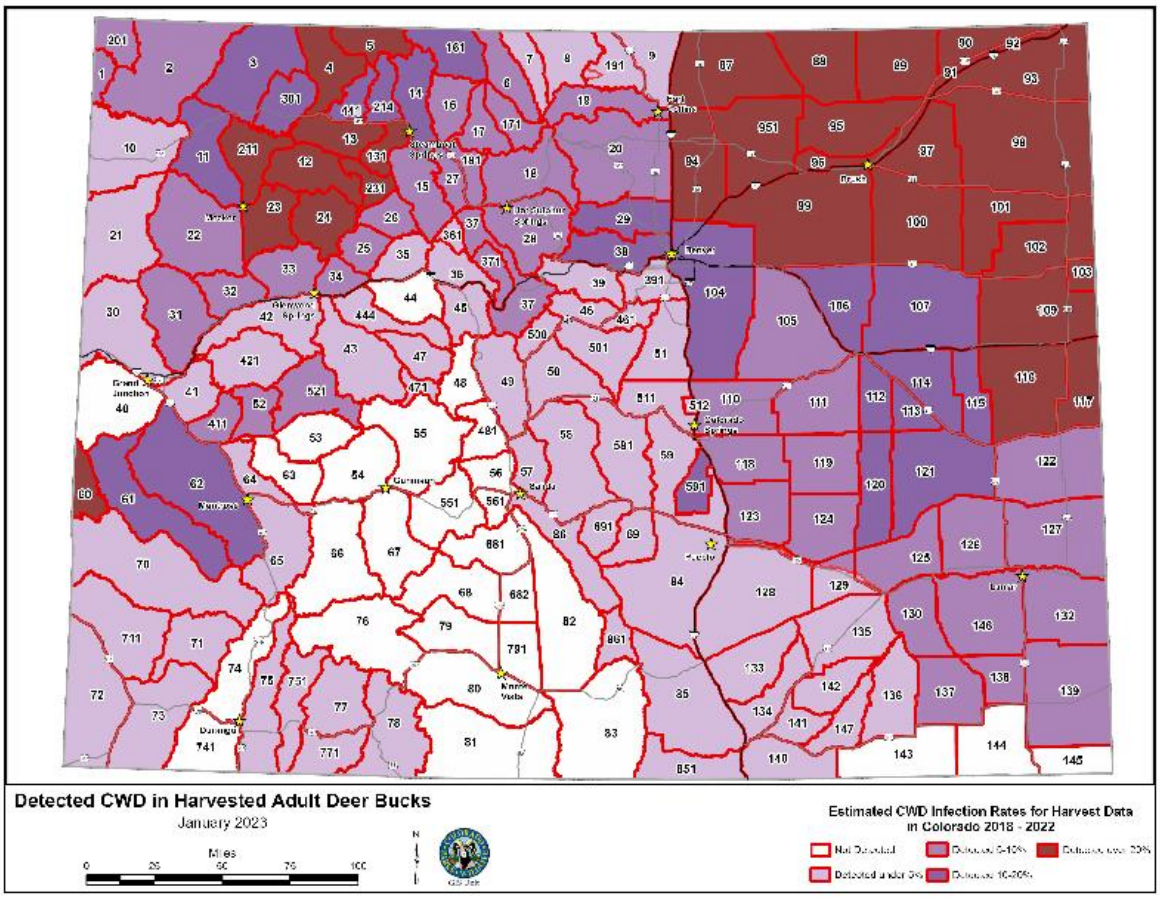


Figure 6. Chronic Wasting Disease infection rates in Colorado deer herds.

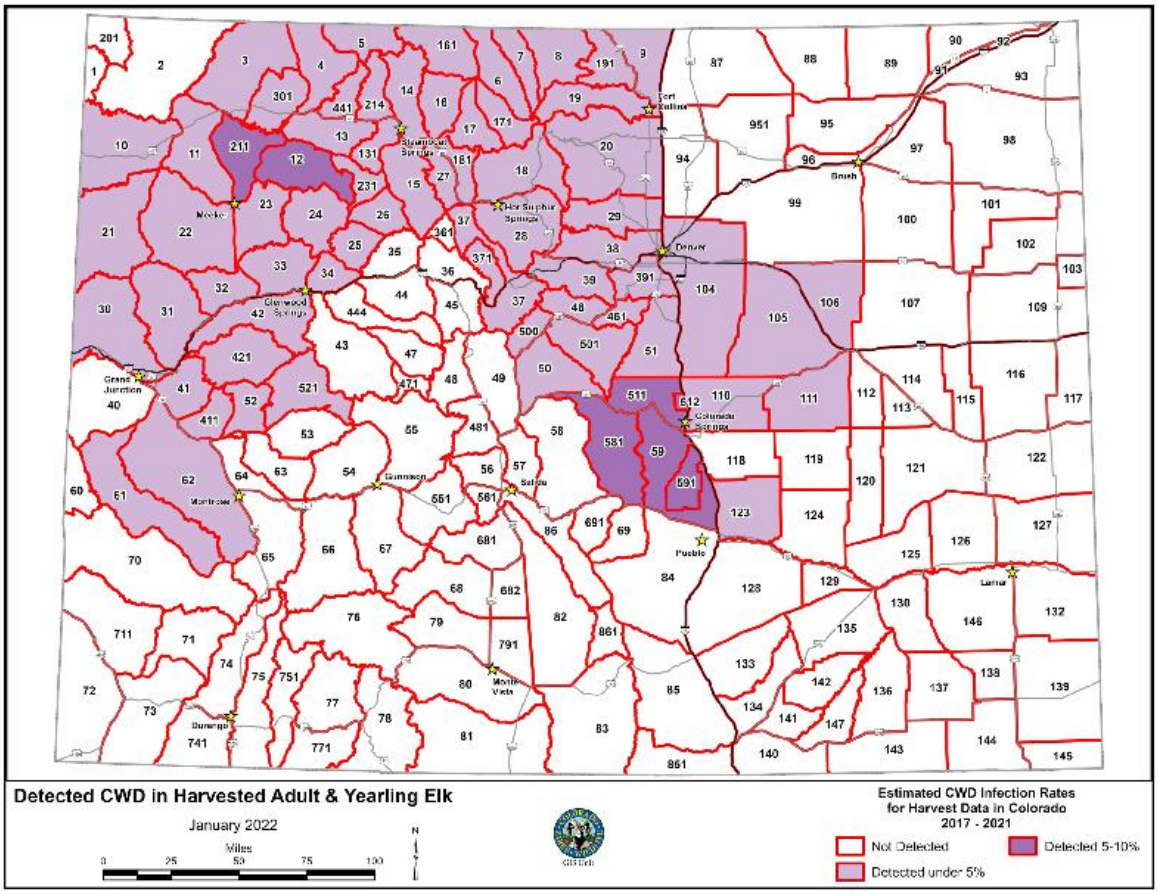


Figure 7. Chronic Wasting Disease infection rates in Colorado elk herds.

Collaboration with Stakeholders

Wildlife management is affected by many environmental and external anthropogenic factors, often with no easy solutions, and requires collaboration and compromise. CPW will remain engaged with various stakeholders, including local and Tribal governments, federal land management agencies, private landowners, local land conservancies, conservation organizations, hunters and wildlife enthusiasts, and others, to proactively manage Colorado's natural resources and wildlife habitats. These relationships and collaborations ensure elk and other wildlife remain across Colorado's landscapes for generations to come. Colorado would not be the same without its iconic elk herds, and it is incumbent upon the citizens of Colorado to altruistically work together to promote the continued existence of elk and other wildlife. By protecting and enhancing elk country, we ensure a future for many other wildlife species and maintain some of the wild places and spaces that make Colorado unique.

The Brunot Agreement of 1873

In 1873, the confederated bands of Utes ceded a large portion of their 1868 reservation to the Federal government under a treaty commonly known as the "Brunot Agreement." This ceded area – or "Brunot Area" – is approximately 3.7 million acres of the San Juan Mountain region of southwest Colorado and includes many of the herds in this herd management planning document (Figure 6). Contained within the 1873 Agreement was an important provision reserving for the Utes the right to "hunt upon said land so long as the game lasts and the

Indians are at peace with the white people." Despite the continued loss of lands, the corresponding reduction in the size of the Ute reservation, and the relocation of certain Ute bands outside of Colorado – this reserved right within the Brunot Area has remained undiminished to this day. In 2008, the Southern Ute Indian Tribe entered a new agreement – this time with the State of Colorado – addressing the Tribe's exercise of its long-held Brunot Area hunting and fishing rights. The Ute Mountain Ute Indian Tribe entered into a similar agreement with the State of Colorado in 2013. These agreements – or Memorandums of Understanding (MOUs) – detail how the Tribes and State approach Brunot Area hunting, fishing, and wildlife law enforcement, and expresses the intent of Tribal and State governments to work cooperatively towards the long-term conservation of wildlife within the Brunot Area. With the completion of the MOUs, Tribal Members can exercise the Tribe's long-held rights to hunt and fish within the Brunot Area in accordance with regulations established by the Tribes and State.

Working in tandem with our Tribal neighbors is of utmost importance to CPW as we cooperatively manage wildlife species, including elk, migrating seasonally across political boundaries. Annual meetings, harvest reporting, and open communication have allowed CPW and the Tribes to collaborate on population monitoring, radio-collaring efforts, and habitat improvement and connectivity. Tribal lands provide essential winter ranges and other seasonally-important habitats for a variety of wildlife, and the partnership between CPW and the Tribes is critical for future wildlife conservation in southwest Colorado (see Appendix A: Southern Ute Indian Tribe Comment Letter, on page XX).

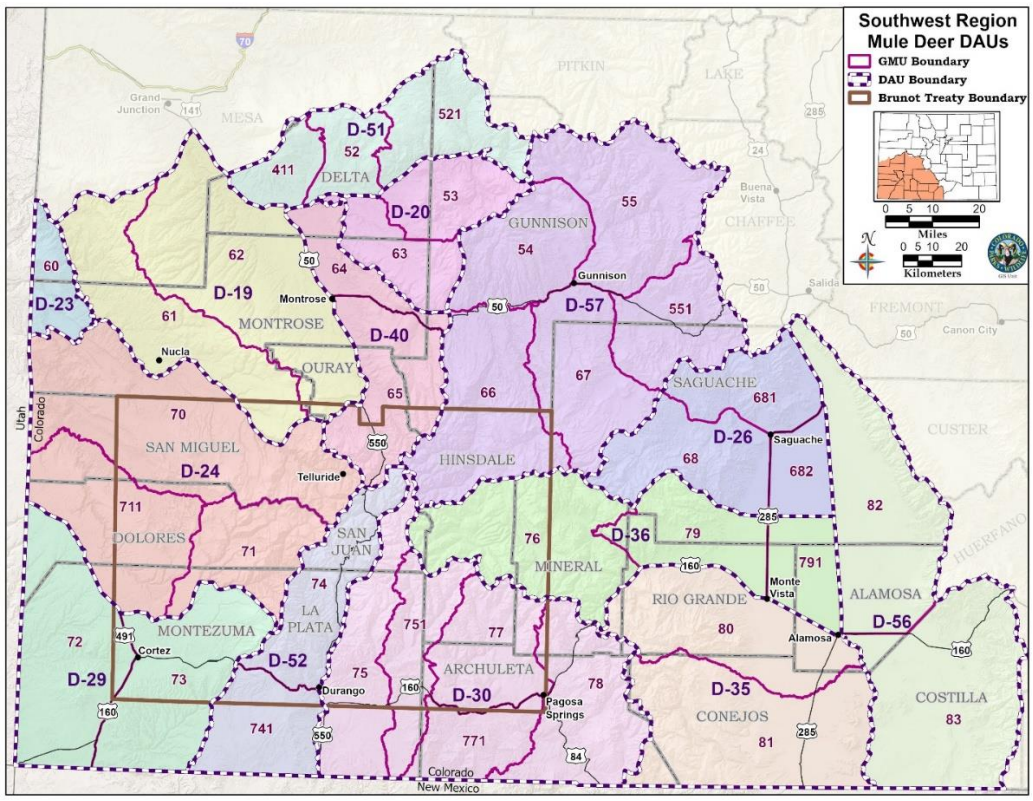
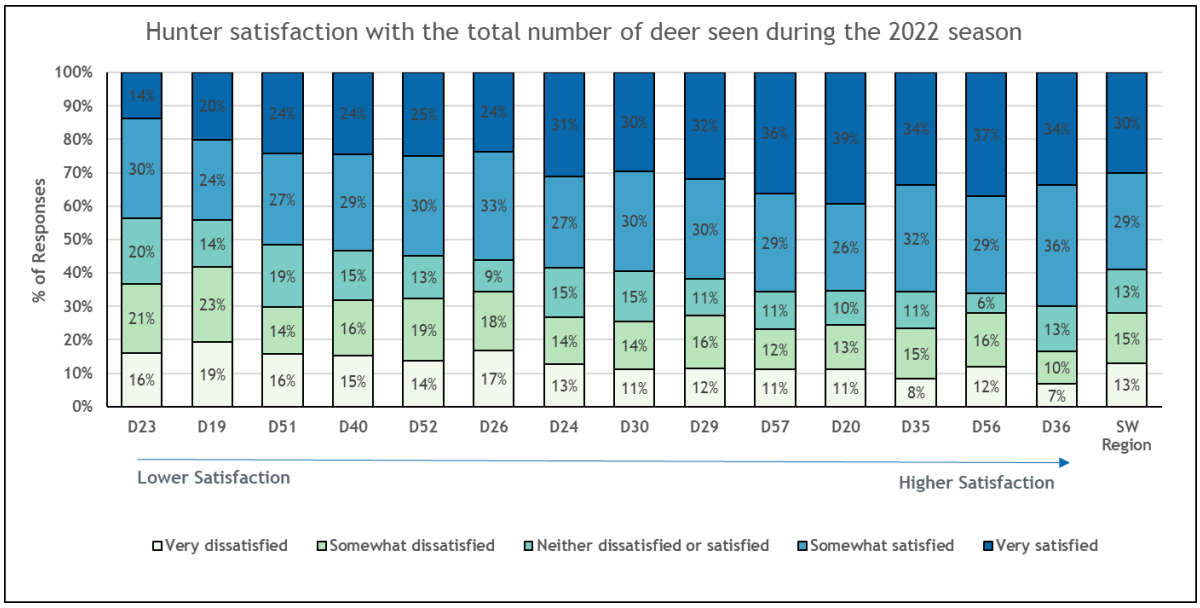


Figure 8. The Brunot Treaty area, established in 1873 as an agreement between the Southern Ute Indian Tribe, Ute Mountain Ute Indian Tribe, and the US Government preserving hunting and fishing rights for Ute tribal members.

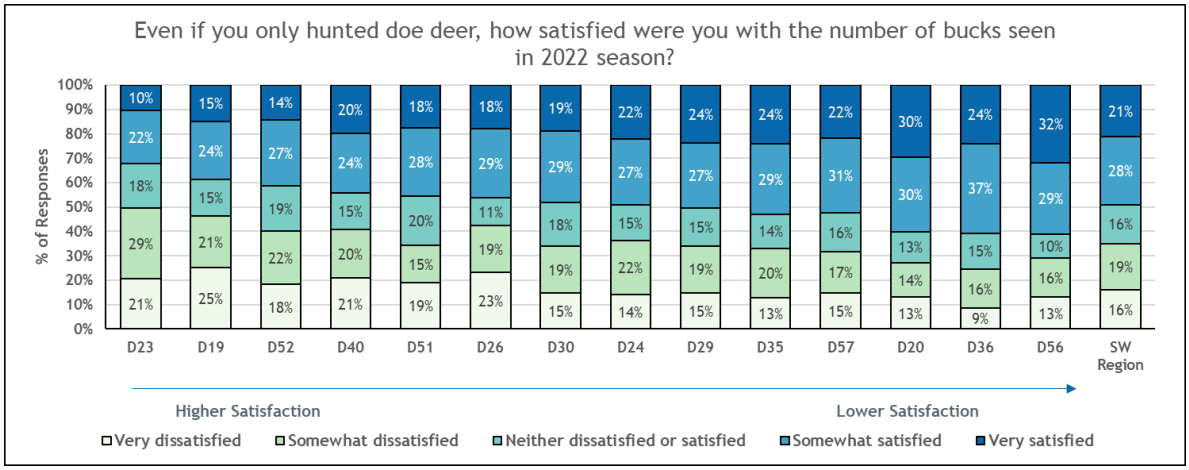
Public Involvement

There are 14 deer DAUs in southwest Colorado. The following section comprises the 14 individual deer HMPs with proposed objectives and justification. Seven of the 16 deer herd management plans have been approved within the last three years and will be extending those objectives as status quo. The other nine HMPs have proposed population and sex ratio objectives. Meetings and stakeholder outreach have occurred throughout southwest Colorado to collect input on the status of local deer populations and management concerns, and provide direction for future management. The plan has been presented to county commissioners, local Habitat Partnership Program (HPP) committees, and federal agencies for additional input. All input is collected and provided in the following Appendices. In addition, CPW staff have reviewed the optional hunter-harvest attitude survey data to capture feedback from hunters on their experience during the 2022 hunting season. Of the 19,548 deer license holders in southwest Colorado in 2022, 5,505 hunters opted in for the additional hunter harvest attitude survey. The seven graphs below depict the hunters' responses to seven questions relating to their hunting experience and observations in the 14 different DAUs in southwest Colorado. The DAUs in each graph are ranked from least satisfied to most satisfied. The draft plan was posted for 30 days for the public to provide additional comments on the proposed objectives for each DAU from October XX to November XX, 2023. The final draft plan will be presented to the Colorado Parks and Wildlife Commission this winter, with a tentative schedule to first present in January and for approval in March.

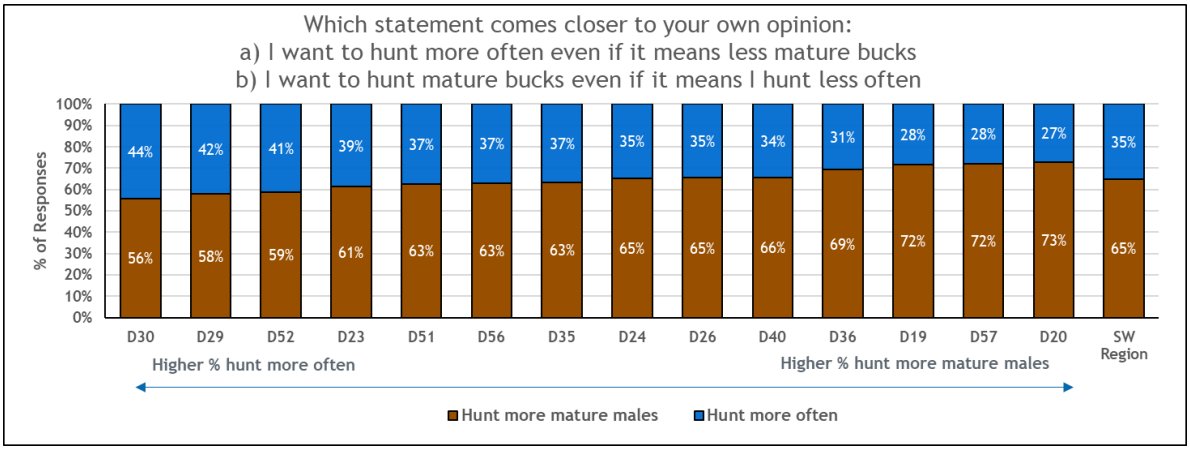
a.



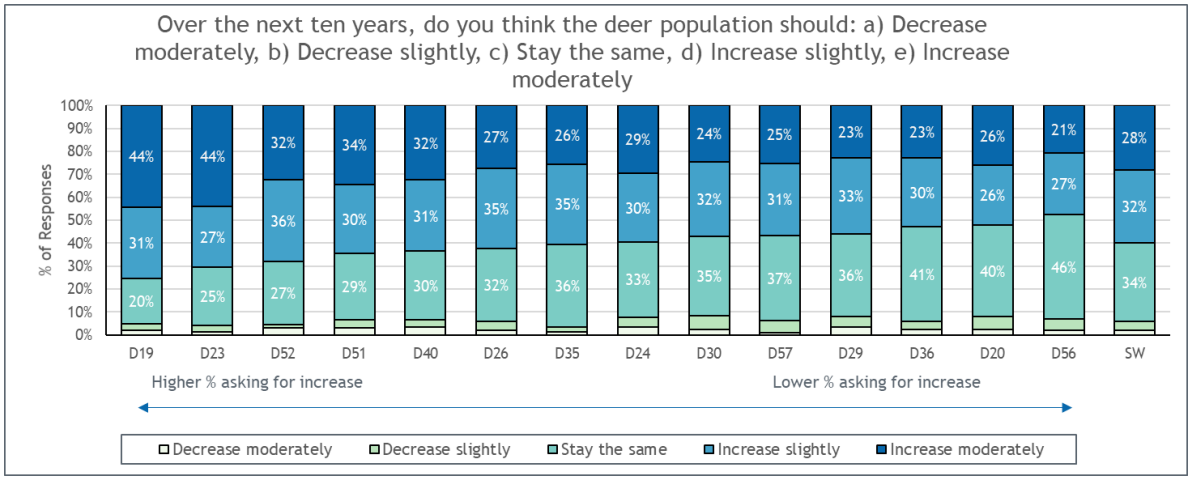
b.


Even if you only hunted doe deer, how satisfied were you with the number of bucks seen in 2022 season?
% of Responses
D23 D19 D52 D40 D51 D26 D30 D24 D29 D35 D57 D20 D36 D56 SW Region
Higher Satisfaction
Lower Satisfaction
Very dissatisfied
Somewhat dissatisfied
Neither dissatisfied or satisfied
Somewhat satisfied
Very satisfied

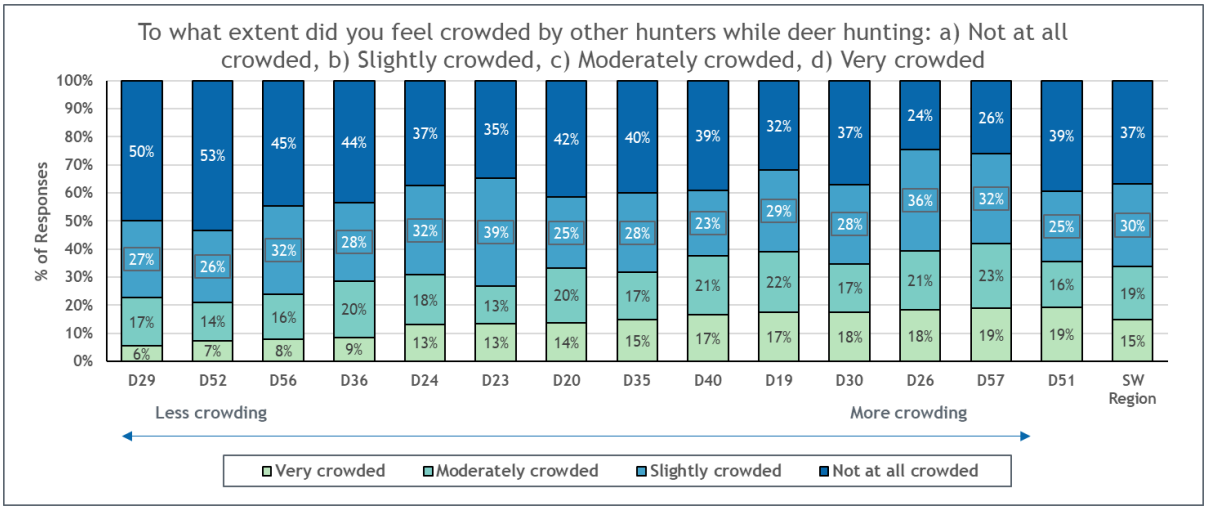
c.


Which statement comes closer to your own opinion:
a) I want to hunt more often even if it means less mature bucks
b) I want to hunt mature bucks even if it means I hunt less often
% of Responses
D30 D29 D52 D23 D51 D56 D35 D24 D26 D40 D36 D19 D57 D20 SW Region
Higher % hunt more often
Higher % hunt more mature males
Hunt more mature males
Hunt more often

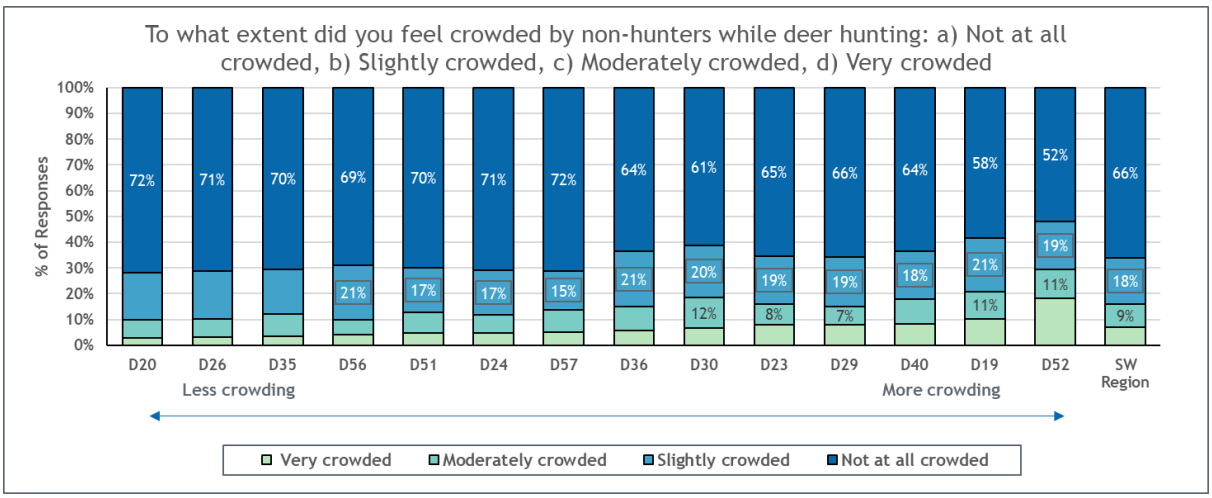
d.


Over the next ten years, do you think the deer population should: a) Decrease moderately, b) Decrease slightly, c) Stay the same, d) Increase slightly, e) Increase moderately
% of Responses
D19 D23 D52 D51 D40 D26 D35 D24 D30 D57 D29 D36 D20 D56 SW
Higher % asking for increase
Lower % asking for increase
Decrease moderately
Decrease slightly
Stay the same
Increase slightly
Increase moderately

e.



f.



g.

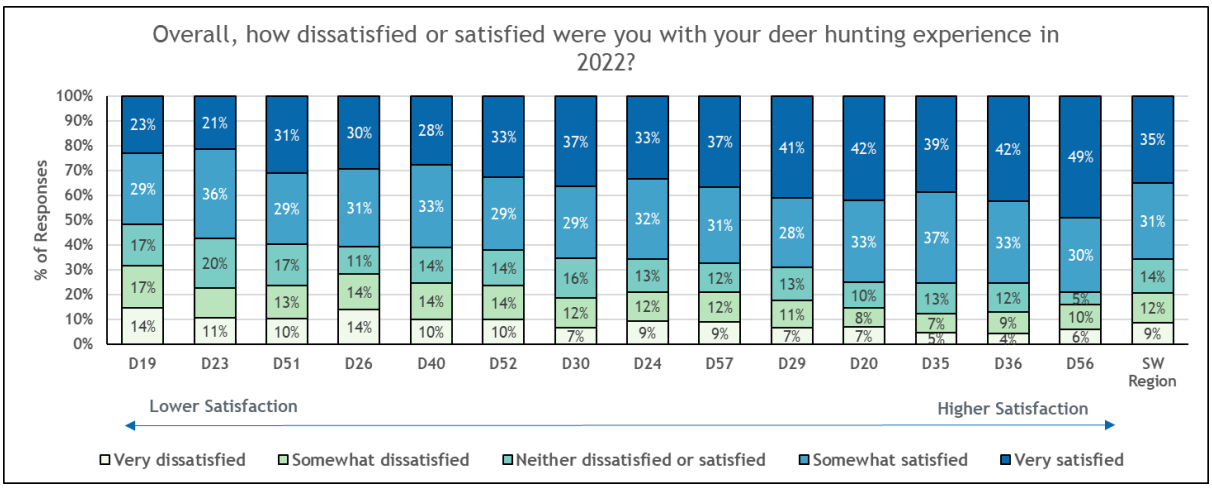
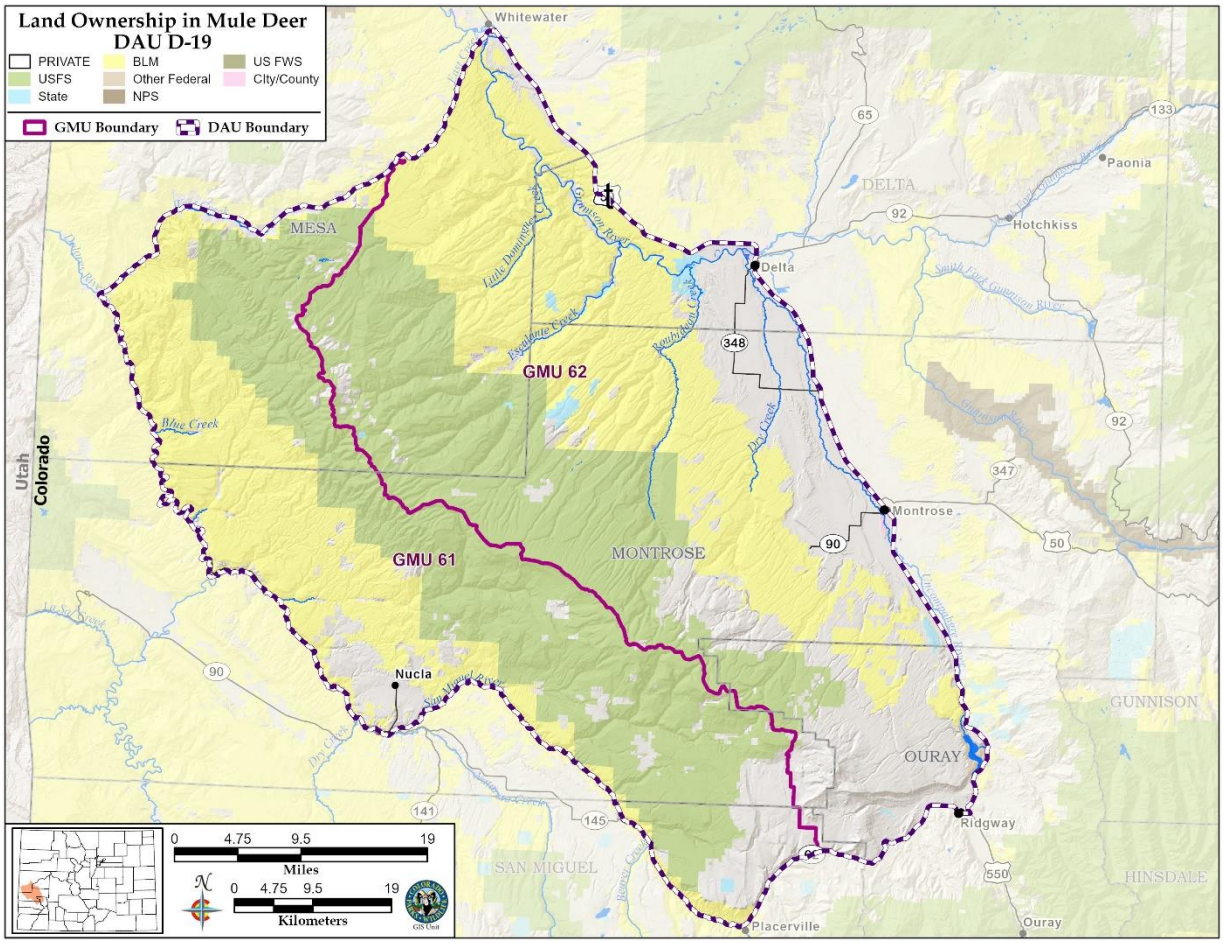


Figure 9 (a-g). Hunter-harvest attitude survey questions and results for the 16 deer DAUs ranked from low DAU to high DAU (left to right) in relation to the specific question.

UNCOMPAHGRE PLATEAU DEER HERD MANAGEMENT PLAN
DATA ANALYSIS UNIT D-19
Alyssa Kircher, Wildlife Biologist, Montrose

GMUs: 61 and 62 Last HMP Approval Year: 2006
Post-hunt Population: Previous Objective: 36,000-38,000; 2022 Estimate: 10,300. **Preferred Alternative: Decrease the current population objective to 12,000-15,000 deer**
Post-hunt Observed Sex Ratio (bucks:100 does): Previous Objective: 34-36; 2022 observed: 31; modeled: 33. **Preferred Alternative: Amend the current sex ratio objective to 30-35 bucks:100 does**



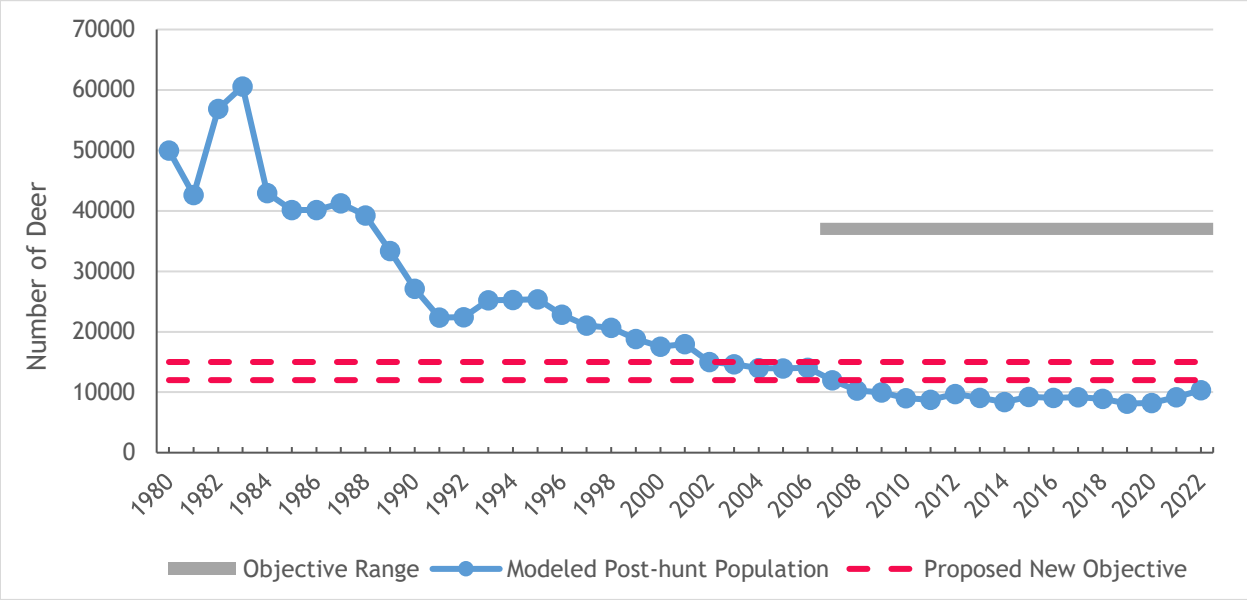


Figure D19-1. Deer DAU D-19 modeled post-hunt population and objective range, years 1980-2022.

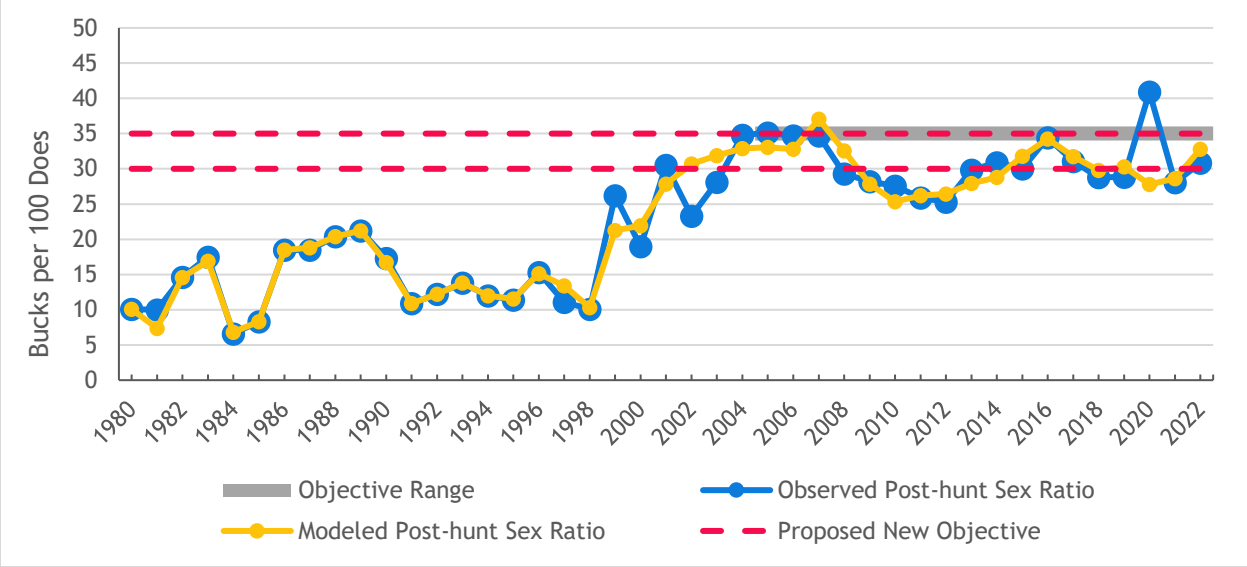


Figure D19-2. Deer DAU D-19 observed and modeled post-hunt sex ratio (bucks:100 does), years 1980-2022.

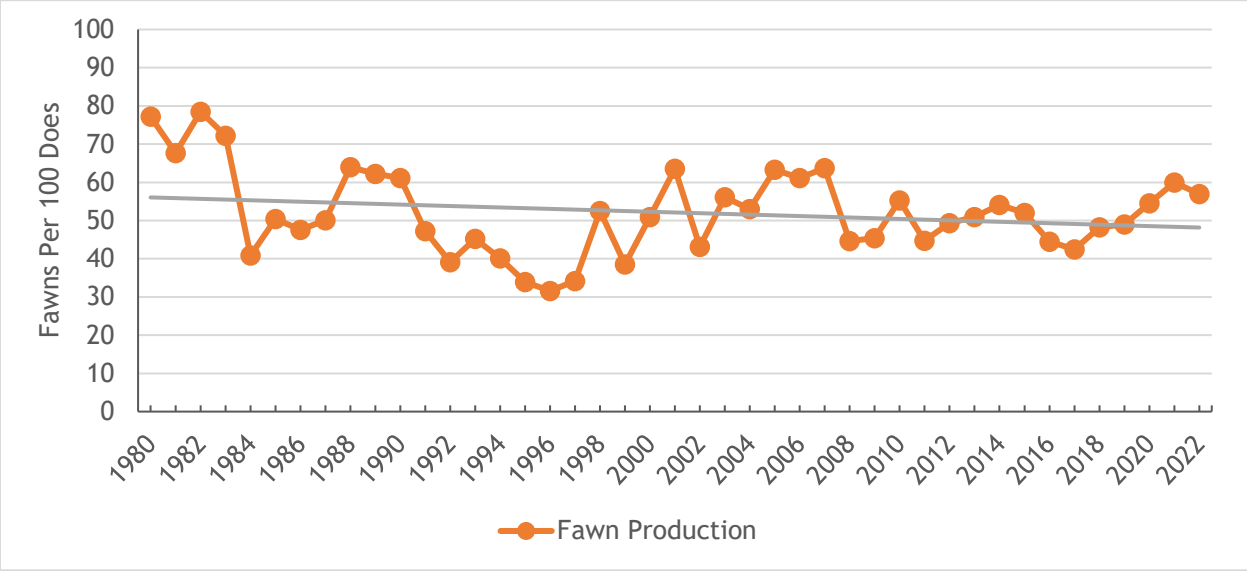


Figure D19-3. Deer DAU D-19 fawn production (observed post-hunt fawns:100 does ratio, years 1980-2022).

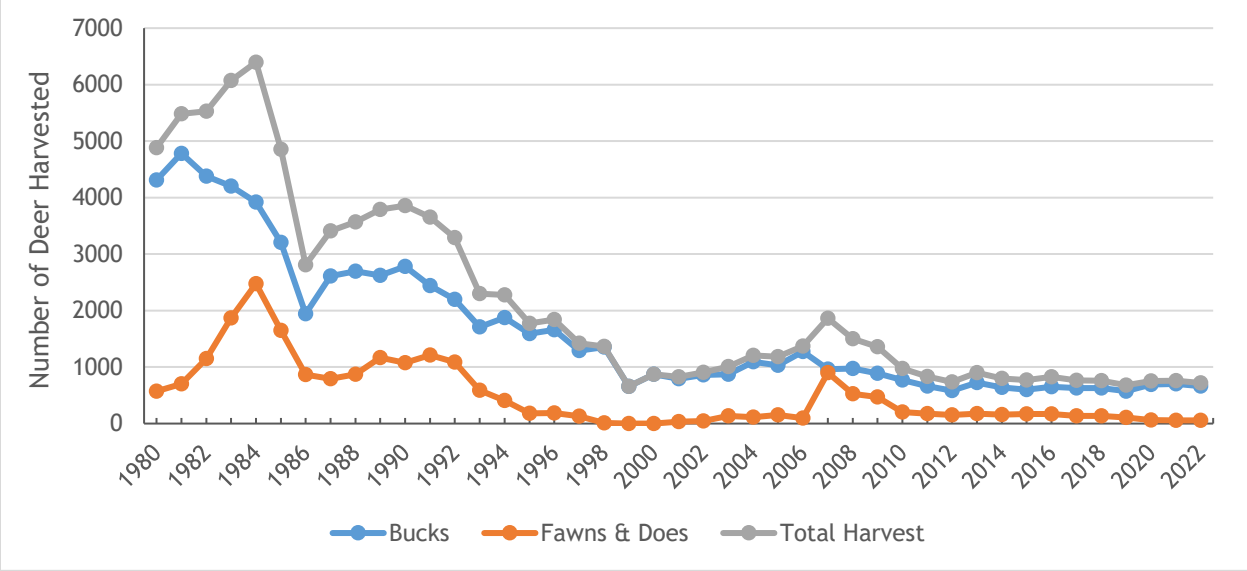


Figure D19-4. Deer harvest estimates in D-19, years 1980-2022.

Background Information

Deer Data Analysis Unit (DAU) D-19 encompasses 2,301 square miles of the Uncompahgre Plateau in southwestern Colorado, including parts of Delta, Mesa, Montrose, Ouray, and San Miguel Counties. DAU D-19 consists of Game Management Units (GMUs) 61 (923 mi^2) and 62 (1,378 mi^2). The Uncompahgre Plateau consists of a relatively flat summit that runs northwest from Ridgway to the Unaweep Canyon. The terrain is steeper on the western unit 61 side than on the eastern unit 62 side. Elevations range from 4,570 feet along the Dolores River near Gateway to 10,338 feet at the summit of Horsefly Peak on the southeast end of the Plateau. Landownership in the unit consists of 37% U.S. Forest Service, 38% Bureau of Land Management, 24% private land, and 1% state land. Vegetative communities in D-19 range from pinyon-juniper woodlands, ponderosa/mountain shrub, and aspen and mixed spruce-fir forests at the highest elevations on the Plateau. Agricultural use in D-19 includes cultivated crop production and orchards on irrigated private lands below 6,000 feet in the Uncompahgre Valley and Nucla area, alfalfa and grass hay production primarily on irrigated private lands below 7,500 feet, and livestock grazing throughout most of the DAU on private and public lands. Additional land use includes recreation, mining reclamation, and timber harvest.

Deer are found throughout the DAU, but occur in the summer months in their highest densities in higher elevations comprised of aspens, spruce, Douglas fir, and Gambel's oak. In the winter months, deer use the lower elevations and more arid environments of the DAU with pinyon-juniper forests and agricultural fields where the climate is milder. Important wintering areas for deer in GMU 61 include Tenderfoot Mesa, Blue Mesa, Atkinson Mesa, Third Park, and Pinto Mesa. Deer from GMU 61 occasionally winter on Mailbox Park in GMU 70. In GMU 62, important wintering areas include Steamboat Mesa, Shavano Valley, Dry Creek Mesa, Government Springs, and Sims Mesa. There is a growing population of deer in GMU 62 occupying agricultural fields and residential areas in the Uncompahgre Valley near Delta and Montrose year-round. There is also a growing residential population in Nucla and Gateway on the GMU 61 side. The deer in D-19 tend to stay within the boundaries of the DAU, but there is occasional movement to Piñon Mesa in GMU 40 and over to the higher elevations surrounding Telluride (GMU 70) and Ouray (GMU 65).

DAU D-19 has been on a large declining trend since the early 1980s. Populations have started stabilizing over the last few years, but current population estimates are far below the historic high of 60,000 deer in 1983. Additionally, current population estimates are far below the 2006 DAU plan population objective. The 2006 DAU plan population objective was 36,000-38,000, with an estimated 35,800 deer.

The 2022 population estimate is 10,300 deer. Based on surveys in 2021 and 2022, CPW staff and public stakeholders desire an increase in deer populations. CPW acknowledges that the previous objective range of 36,000-38,000 deer does not seem feasible based on the changes in herd dynamics and landscape conditions over the last 15+ years. Therefore, CPW proposes a new objective range of 12,000-15,000. This population objective is higher than the 2022 population estimate and reflects the agency and stakeholder goal of increasing the number of deer on the landscape in this DAU.

The five-year average observed post-hunt buck ratio is 32 bucks:100 does. The five-year average modeled post-hunt buck ratio is 30 bucks:100 does. The 2006 DAU plan buck:doe ratio objective is 34-36 bucks:100 does. The buck ratio objective CPW prefers for this updated 2023

plan is a decreased objective ratio of 30-35 bucks:100 does. CPW stakeholders have stated a desire for a higher buck ratio; however, this desire must be considered against the threat of Chronic Wasting Disease (CWD), which is present in the DAU. The highest CWD prevalence is in the Uncompahgre Valley where deer concentrate year-round in the agricultural lands and residential areas. The proposed buck:doe ratio of 30-35 bucks: 100 does would balance the public desire for a higher buck ratio, but also allow for management flexibility.

The five-year average observed post-hunt fawn ratio is 54 fawns:100 does. Fawn-to-doe ratios have been increasing slightly since 2016. There was a slight drop from 60 fawns:100 does in 2021 to 57 fawns:100 does in 2022.

Harvest in DAU D-19 has remained stable over the last 10 years, averaging approximately 770 deer per year. This is a significant decrease compared to about 4,600 deer harvested per year from 1980-1990 when this population peaked and deer licenses were not yet limited statewide. Preference point minimums for licenses for residents in D-19 are drawn out at five points or less. Preference point minimums for nonresident licenses range from 0-15 points, with some licenses drawn as second choice or in the leftover draw. Antlerless licenses are only available as private-land-only and game damage licenses to control resident deer populations and minimize game damage in the Uncompahgre Valley. In 2022, 661 bucks, 58 does, and one fawn were harvested by 1,474 hunters with a success rate of 49%.

As a result of persistently declining deer populations on the Uncompahgre Plateau and across the west, CPW and other agencies and organizations have searched for solutions. CPW limited license numbers and established the Uncompahgre Plateau (D-19) 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, including a summer fawn mortality study, a research project to assess the effects of habitat improvement projects on overall doe and fawn survival, and a mountain lion project that looked at the predator/prey dynamics between mountain lions and mule deer.

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 various reasons. Suitable winter range habitat has diminished due to land conversions and human development. Additionally, outdoor recreation has increased dramatically over the last decade. Recreation can have many impacts, including loss of adequate habitat (including changes in land use and decline in agricultural lands), changes in seasonal migration patterns, and potentially lower survival rates. Historical and current overgrazing by domestic livestock, persistent drought, and competition with elk have all contributed to decreased habitat quality across the landscape.

Crop damage by deer is a major concern in the Uncompahgre Valley due to an increasing non-migratory deer herd residing year-round on agricultural land. Frequently, prevention materials and game damage distribution management hunts are requested and given to landowners to proactively deal with damage before a claim is made. These methods also increase landowner tolerance for wildlife on private properties. Additionally, a recent influx of new homeownership in the Loghill Village subdivision has decreased social tolerance for the high concentration of deer in the southern portion of the DAU.

Additionally, Chronic Wasting Disease (CWD) is present in D-19. This disease occurs in deer, elk, and moose. CWD is an infectious prion (misfolded protein) disease that affects the nervous system over approximately three years. 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. CWD was first detected in D-19 in 2017 and the current estimated prevalence rate is 13.8%. 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 hunt allows hunters to target deer that are more likely to be infected with CWD and to transmit CWD to high elevation deer when they migrate to the valley during the winter months. Additionally, this hunt helps focus on residential and agricultural areas where prevalence is greatest locally. Out of all harvested deer that tested positive for CWD in the 2020 mandatory testing period in D19, 55% came from the private land disease management hunt boundary, with several other CWD-positive harvests just to the outside of the designated border. Moreover, CPW has increased buck licenses to decrease CWD spread since adult male deer are more likely to contract CWD. Proactive CWD management will be a crucial part of the D-19 Herd Management Plan.

Management Alternatives

Post-hunt population and buck ratio objective alternatives considered for the 2024 D-19 HMP:

Table D19-1. Proposed population and buck ratio objective ranges for the 2024 D-19 HMP.

Population Objective Alternatives:		Buck Ratio Objective Alternatives:	
8,000 to 10,000 (midpoint 9,000)	(1) 13% decrease in the current population estimate to the middle of the proposed objective range.	25 to 30 bucks per 100 does	(1)
12,000 to 15,000 (midpoint 13,500)	**(2) Preferred- 31% increase in the current population estimate to the middle of the proposed objective range.**	**30 to 35 bucks per 100 does**	**(2) Preferred**
36,000 to 38,000 (midpoint 37,000)	(3) Status Quo- Approximately 259% increase in the current population estimate to the middle of the proposed objective range.	34 to 36 bucks per 100 does	(3) status quo from 2006 HMP

Management Objectives

CPW is attempting to reverse population declines and increase deer populations to meet stakeholder and CPW staff desires. Overall, the DAU's carrying capacity has decreased compared to historic plans and it is likely that current habitat could not support historic deer numbers. Increasing this herd slightly would be beneficial to the habitat and stakeholders (alternative 2). Because CWD is concentrated to the lower elevations in this DAU and primarily exists in residential herds, increasing the overall herd population slightly should not change CWD prevalence dramatically. Decreasing this deer population would increase opportunity and potentially increase antlerless licenses in the short term, but this would not consider CPW and stakeholders desires (Alternative 1). It would also make encountering animals on public lands more difficult since increased pressure could cause deer to move onto private lands that do not allow hunting. Based on the challenges described above, the status quo population objective is likely not possible for this herd (Alternative 3). To achieve a population estimate of 36,000-38,000 deer would require a 259% increase over the current population estimate. CPW feels this objective range is not attainable with the current

population without large-scale habitat management projects, reduced predator populations, or increased social tolerance. Higher deer densities may also not be desirable, as increased deer densities could potentially increase CWD prevalence.

CPW would like to decrease the buck ratio slightly to better reflect how current buck ratios are trending, despite stakeholders' desires for more mature bucks on the landscape (Alternative 2). The preferred objective overlaps the current objective range and would allow for a slight increase in the number of bucks:100 does from current observed and modeled ratios. This objective still allows for a balance of opportunity for hunters, while simultaneously allowing CPW to keep CWD prevalence in check. The current buck ratio has not been achieved since 2020 (41:100) and the 10-year average has hovered around 31 bucks per 100 does. Keeping the buck:doe ratio to 34-36 bucks:100 does would be difficult to achieve since the buck ratio has been below this objective range for a decade and population growth has been slow (alternative 3). Increased buck ratios could potentially increase CWD prevalence (since mature bucks are more likely to have CWD), so it would not be a preferred alternative. Decreasing the buck ratio to 25-30 bucks:100 does would help reduce CWD prevalence and increase hunting opportunities (Alternative 1).

Strategies for addressing management issues and achieving objectives

The population in D-19 has low fawn recruitment and faces reduced habitat availability from an increase in development and recreation, an increase in agricultural land conversions developed areas, a decline in habitat quality due to drought, and competition with livestock and elk. These impacts have contributed to slow population growth for the last decade.

CPW manages for sex ratios and population objectives by increasing or decreasing licenses by total quota, by season, and by sex, depending on the objectives for each herd. This herd has historically been managed to balance hunting opportunity and population growth, and CPW would like to continue this management strategy. Additionally, the last several years have been managed proactively to limit CWD spread and staff sees this as an important strategy to continue into the future. Antlerless game damage licenses would still be available for landowners to deter deer from causing more damage and to increase landowner tolerance, but antlerless licenses are not anticipated to be available in the draw for the near future until populations recover to at least the bottom of the objective range. Buck licenses will continue to be offered to manage CWD concerns and allow for moderate hunting opportunities. Additionally, predator and competing ungulate management will continue.

In addition to license management, CPW recognizes the importance of habitat conservation and habitat quality improvement. CPW regularly communicates with land management agencies such as the USFS and BLM, landowners, county governments, CDOT, and NGOs and will continue to collaborate with these government agencies and organizations to achieve management goals. These agencies can help with large-scale habitat management projects to improve carrying capacity and regulate recreation and grazing on public lands, which could bolster struggling deer populations such as D-19.

Stakeholder Outreach

Hunters were randomly selected to complete the 2022 Deer Hunter Attitude Survey after the completion of their hunting seasons. There were 373-439 respondents (depending on the question) who answered the opt-in questions for D-19. Overall, hunters desire a slight to

moderate increase in the deer population and were generally satisfied with their hunting experience. Hunters also preferred hunting bigger bucks (higher buck ratio) than hunting more often (lower buck ratio). The majority of respondents also did not feel crowded while deer hunting.

The draft HMP for D-19 will be sent to local county commissioners in Delta, Montrose, Mesa, San Miguel, and Ouray Counties. Draft plans will also be sent to the HPP, USFS, the BLM, and Backcountry Hunter and Anglers (BHA). The HMP will be posted on the CPW website for 30 days, allowing stakeholders to comment on the alternatives in the plan.

CPW Commission Approved Objectives:

Post-hunt Population: pending

Post-hunt buck ratio: pending

APPENDIX D19-A: Deer Survival Study

In 1997, CPW began a deer survival study investigating doe and 6-month fawn survival rates as a result of persistently declining deer populations. The study began with Uncompahgre Plateau (D-19) and Red Feather (D-4) mule deer populations and later expanded to the White River (D-7), Middle Park (D-9), Upper Arkansas Valley (D-16), and the Gunnison Basin (D-25) herds. D-4 was removed from the study because it was thought that CWD prevalence was skewing survival rates. A sample size of 70-90 does and 60 fawns are maintained each year to obtain accurate estimates. Survival for does is measured annually, while over-winter fawn survival is only monitored from December 15th to June 15th. Shortly after the six-month fawn survival period ends, the tubing holding the collars together rots off so the collar can be used again the following year. These estimates are used as a parameter in population models and help inform license-setting decisions annually. In addition to survival estimates, location data and cause-specific mortality information are collected to be used in further analyses. This long-term data set will continue to prove invaluable for mule deer management in Colorado.

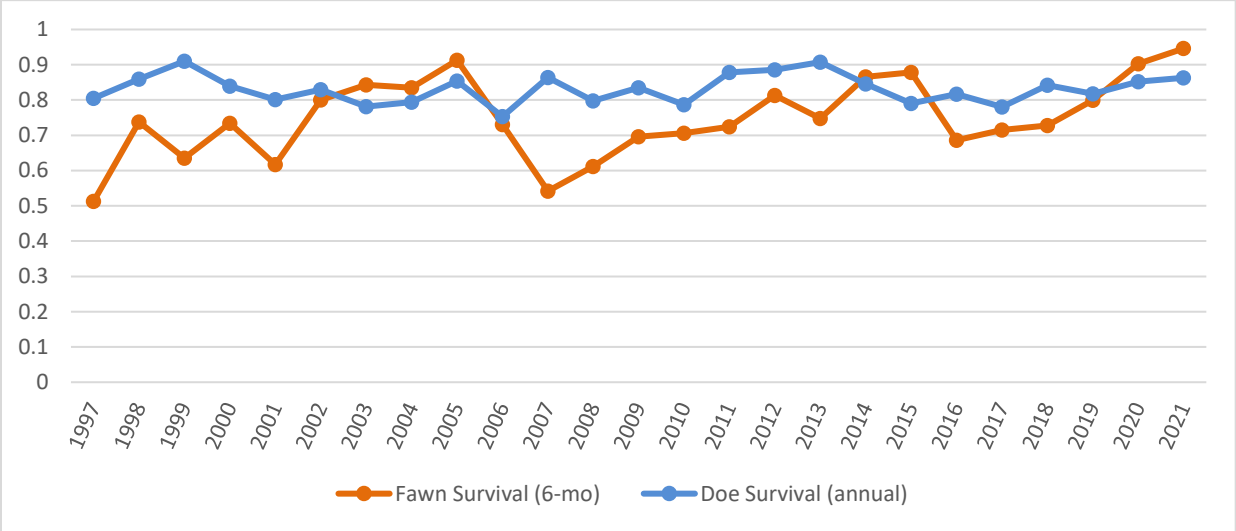
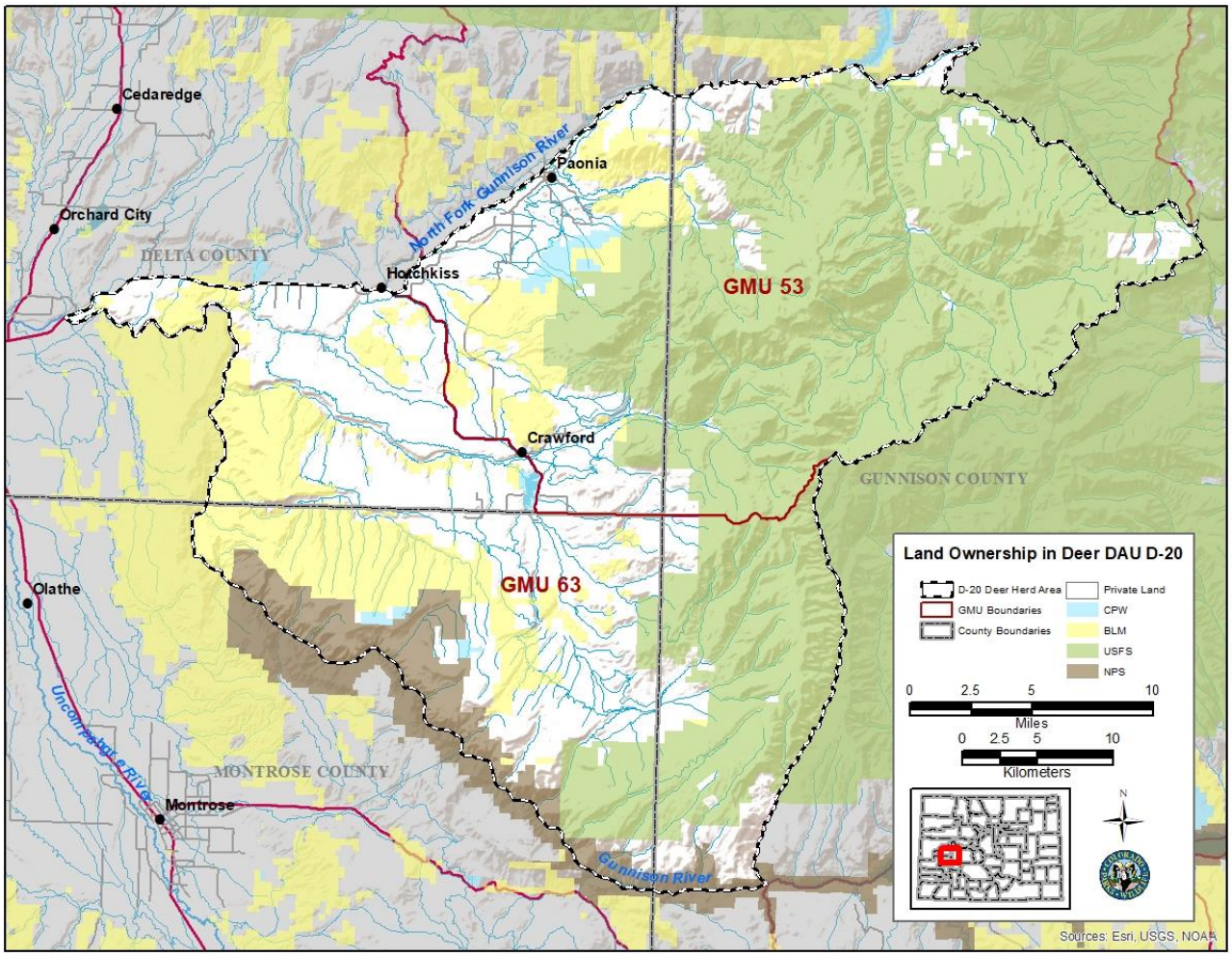


Figure D19-5. Survival rates for 6-month-old fawns and does on the Uncompahgre Plateau (D-19) from 1997 to 2021.

NORTH FORK GUNNISON RIVER DEER HERD MANAGEMENT PLAN EXTENSION
DATA ANALYSIS UNIT D-20
Evan Phillips, Wildlife Biologist, Montrose

GMUs: 53, 63 Last HMP Approval Year: 2018
Post-hunt Population: 7,500 – 9,500; 2022 Estimate: 8,700. **Preferred Alternative: Extend the current population objective of 7,500 - 9,500 Deer**
Post-hunt Observed Sex Ratio (bucks:100 does): Previous Objective: 33-38; 2022 observed: 39; modeled: 41 **Preferred Alternative: Extend the current sex ratio objective of 33-38 bucks:100 does**



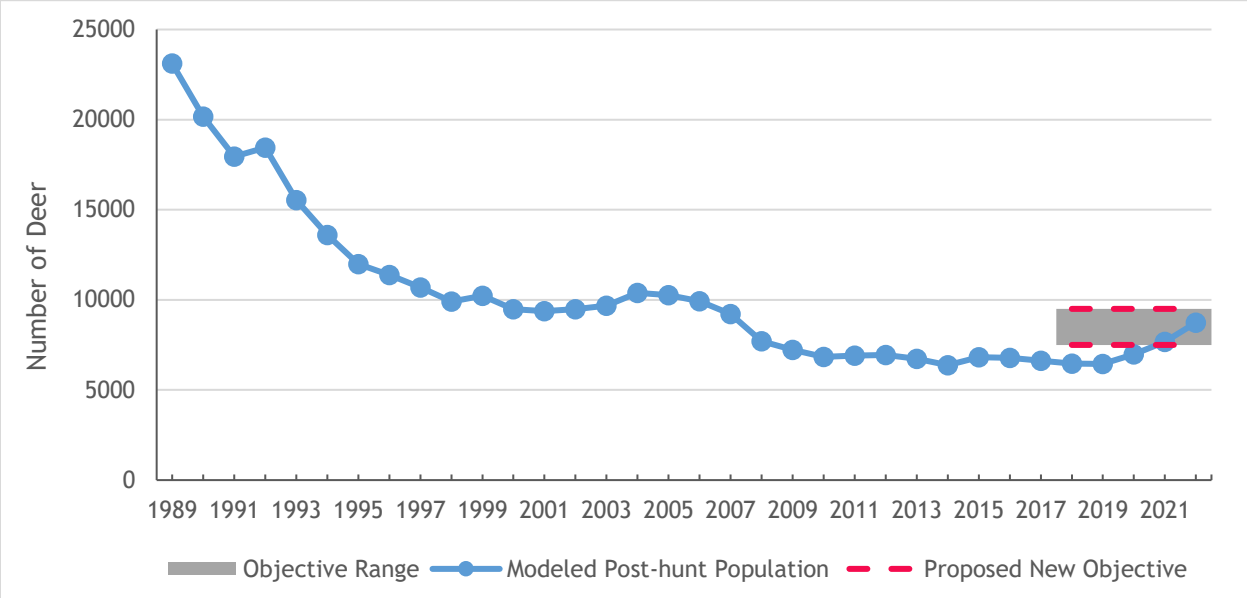


Figure D20-1. Deer DAU D-20 modeled post-hunt population and objective range, years 1989-2022.

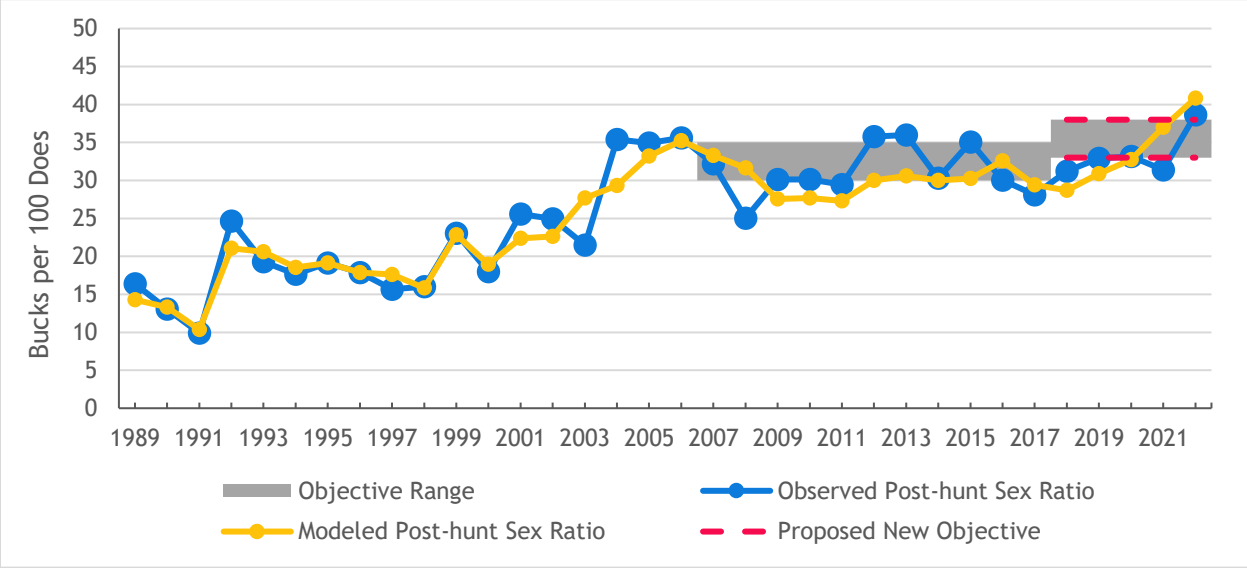


Figure D20-2. Deer DAU D-20 observed and modeled post-hunt sex ratio (bucks:100 does), years 1989-2022.

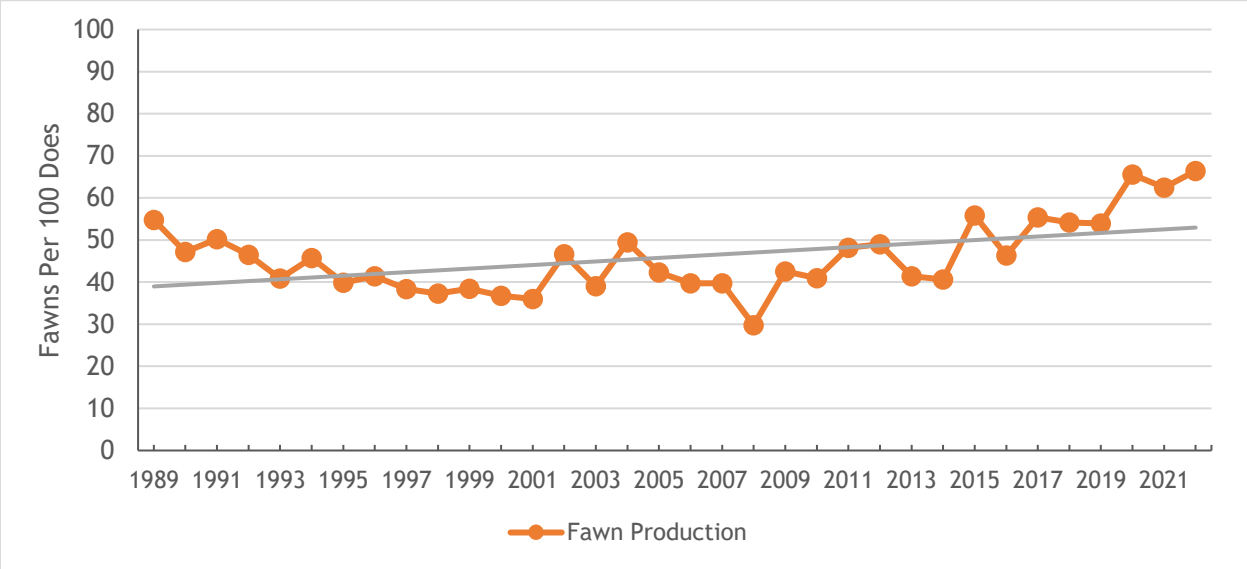


Figure D20-3. Deer DAU D-20 fawn production (observed post-hunt fawns:100 does ratio), years 1989-2022.

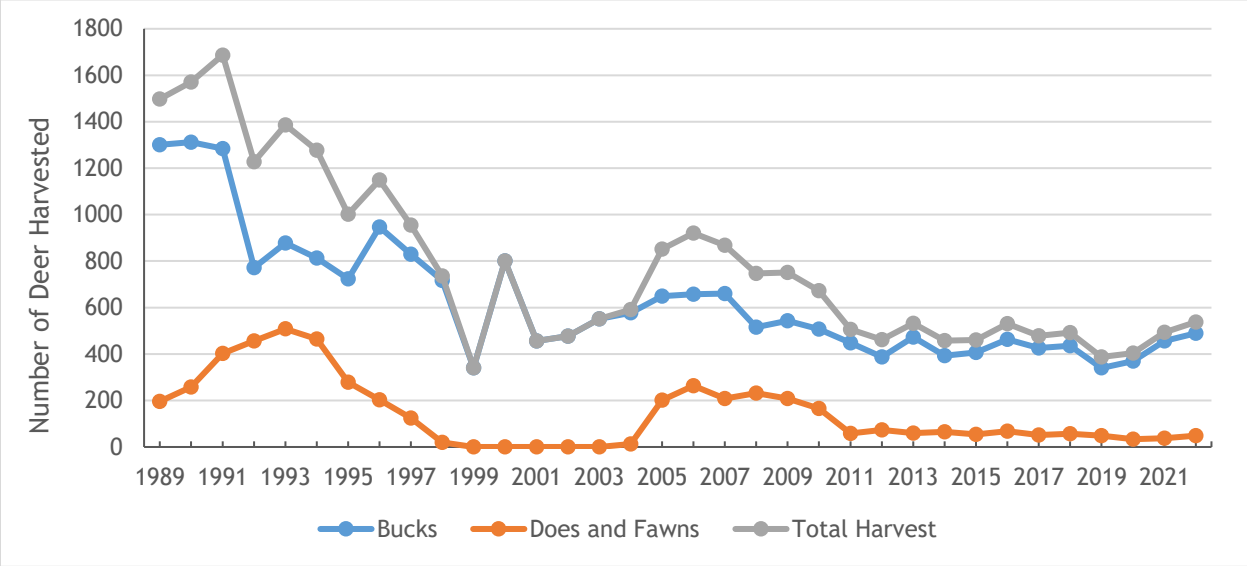


Figure D20-4. Deer harvest estimates in D-20, years 1989-2022.

Background Information

Data Analysis Unit (DAU) D-20 is 766 square miles in southwestern Colorado and includes parts of Gunnison, Delta, and Montrose Counties. DAU D-20 consists of Game Management Units (GMUs) 53 and 63. Land ownership in DAU E-43 is 32% private and 68% public (US Forest Service, Bureau of Land Management, National Park Service, and the State of Colorado). There are three wilderness areas within the DAU: West Elk Wilderness, Black Canyon of the Gunnison Wilderness, and Gunnison Gorge Wilderness.

Deer occur throughout GMUs 53 and 63, but migratory behavior determine spatial and temporal density across the units. Prior to 2018, GMU 53 and 63 were managed as separate herds with similar management objectives. The herd management plans were revised and combined in 2018 and the population objective was set to 7,500 to 9,500, which, following public input, targeted increasing the population from the current population at that time. It is well documented that overall, the population of mule deer in the North Fork Gunnison River Valley, and most of Colorado, has seen significant declines since the 1980s (Gill et al. 2001). From 2008 to 2019, the North Fork Gunnison River deer herd population was estimated to be relatively stable at an average of 6,700 deer (Figure D20-1). The estimated population has increased slightly in the last few years; the 2022 post-hunt population was 8,700 deer, which is within the population objective range.

The average observed post-hunt sex ratio between 1989 and 2022 was 26 bucks:100 does. The average observed post-hunt sex ratio from 2018 to 2022 was 34 bucks:100 does (Figure D20-2), within the current sex ratio objective of 33-38 bucks:100 does. The 2018 – 2022 fawn: doe ratio was 61 fawns per 100 does. This fawn: doe ratio has increased by approximately 15 fawns per 100 does in a 10-year period; the 2007-2017 average was 46 fawns per 100 does (Figure D20-3).

Deer harvest since 1999, when deer licenses in GMUs 53 and 63 were changed from unlimited to limited, is a function primarily of license allocation and season structure. Weather also plays a role in harvest by affecting success rates. From 2018 to 2022 an average of 418 bucks were harvested annually in D-20 (Figure D20-4). Antlerless licenses were not issued from 1998 to 2005 in an attempt to address deer population declines from the 1980s through the 1990s. In 2005 antlerless deer licenses were issued with private-land-only restrictions to help private landowners alleviate agricultural and private land damage due to deer.

Significant Issues

Habitat loss and degradation is occurring in D-20 due to increased pressures of human population growth and development and recreation uses of the land, similar to the rest of the Southwest Region of Colorado. Ongoing drought and climate change also negatively impacts the quality of deer habitat that remains.

Diseases are an issue in the North Fork Valley deer herd. Epizootic Hemorrhagic Disease Virus (EHDV) has been documented in this area and although mule deer are relatively more resistant than other species, it can impact the population in some cases. Chronic wasting disease (CWD) has not been documented in GMU 53 or 63 so far, but has been documented in the neighboring GMUs in close proximity.

Management Alternatives

Three post-hunt population objective alternatives and four post-hunt sex ratio objectives were considered in 2018 for D-20:

Table D20-1. Proposed population objective ranges considered in 2018 for the D-20 HMP.

Post-hunt Population Objective Alternatives:	
7,500 to 9,500 (midpoint 8,500)	**(1) Approximately 10% increase in the current population estimate** (STAFF PREFERRED)
6,500 to 8,500 (midpoint 7,500)	(2) Maintain current population size
5,500 to 7,500 (midpoint 6,500)	(3) Approximately 10% decrease in the current population estimate

Table D20-2. Proposed sex ratio (bucks:100 does) objectives ranges considered for the 2018 D-20 HMP.

Post-hunt Sex Ratio Objective Alternatives:	
25-30 bucks:100 does	(1) Decrease from the current sex ratio objective range
30-35 bucks:100 does	(2) Maintain the current sex ratio objective range
33-38 bucks:100 does	(3) Slight increase in the current sex ratio objective (STAFF PREFERRED)
40-45 bucks:100 does	(4) Increase in the current sex ratio objective range

Management Objectives

CPW's staff-preferred objective is to extend the D-20 management objectives approved in the 2018 HMP. Continuing to manage to the deer population objectives set in 2018 should not significantly increase conflicts with agriculture producers and aligns with the public's desire for this herd based on public involvement. Managing for 33-38 bucks:100 does also corresponds to the majority of responses from public involvement.

Stakeholder Outreach

In 2017, an extensive stakeholder outreach process was conducted, which included input from County Commissions and the local Habitat Partnership Program committee, a public scoping meeting, a public input survey, and a survey of landowners and randomly selected license holders from 2015-2017. The draft plan was also posted on the CPW website and sent out to stakeholders for a 30-day open comment period (Appendix D20-A).

CPW Commission Approved Objectives:

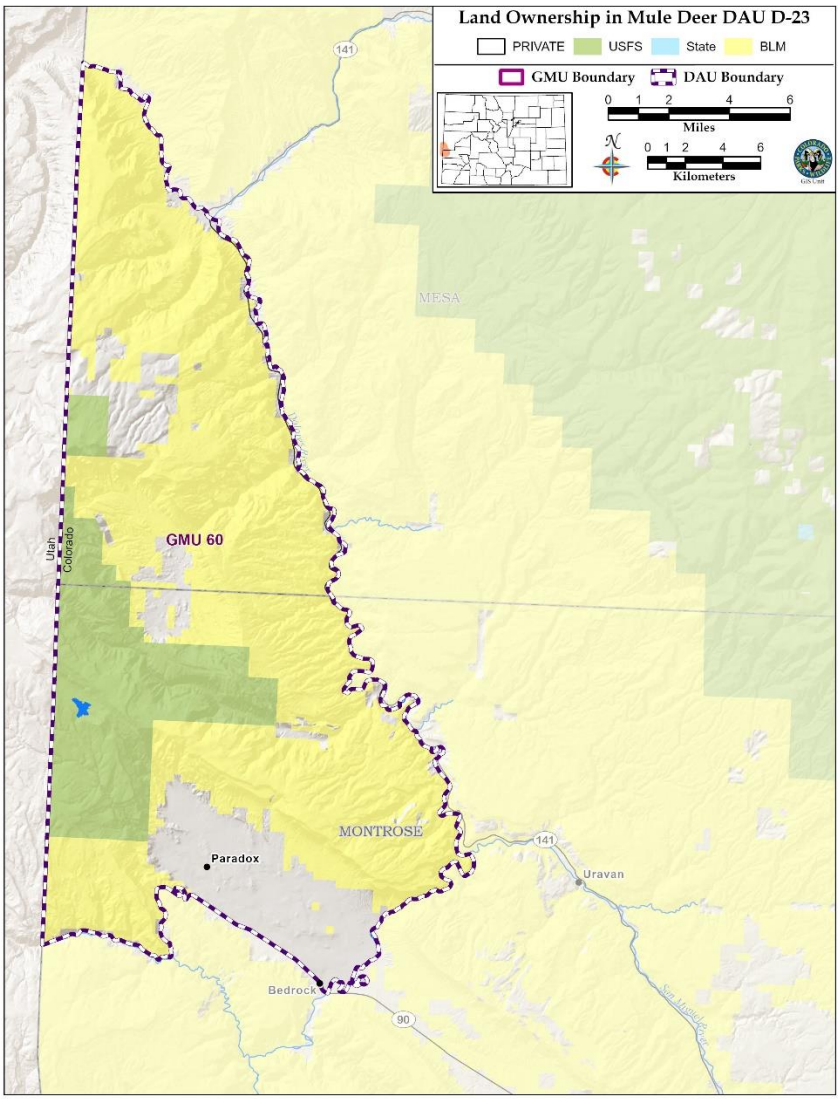
Post-hunt Population: Pending

Post-hunt buck: doe ratio: Pending

LA SAL DEER HERD MANAGEMENT PLAN
DATA ANALYSIS UNIT D-23

Alyssa Kircher, Wildlife Biologist, Montrose

GMUs: 60 Last HMP Approval Year: 2008
Post-hunt Population: Previous Objective: 2,500-3,000; 2022 Estimate: 1,500. **Preferred Alternative: Decrease the current population objective to 1,500-1,800 deer**
Post-hunt Observed Sex Ratio (bucks:100 does): Previous Objective: 25-30; 2022 observed: 31; modeled: 32. **Preferred Alternative: Decrease the current sex ratio objective to 20-25 bucks:100 does**



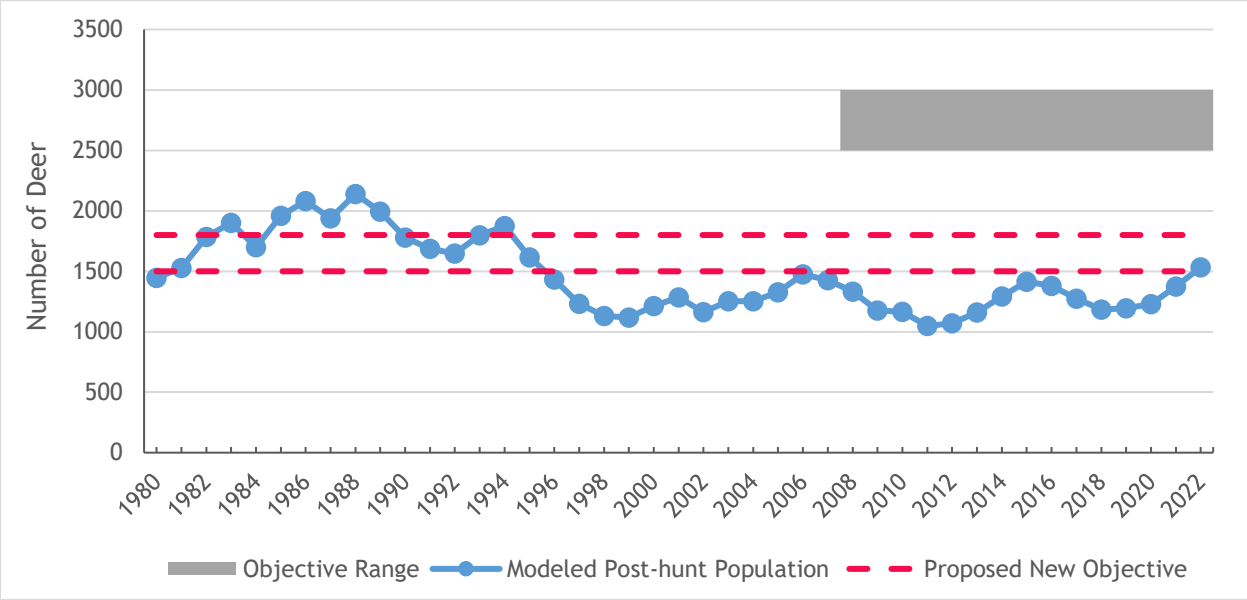


Figure D23-1. Deer DAU D-23 modeled post-hunt population and objective range, years 1980-2022.

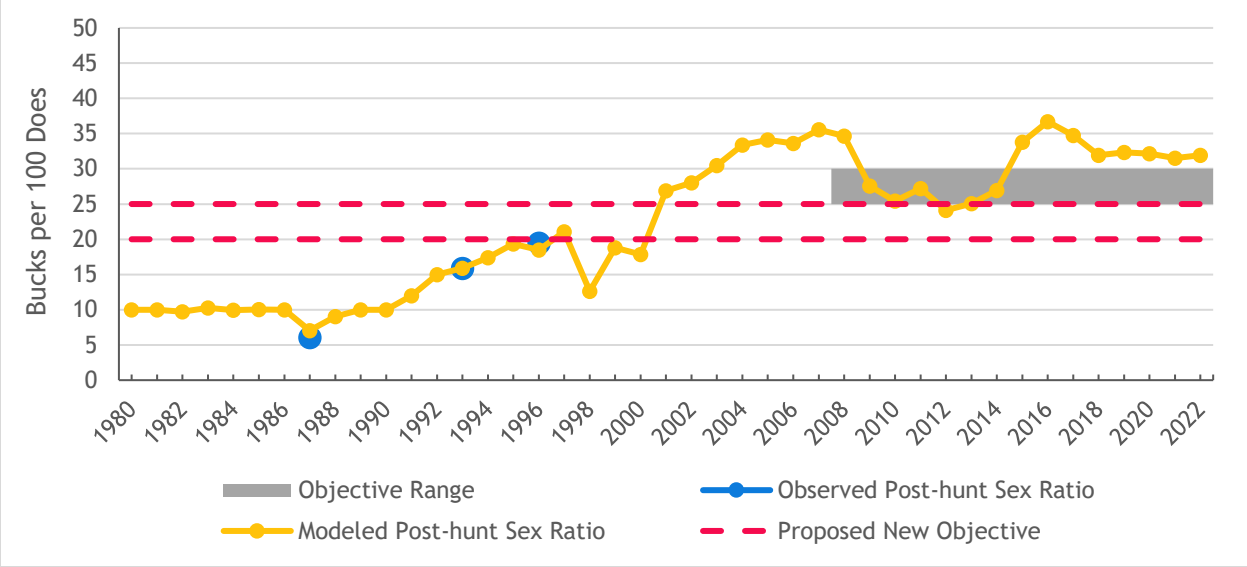


Figure D23-2. Deer DAU D-23 observed and modeled post-hunt sex ratio (bucks:100 does), years 1980-2022 (note: this herd is not classified every year).

Figure D23-3. Deer DAU D-23 fawn production (observed post-hunt fawns:100 does ratio, years 1980-2022; note: this herd is not classified every year).

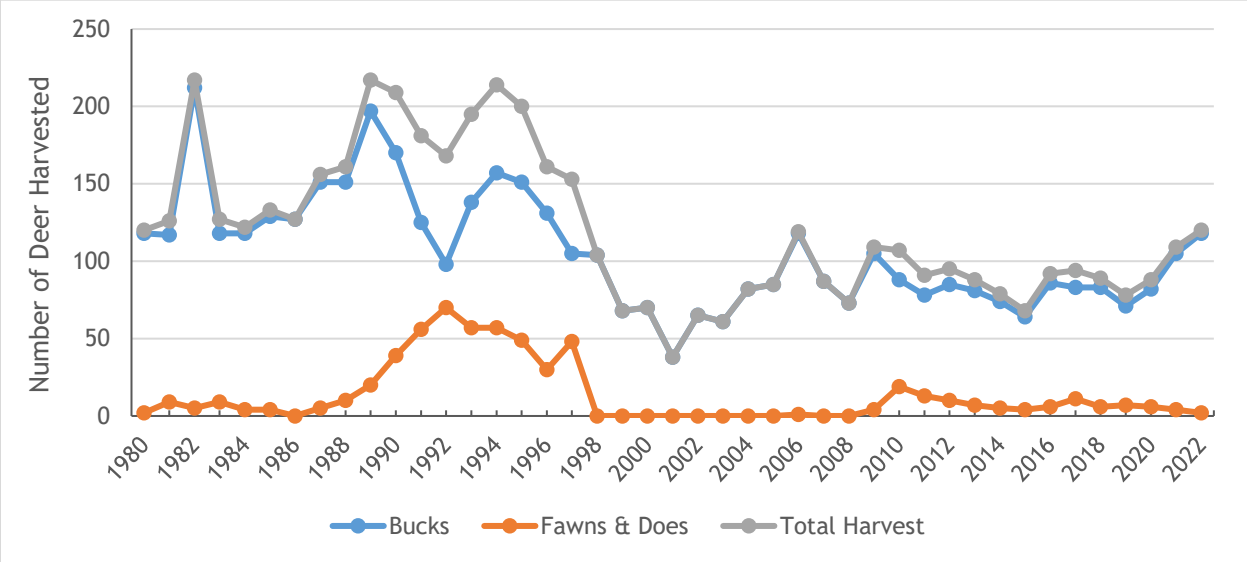


Figure D23-4. Deer harvest estimates in D-23, years 1980-2022.

Background Information

Data Analysis Unit (DAU) D-23, the La Sal deer herd, consists of Game Management Unit (GMU) 60 along the Utah state line and includes parts of Montrose and Mesa Counties. The landownership in this unit consists of 65% Bureau of Land Management, 18% U.S. Forest Service, and 18% privately owned.

Plant communities are diverse within the DAU, based on the changes in elevation from 4,500 feet in the desert shrub communities around Gateway and the Dolores River to the Ponderosa pine and mountain shrub areas in the upper elevations above 8,000 feet on the west end of the DAU. Agricultural areas and cultivated croplands within the DAU occur primarily in the Paradox Valley, Sinbad Valley, Gateway area, and along the Dolores River.

D-23 consists mostly of winter ranges, with summer ranges occurring primarily in the La Sal Mountains in Utah. In the spring and summer, most of the D-23 deer migrate to higher-elevation aspen and oakbrush habitats in the La Sal Mountains. By fall, large numbers of deer move to lower elevations into the pinyon/juniper, sagebrush, and agricultural lands for winter. Snow levels in the La Sals primarily determine how many deer migrate into Colorado for the winter; however, a growing residential population of deer is associated with the agricultural valleys near Paradox and Gateway.

Historic DAU D-23 population estimates have fluctuated based on winter conditions. The last few years (2020-2022) have been on an increasing trend. The 2008 herd population objective was 2,500-3,000, with an estimated 2,400 deer (2006 estimate).

The 2022 population was estimated at 1,500 deer. In response to outreach and surveys in 2021 and 2022, CPW staff and public stakeholders stated a desired slight increase in deer populations in this herd. CPW proposes a new objective range of 1,500-1,800 to capture the estimated population number and to better reflect the current herd dynamics and recent population trend. This objective range will also balance the public's desire for more deer with CPW's responsibility to manage Chronic Wasting Disease (CWD) prevalence in the agricultural regions of this unit. Increasing deer densities could result in greater CWD prevalence.

Since D-23 has a population that is more greatly impacted by climatic conditions than by hunter harvest (like most herds), limited effort has been invested in monitoring this population, making fine-scale herd management difficult. The population has only been classified by helicopter for age and sex ratios four times since 1980. GMU 60 was last classified in 2021, but CPW did not observe enough deer to use the estimates in the population model. The population model uses estimated survival rates and post-hunt observed age and sex ratios from the adjacent DAU D-19 (Uncompahgre Plateau). Observations of herd status from the local district wildlife manager, local residents, and hunters are evaluated to monitor observed trends and anecdotal verification of modeled estimates and trends for the population.

The five-year average observed post-hunt buck ratio for D-19 is 32 bucks:100 does and the five-year average modeled post-hunt buck ratio for D-23 is 32 bucks:100 does. The buck ratio objective CPW prefers for the 2023 plan is to lower the objective range (20-25 bucks:100 does). Utah's Division of Wildlife Resources and CPW both agreed that decreasing the buck:doe ratio because of high CWD prevalence and seasonal interstate movements between Utah's Unit 13 and D-23 would be best for long-term herd health. The public would like a higher buck ratio,

but with CWD prevalence estimated at 21% (based on a small sample size), CPW must manage this growing threat to mule deer populations. This ratio would balance hunting opportunity and CWD management flexibility since this herd has a high CWD prevalence.

The five-year average observed post-hunt fawn ratios in D-19 averaged 54 fawns:100 does. Fawn-to-doe ratios in D-19 have been increasing slightly since 2016. In 2022, there was a slight decline from 60 fawns:100 does to 57 fawns:100 does.

Harvest in DAU D-23 has fluctuated historically from as few as 38 deer to as many as 217 deer. Harvest has averaged approximately 91 deer per year over the last ten years. In 2022, 118 bucks and two does were harvested by 186 hunters with a success rate of 65%. Preference point minimums for resident licenses in D-23 range from 0-2 points. Preference point minimums for nonresident licenses range from 0-9 points, with some licenses drawn as second choice or in the leftover draw. Antlerless licenses are only available as private-land-only and game damage licenses to control resident deer populations and minimize game damage. There have always been very few limited licenses and limited demand for licenses in this DAU, often making herd management difficult.

Significant Issues

The majority of deer habitat within D-23 is winter range, and extended drought has resulted in poor winter forage conditions for deer throughout much of southwestern Colorado. Annual snow levels determine the population size in Colorado and Utah, meaning poor forage conditions in Colorado impact local deer populations and interstate populations.

Although claims for deer damage in D-23 are not excessive, complaints from landowners about crop damage occur, primarily in the Paradox valley where deer are utilizing alfalfa fields. Damage to corn is expected in the future as residential deer populations increase in Gateway. Limited demand for private-land-only (PLO) licenses impedes CPW's ability to manage game damage through harvest.

One of the critical issues affecting D-23 is Chronic Wasting Disease (CWD). This disease occurs in deer, elk, and moose. CWD is an infectious prion (misfolded protein) disease that affects the nervous system over approximately three years. 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. CWD was first detected in D-23 in 2018, and the current estimated prevalence rate is 21%; however, the accuracy of this prevalence rate is unknown because only 19 samples were collected during mandatory testing in 2020. The majority of the CWD prevalence is in the agricultural areas around Paradox. Utah's neighboring La Sal Unit 13 has the highest CWD prevalence in the state, which further compounds the issue with interstate deer movements. To mitigate the issue, CPW has increased buck licenses to decrease CWD spread since adult male deer are more likely to contract CWD. Proactive CWD management will be a crucial part of the D-23 Herd Management Plan.

Management Alternatives

Post-hunt population and buck ratio objective alternatives considered for the 2024 D-23 HMP:

Table D23-1. Proposed population and buck ratio objective ranges for the 2024 D-23 HMP.

Population Objective Alternatives:		Buck Ratio Objective Alternatives:	
1,200 to 1,500 (midpoint 1,350)	(1) 10% decrease in the current population estimate to the middle of the proposed objective range.	**20 to 25 bucks per 100 does**	**(2)**
1,500 to 1,800 (midpoint 1,650)	**(2) Preferred- 10% increase in the current population estimate to the middle of the proposed objective range. The current population estimate is within this range.**	25 to 30 bucks per 100 does	(2) status quo
2,500 to 3,000 (midpoint 2,750)	(3) Status Quo- Approximately 83% increase in the current population estimate to the middle of the proposed objective range.	30 to 35 bucks per 100 does	(3)

Management Objectives

CPW intends to increase this deer population slightly above the current population estimates to balance stakeholder and CPW staff desires for an increased population, but also stabilize CWD prevalence (Alternative 2). Since CWD is concentrated around the town of Paradox, increasing the population slightly should not change CWD prevalence dramatically. Utah also plans to increase the bordering herd numbers in Unit 13. Decreasing this herd (Alternative 1) would be difficult because there is already limited desire for the licenses currently available and this would not reflect CPW and stakeholders desires for an increased population. An 83% population increase over 2022 estimates (alternative 3, status quo) is not attainable with the current population without very large-scale habitat management adjustments, reduced predator populations, or an increased social tolerance. The variable deer movement between both states would also make it difficult to maintain such a significant increase. A large increase in deer numbers could also be problematic for CWD management, as increased deer densities could increase CWD prevalence.

CPW intends to decrease the buck ratio, despite stakeholder desires for more mature bucks in the population. Stakeholders have stated a preference for hunting mature bucks rather than the opportunity to hunt every year (Alternative 3). Unfortunately, mature bucks tend to have a greater probability of carrying CWD; therefore, managing for more mature bucks would be counter-productive to CPW's CWD management strategies. The status quo objective range of 25-30 bucks:100 does allows for hunting opportunity for all age classes of bucks, but would not manage unit 60's high CWD prevalence effectively (Alternative 2). Decreasing the buck ratio to 20-25 bucks:100 does (alternative 1) would help decrease CWD prevalence and potentially increase hunting opportunity in the short term. This objective does not align with stakeholder desires for increased buck ratios in the population, but the long-term health of this herd must be considered. This proposed objective would align more closely to Utah's La Sal Mountains herd buck ratio objective of 15-17 bucks:100 does.

Strategies for addressing management issues and achieving objectives

D-23 has unique management issues because of the varied seasonal movement between Utah and Colorado. This variability leads to limited population monitoring. This population is also small, so limited numbers of licenses are offered and demand is low for many of the licenses, compounding herd management complexities.

CPW manages sex ratios and population objectives by increasing or decreasing licenses by total quota, by season, and by sex, depending on the objectives for each herd. This herd has historically been managed for a balance of opportunity and slight population growth. CPW would like to continue this management strategy. Additionally, the last several years have been managed proactively to limit CWD spread, and staff sees this as an important strategy to continue into the future. Antlerless game damage licenses would still be available for landowners to deter deer from causing more damage and to increase landowner tolerance. Buck licenses will continue to be offered to manage CWD concerns and allow for moderate hunting opportunity. Additionally, predator and competing ungulate management will continue.

In addition to license management, CPW recognizes the importance of habitat protection and habitat quality improvement. CPW regularly communicates with land management agencies such as the USFS and BLM, landowners, county governments, CDOT, Utah Division of Wildlife Resources, and NGOs and will continue collaborating with these government agencies and organizations to achieve management goals. These agencies can help with large-scale habitat management projects to improve carrying capacity and regulate recreation and grazing on public lands, which could bolster deer populations.

Stakeholder Outreach

Hunters were randomly selected to complete the 2022 Deer Hunter Attitude Survey after the completion of their hunting seasons. There were 75-87 respondents (depending on the question) who answered the opt-in questions for D-23. Overall, hunters desire a slight to moderate increase in the deer population and are generally satisfied with their hunting experience. Hunters also prefer pursuing more mature bucks (higher buck ratio) to hunting more often (lower buck ratio). The majority of respondents also did not feel crowded while deer hunting.

The draft HMP for D-23 will be sent to local county commissioners in Montrose and Mesa Counties. Draft plans will also be sent to the HPP, USFS, the BLM, and Backcountry Hunter and Anglers (BHA). Additionally, CPW met with Utah’s Division of Wildlife Resources to discuss future management between both states. The HMP will be posted on the CPW website for 30 days, allowing stakeholders to comment on the alternatives in the plan.

CPW Commission Approved Objectives:

Post-hunt Population: Pending

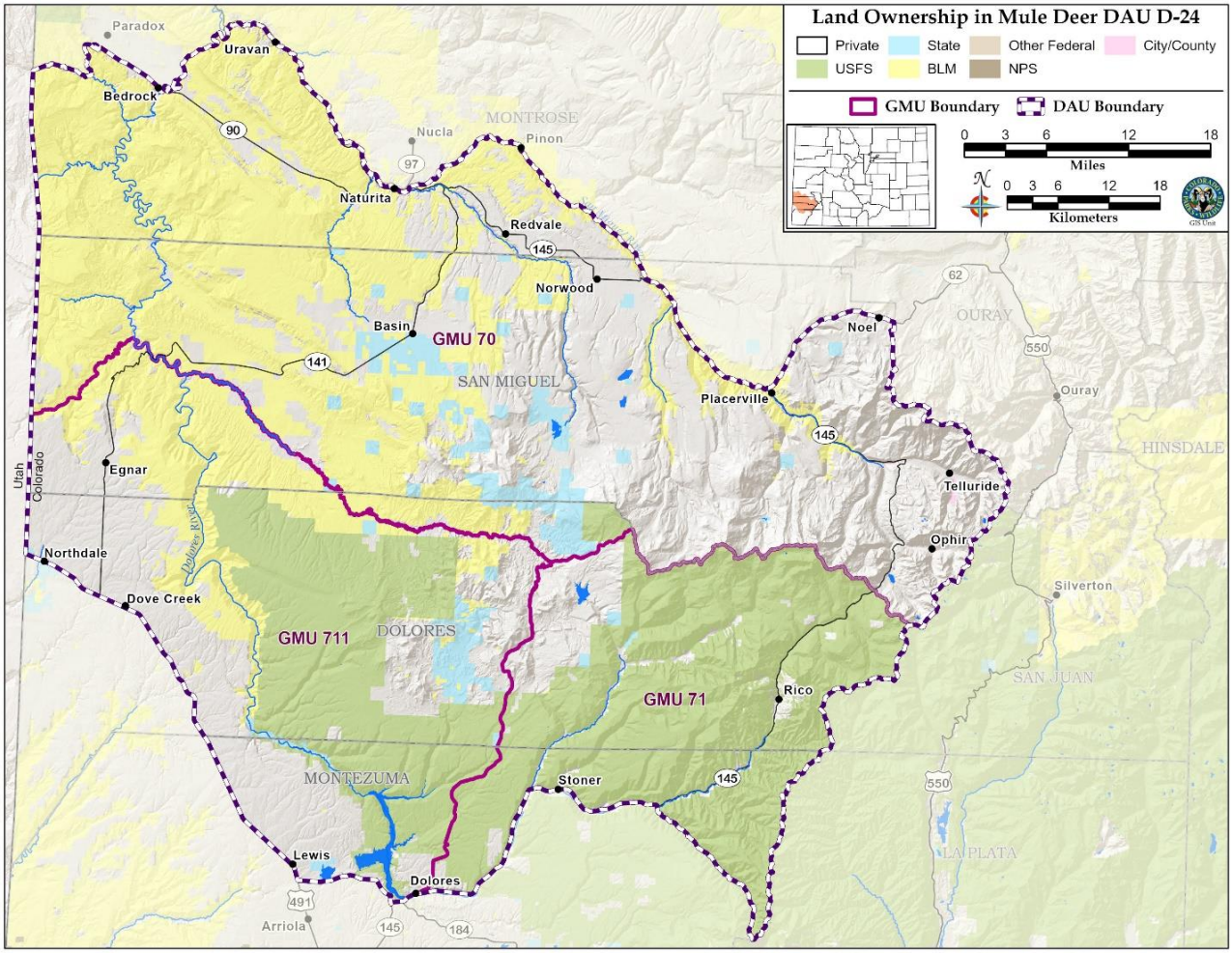
Post-hunt buck ratio: Pending

GROUNDHOG MULE DEER HERD MANAGEMENT PLAN
DATA ANALYSIS UNIT D-24

Brad Weinmeister, Wildlife Biologist, Durango

October 2023

Groundhog Deer Herd (DAU D-24)	**GMUs: 70, 71 and 711**
Post-hunt Population: Previous Objective: 15,000-19,000 2022 Estimate: 18,300 **Preferred Alternative: 19,000-23,000 deer**	
Post-hunt Sex Ratio (bucks:100 does): Previous Objective: 23-28 2022 observed: 25; modeled: 23 **Preferred Alternative: 23-28**	



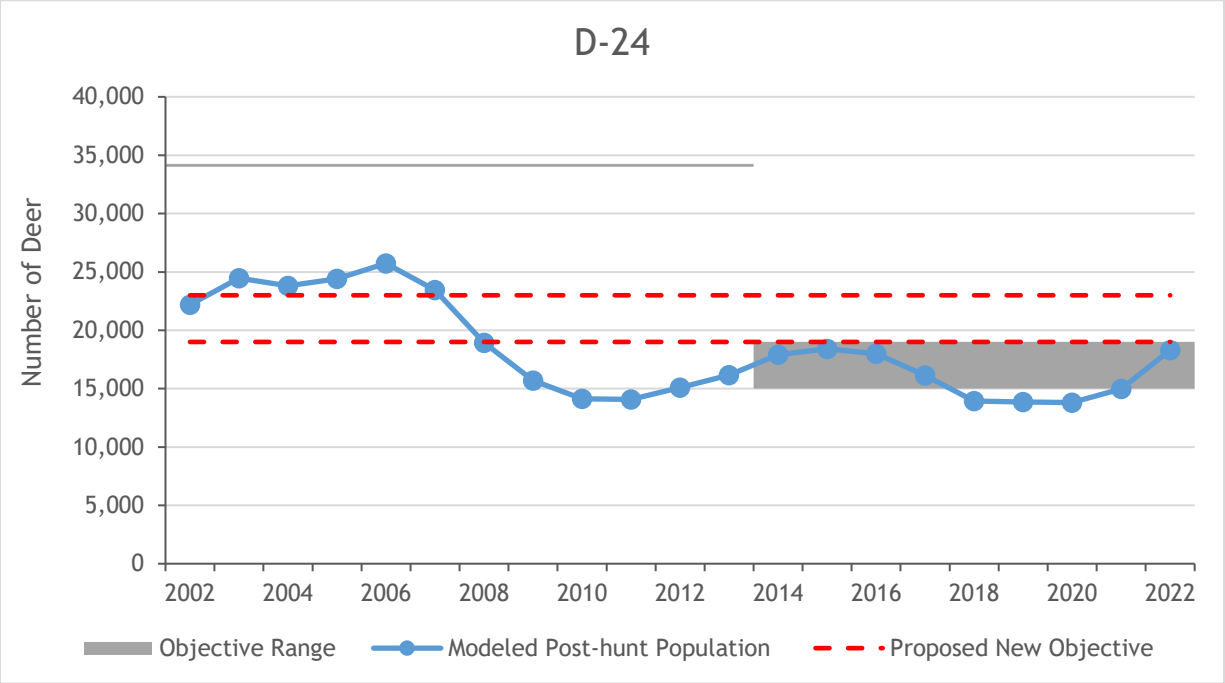


Figure D24-1. Deer DAU D-24 modeled post-hunt population estimate and objective range, years 2002-2022.

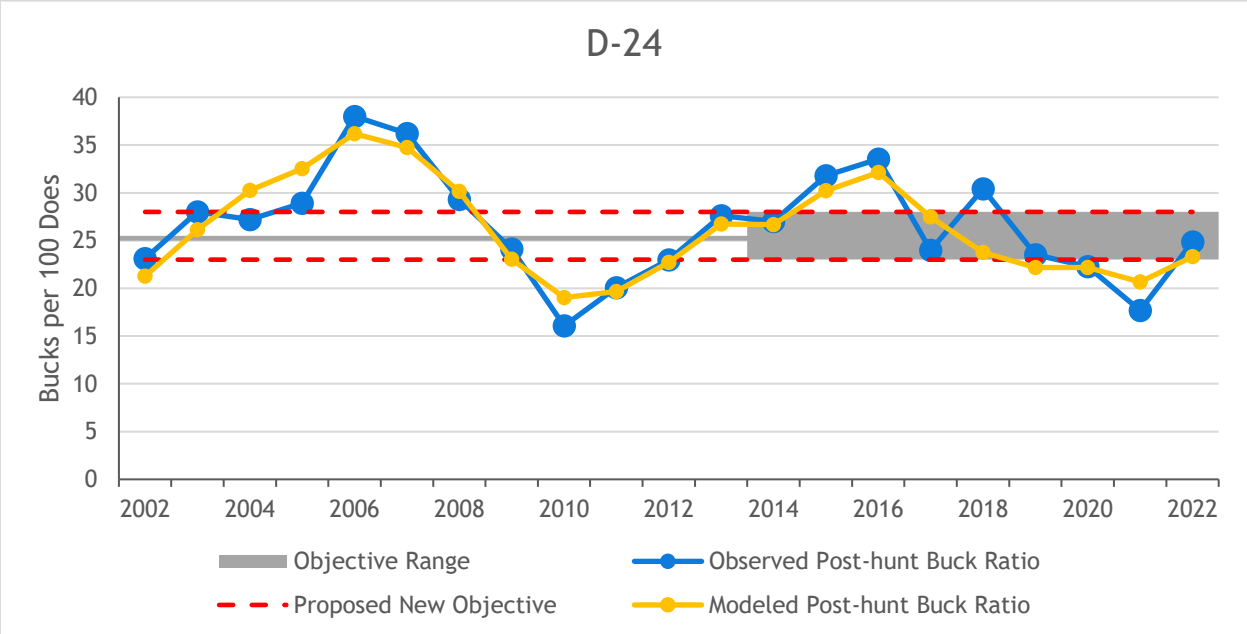


Figure D24-2. Deer DAU D-24 observed and modeled post-hunt sex ratio (bucks:100 does), years 2002-2022.

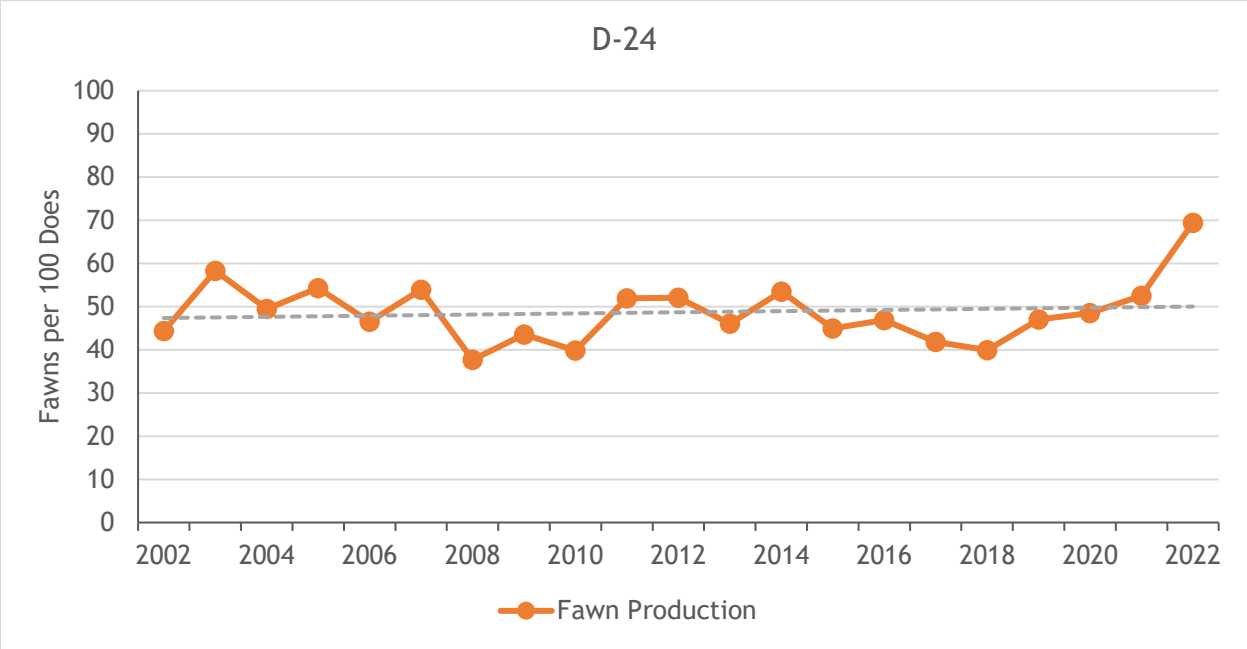


Figure D24-3. Deer DAU D-24 fawn production (observed post-hunt fawns:100 does ratio, years 2002-2022).

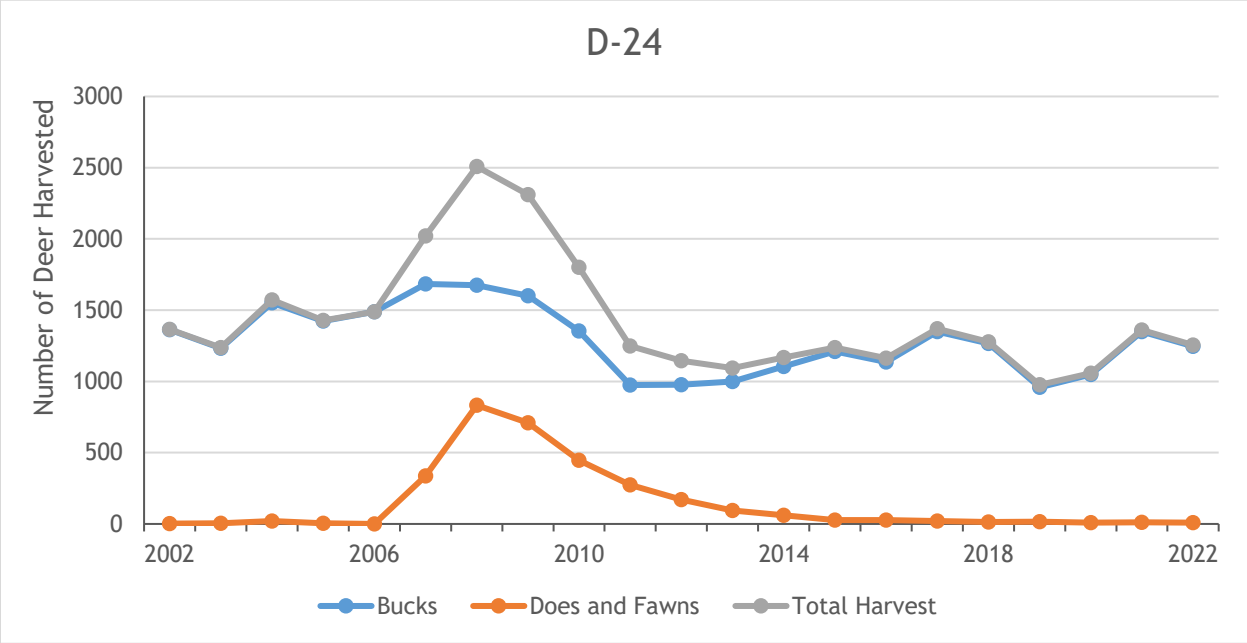


Figure D24-4. Deer harvest estimates in D-24, years 2002-2022.

Background Information

The Groundhog Deer Population consists of Data Analysis Unit (DAU) D-24. It is located in the southwest corner of Colorado and contains Game Management Units (GMUs) 70, 71, and 711. The DAU is 2,852 square miles and includes portions of Dolores, Montezuma, Montrose, and San Miguel counties. The DAU is bounded on the north by the Dolores and San Miguel Rivers, State Highways 90 and 62, on the east by the Ouray/San Miguel, San Juan/San Miguel, Dolores/San Juan, Montezuma/La Plata County lines, on the south by Bear Creek, State Highways 145 and 184, and on the west by US Highway 491 and Utah. The towns of Rico, Norwood, and Telluride occur within the DAU, while Dove Creek and Dolores are on the southern boundary. Land ownership in the DAU is 34% U.S. Forest Service, 32% BLM, 30% private, and 2% CPW and State Land Board each.

The current post-hunt population objective of 15,000-19,000 deer was set in 2014. The deer population overall has been stable for the past 15 years following a previous decline. It was estimated between 13,800 (2020) and 25,700 (2006) and in 2022 the estimate was 18,300 deer (Figure D24-1).

The average observed post-hunt buck ratio from 2002 to 2022 was 27 bucks:100 does, with a range of 16-38 (Figure D24-2). The observed three-year (2020-2022) average of 22 bucks:100 does was below the post-hunt buck ratio management objective. Observed post-hunt fawn ratios averaged 49 fawns:100 does (range 38-69) between 2002 and 2022 (Figure 4). The three-year and five-year averages in 2022 were 57:100 and 52:100, respectively.

Buck harvest has varied over the last 20 years with a low of 959 bucks harvested (2019) to a high of 1,684 (2007), and has averaged 1,285 annually (Figure D24-3). Success rates for hunters do not vary much, and the number of bucks harvested is driven more by the number of licenses available. Doe harvest is on private land through Private Land Only (PLO) licenses or game damage permits. In the past 20 years, doe harvest has ranged from zero (2006) to 776 (2008) with an average of 142 (Figure 5). An estimated nine does were harvested in 2022.

When the previous management objectives were determined for this population in 2014, deer populations statewide were on a long-term decreasing trend. At the time the HMP was being written for D-24, the deer herd had reached its lowest recorded population level. The deer population has fluctuated since, but has remained essentially stable. Based on the herd performance over the past ten years, minimal game damage issues, and the desire for more deer on public lands, CPW recommends increasing the population objective.

Buck licenses were limited in the DAU in 1999 when all over-the-counter buck licenses in Colorado were made limited. A fourth-season buck hunt is available in the DAU with limited opportunity. CPW proposes keeping the same buck ratio objective from the previous plan.

Significant Issues

Due to human population growth, a significant concern in the DAU is the cumulative impacts to critical habitat, including winter ranges, migration corridors, production areas, and high-elevation summer ranges. Exurban development is occurring in the DAU and homes are replacing open lands that currently support deer. Energy development has also increased in deer habitat on private and public lands, resulting in direct and indirect habitat loss. Lastly, outdoor recreation continues growing, placing more people in important deer habitat. The

increase in recreational trails and recreation use is decreasing the amount of adequate habitat. Managers and the public are concerned over the cumulative and prolonged impacts of development and recreation, which is disrupting migration and decreasing the quality and quantity of habitat. Actions to enhance and protect important deer habitat will be essential to increase the deer population.

Drought has been present in southwest Colorado for more than two decades, negatively impacting deer habitat and decreasing the amount and quality of forage. Quality habitat provides food, shelter, space, and water and are important to producing robust mule deer populations.

Game damage caused by deer is present but minimal in the DAU. However, there are concerns about the distribution and harvest of deer. Portions of the deer population are more robust on agricultural fields and less so on public lands. To address this managers would like to continue current harvest on those animals in agricultural areas and non-migratory deer and have reduced harvest pressure on migratory deer and those using public lands.

Chronic Wasting Disease (CWD) was detected in the DAU in 2020 with a prevalence rate of 2.6%. Guidelines in CPW's CWD Response Plan (December 2018) will be used to address the spread of the disease. Hemorrhagic disease is also present in D-24. Within the DAU, the disease can cause die-offs of mule deer in the driest years. However, infection and sometimes death of individual animals are more common, with minimal impacts to the overall population.

Management Objectives

CPW staff recommends increasing the population objective from the previous objective. Game damage is minimal in the DAU and would continue to be addressed as needed through game damage permits and PLO licenses. Management would allow the population to grow on public lands and the migratory herd while maintaining the resident populations of deer occuring on and around agriculture fields. The majority of hunters who responded to CPW surveys in 2021 and 2022 indicated that they would like to see a slight or moderate increase in the population, supporting CPW's proposed alternative.

The current sex ratio objective for D-24 is 23-28 bucks per 100 does. CPW proposes to keep the same objective. The majority of hunters who responded to a CPW survey in 2021 and 2022 were generally satisfied with the number of bucks in the population.

Management Alternatives

Three post-hunt population objective alternatives were considered for D-24:

Table D24-1. Proposed and recommended population objective ranges for the 2024 D-24 revised HMP.

Population Objective Alternatives:	
19,000 to 23,000 (midpoint 21,000)	(1) Approximately 25% increase in the proposed objective range midpoint
15,000 to 19,000 (midpoint 17,000)	(2) Status Quo (Maintain current population)
11,0000 to 15,000 (midpoint 13,000)	(3) Approximately 25% decrease in the proposed objective range midpoint

Three post-hunt sex ratio objective alternatives were considered for D-24:

Table D24-2. Proposed and recommended sex ratio objective ranges for the 2024 D-24 revised HMP.

Sex Ratio Objective Alternatives:	
25-30	(1) Approximately 10% increase in the proposed objective range midpoint
23-28	(2) Status Quo (Maintain current sex ratio)
20-25	(3) Approximately 10% decrease in the proposed objective range midpoint

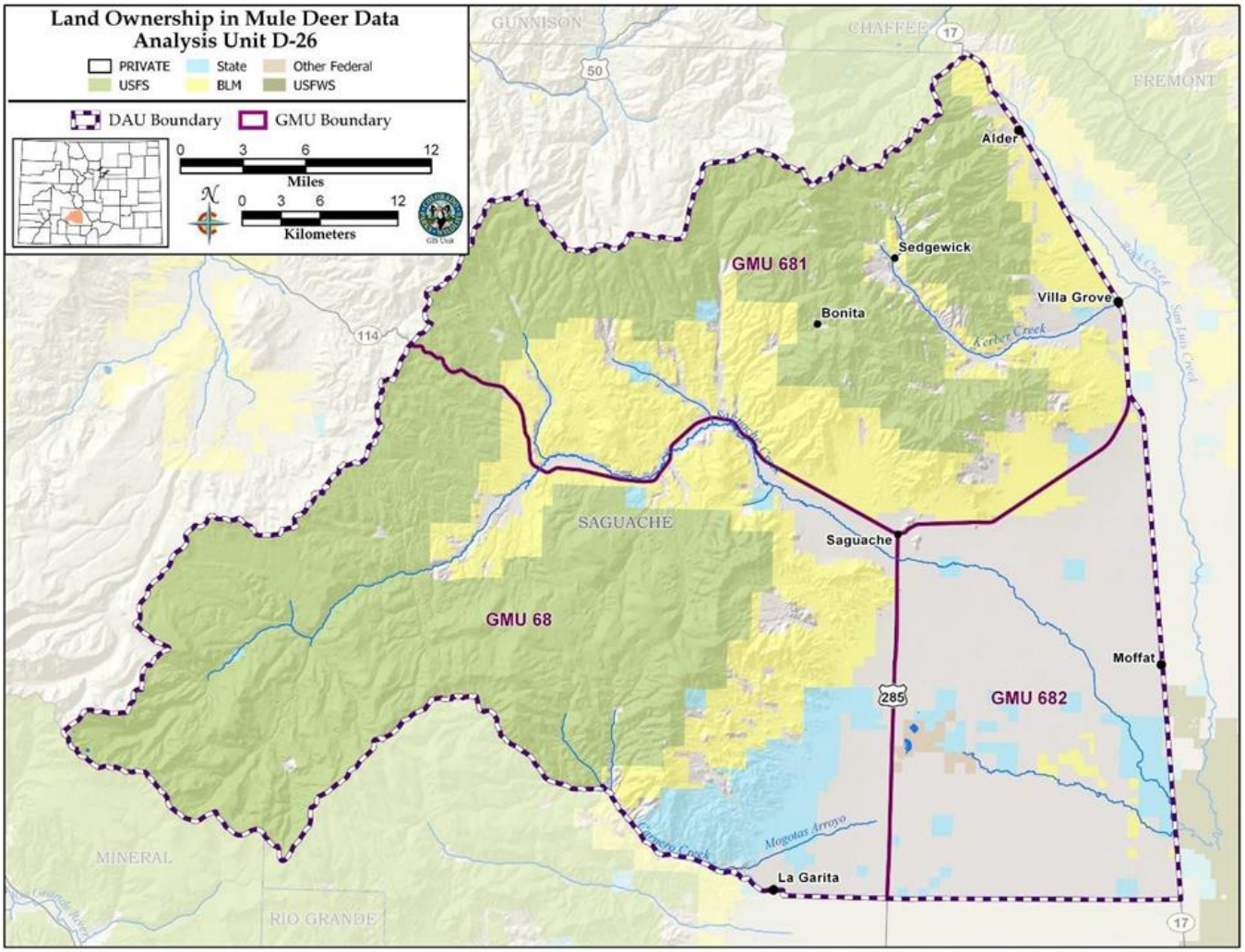
CPW Commission Approved Objectives:

Post-hunt Population: Pending

Post-hunt buck ratio : Pending

SAGUACHE DEER HERD MANAGEMENT PLAN EXTENSION
DATA ANALYSIS UNIT D-26
Brent Frankland, Wildlife Biologist, Monte Vista

GMUs: 68, 681, and 682 **Last HMP Approved Year: 2019**
Post-hunt Population: Previous Objective: 5,500-6,500; 2022 Estimate: 5,500 deer. **Preferred Alternative: <u>Maintain population objective at 5,500-6,500 deer.</u>**
<u>Post-hunt Sex Ratio (bucks:100 does)</u>: Previous Objective: 26-29; 2022 observed: 29; 3-yr average modeled: 29. **Preferred Alternative: <u>Status Quo at 26-29 bucks:100 does.</u>**



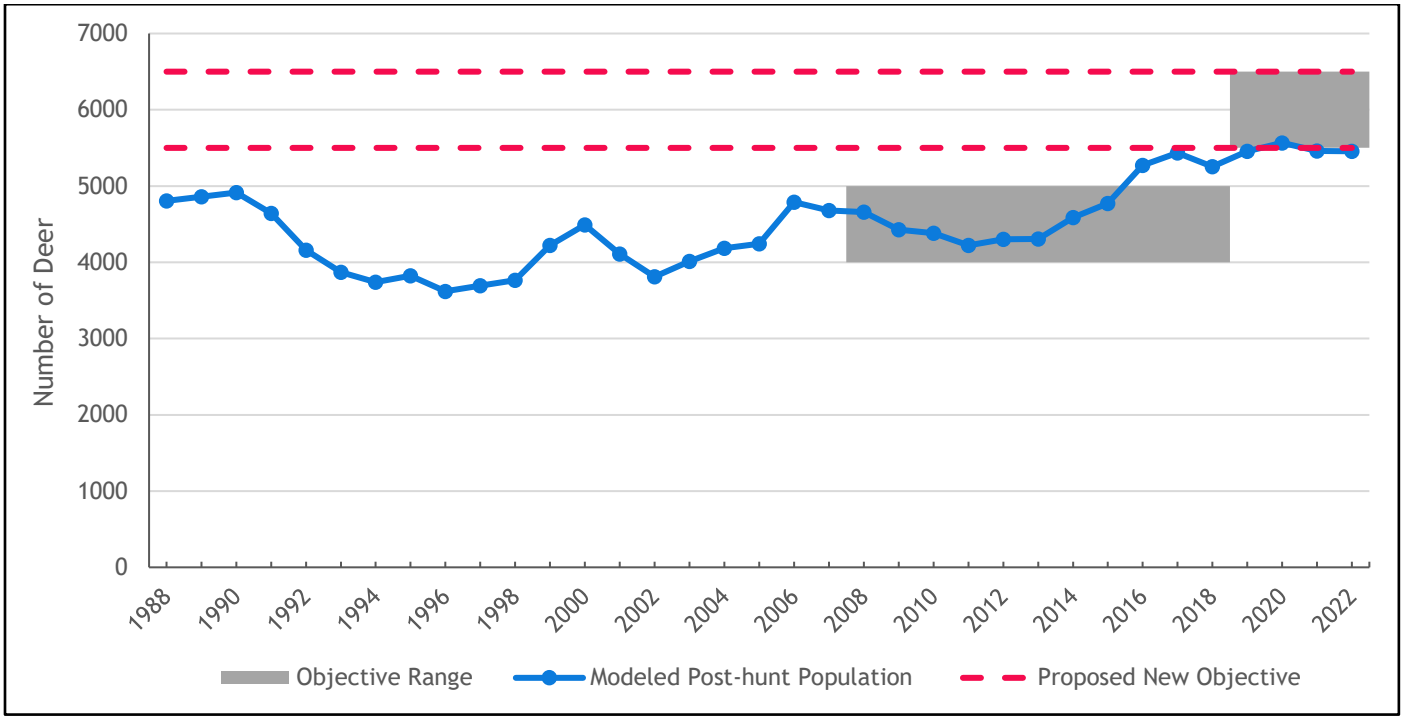


Figure D26-1. Deer DAU D-26 modeled post-hunt population and objective range, 1988-2022.

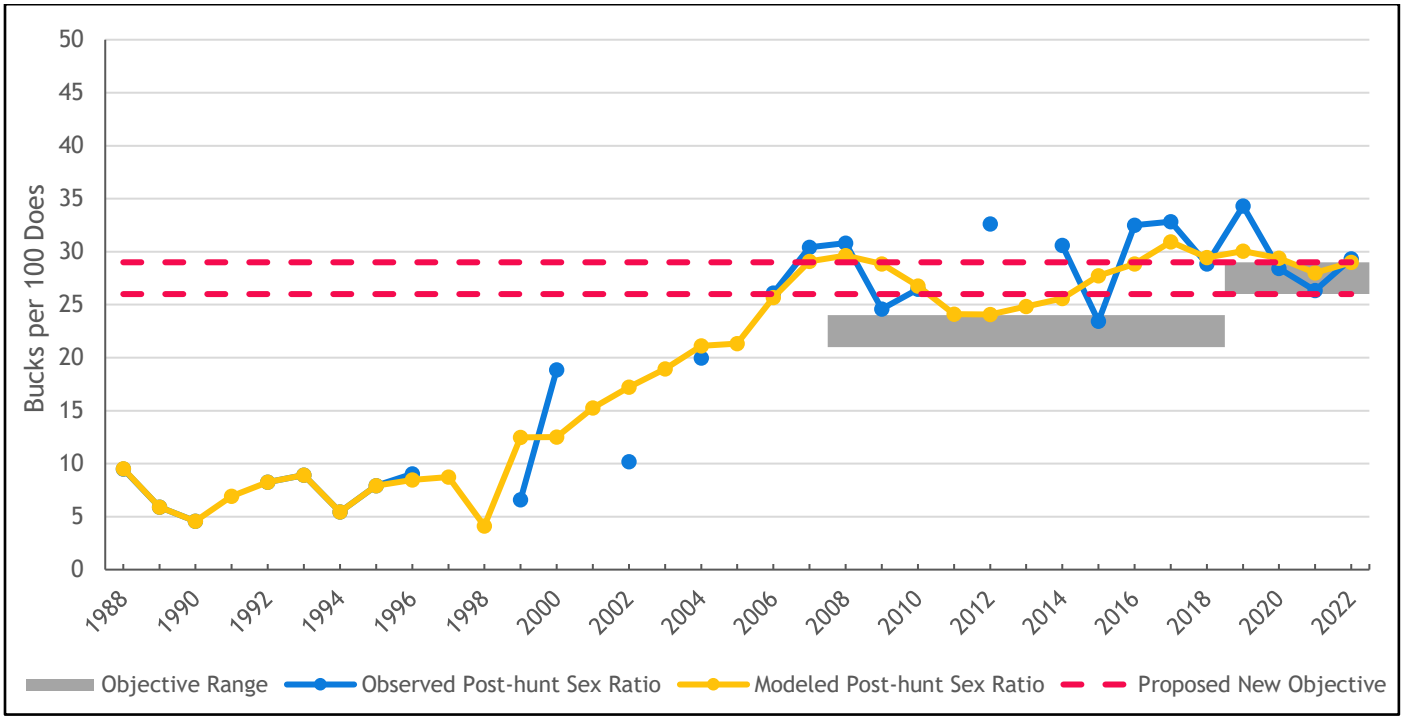


Figure D26-2. Deer DAU D-26 observed and modeled post-hunt sex ratio (bucks:100 does), 1988-2022.

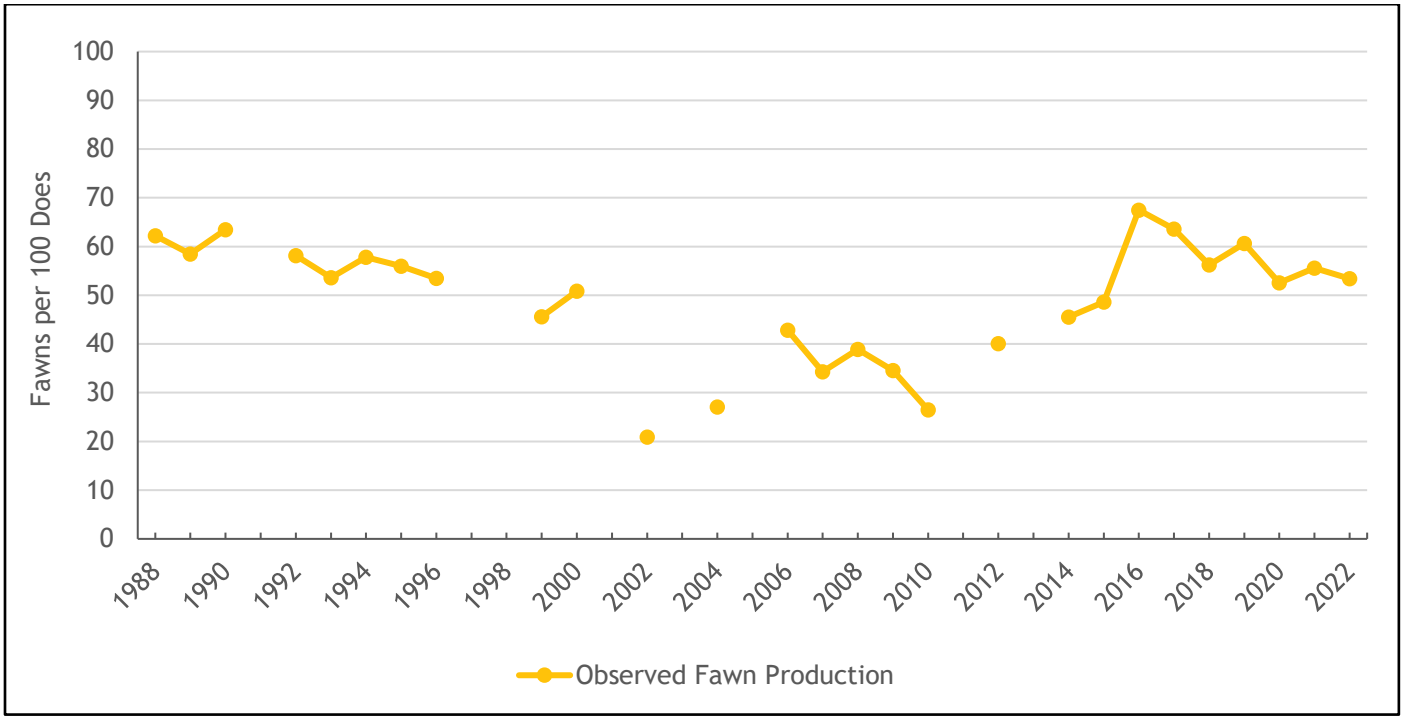


Figure D26-3. Deer DAU D-26 fawn production (observed post-hunt fawns:100 does ratio, 1988-2022).

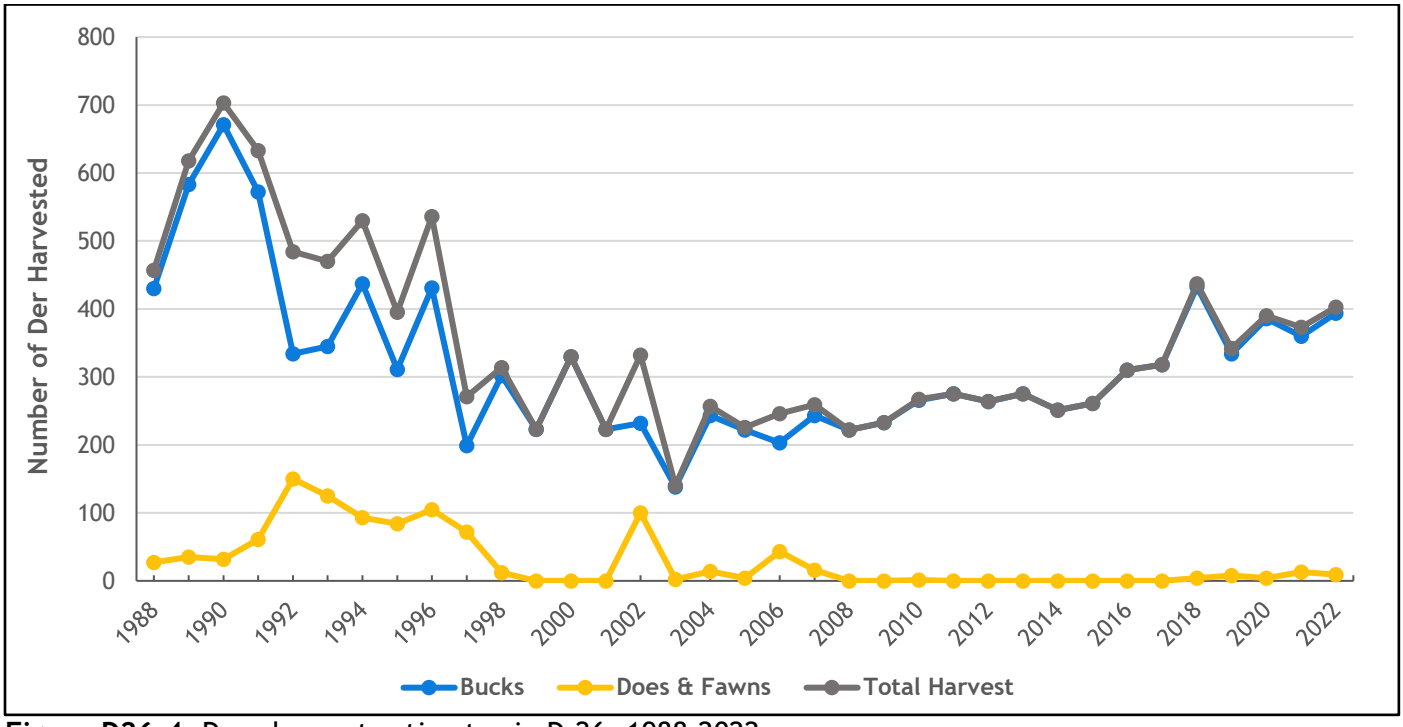


Figure D26-4. Deer harvest estimates in D-26, 1988-2022.

Background Information

The D-26 mule deer herd is in the western region of the San Luis Valley. The DAU (geographic area) comprises Game Management Units (GMUs) 68, 681, and 682, approximately 1,302 square miles. The mule deer winter range within the DAU includes roughly 483 square miles, whereas the summer range encompasses about 963 square miles. The DAU is entirely within Saguache County. Public land constitutes about seventy-four percent of the DAU, while the private sector owns more than twenty-six percent.

The D-26 population began to decrease steadily in the late 1980s. To address the decrease, CPW eliminated doe licenses, and buck licenses, which had been unlimited, became limited in 1999. The herd dropped to less than 3,500 animals in 2002 and has gained traction since then, increasing in numbers to within the boundaries of the 2008 objectives of 4,000 to 5,000 animals. The population remained within the 2008 objectives until 2015. Since then, the population estimate increased above the upper end of the 2008 population objectives. In 2019, CPW updated the population objectives to 5,500 to 6,500 deer to manage the deer herd more accurately within biological and social constraints.

The D-26 observed post-hunt sex ratios have increased since CPW limited antlered licenses in 1999. Before the implementation of limited licenses, the observed sex ratio averaged less than ten bucks per 100 does. From 1999 to 2008, the average observed sex ratio rose to 20 bucks per 100 does; since 2008, it has increased to 29 bucks per 100 does. Alternatively, the modeled sex ratio has been trending relatively close to the observed sex ratio, and it has been hovering around the upper end of the 2019 objective range since 2018.

Before CPW limited buck licenses in 1999, the annual buck harvest averaged approximately 420 animals in the DAU. Since the limitation, the average buck harvest has been almost 277 animals, which has increased to 332 animals over the past ten years. With the rising observed sex ratio, CPW increased buck licenses in 2017 and 2018 and provided minor increases in 2020 and 2021 throughout the DAU to curb the upward trend and reduce it to the upper end of the objective range. Harvest from the additional licenses has leveled further sex ratio increases.

Doe harvest fluctuated from 1988 to 2007, averaging roughly 47 animals annually. Thereafter, the doe harvest was negligible until 2017. From 2018 to the present, the doe harvest has occurred at a minor scale, averaging approximately seven animals, many of which were in the Saguache town. Most of the doe harvest resulted from depredation licenses. CPW will continue to provide the depredation licenses as needed.

Over the past ten years, the combined hunting-season success rates have averaged approximately forty-five percent. However, harvest success rates are skewed between the archery, muzzleloader, and rifle seasons. The average archery success since 2013 is around twenty-eight percent. Comparatively, the second and third rifle seasons have averaged roughly fifty-six to fifty-eight percent, and the fourth rifle season’s success has averaged about eighty-four percent over the past ten years. Since 2013, the muzzleloader season’s success has fallen between the rifle and archery seasons, averaging almost forty-one percent.

Management Concerns

Significant factors that may limit the D-26 population are the quantity and quality of winter range habitat. The winter range continues to diminish slowly, with increased development on private land and competition with domestic livestock. Similarly, summer recreational activities continue to expand throughout the DAU. The various anthropogenic impacts may affect distribution, reproduction, and fawning efforts restricting population growth. Deer numbers decreased beginning in the mid-1990s. The cause of the decline is unknown, but CPW attributed the cause to one or more of the following: 1) interspecific competition with an increasing elk herd for limited resources, 2) habitat succession limiting the amount of quality habitat and forage available, 3) record droughts from 1999 through 2004. Nonetheless, this population rose during the early 2000s and mid-2010s and is currently relatively stable.

Mule deer are not a significant problem on agricultural land in the DAU, and depredation concerns are minimal. CPW continues to provide game damage and dispersal licenses to private landowners to address issues. Localized problems may result from restricted mule deer distribution during the winter months. Private landowners who experience mule deer depredation issues can access various management tools CPW offers.

Management Alternatives

In 2019, CPW considered three alternatives for the post-hunt population size and post-hunt sex ratio objectives in Data Analysis Unit D-26:

Table D26-1. Proposed population objective ranges for the 2024 D-26 HMP.

Post-hunt Population Objective Alternatives:	
3,500 to 4,500	(1) Approximately 10% decrease in objectives
4,500 to 5,500	(2) Approximately 10% increase in objectives
5,500 to 6,500	(3) Approximately 20% increase in objectives - APPROVED

Table D26-2. Proposed buck ratio objective ranges for the 2024 D-26 HMP.

Post-hunt Buck Ratio Objective Alternatives:	
21 to 24 Bucks per 100 does	(1) Status Quo
24 to 26 Bucks per 100 does	(2) Increase buck ratio objective by approximately 3 bucks per 100 does
26 to 29 Bucks per 100 does	(3) Increase buck ratio objective by approximately 5 bucks per 100 does - APPROVED

Public Involvement

In the summer of 2018, CPW held a local public meeting in Saguache, CO. Local constituents representing different community stakeholder groups attended the meeting. The overall view from the attendees was that they were somewhat pleased with deer management in the DAU. At the time, the deer population estimate was above the objective range, and most

participants supported keeping it at its current level, which entailed managing towards a 20% increased deer population objective. CPW also provided a draft document online to the public for 30 days, and the agency sent the draft to the BLM, local county commissioners, the local Habitat Partnership Program (HPP) committee, and the U.S. Forest Service for commentary and feedback. The draft allowed all constituents to participate in the public process, including non-consumptive recreationists, hunters, landowners, local stores, or business owners. CPW has re-examined and considered biological herd capabilities and social-political tolerance for this updated HMP. CPW will provide a draft of this HMP online for 30 days for public comment but proposes no changes to the objectives.

Preferred Management Objectives:

Post-hunt Population

The preferred management objective for D-26 is a post-hunt **population of 5,500 to 6,500 mule deer**, aiming to maintain management and sustain the herd at its current estimated population level, allowing for a slight increase. This objective range provides the best balance for managing the deer herd, hunting recreational opportunities, minimizing agricultural conflicts, and maintaining acceptable habitat carrying capacity.

Post-hunt Sex Ratio

The preferred post-hunt sex ratio objective range for the D-26 mule deer herd is increasing the objective to **26-29 bucks per 100 does**. The range supports most stakeholder desires, preferring a slightly higher sex ratio objective in the DAU. A higher objective would reduce the need for additional harvest from what CPW has observed. However, the higher sex ratios could potentially increase CWD risk. Nonetheless, the preferred range allows for the best balance between satisfactory hunting experiences and the desired hunting opportunities.

Strategies for Achieving the Preferred Objectives:

Post-hunt Population – CPW will continue collecting annual inventory data and managing to the preferred mule deer population objectives. The population should persist as long as fawn recruitment remains strong without public land doe hunting licenses. Tools to control private land depredation issues will remain in place. CPW will consider doe harvest opportunities once the population estimate reaches the upper region of the preferred objective range or a significant deterioration in habitat conditions occurs.

Post-hunt Sex Ratio – CPW will maintain current buck-hunting opportunities until the observed sex ratio falls comfortably within the preferred objective range. After that, CPW will monitor the herd to balance buck-hunting opportunities and the mature buck level relevant to the objective range. Expected harvest from the buck licenses should sustain an acceptable adult buck population and stakeholder satisfaction. The preferred objective would reduce the risk of CWD from the sex ratio levels CPW has observed in recent years.

CPW Commission Approved Objectives:

Post-hunt Population: Pending

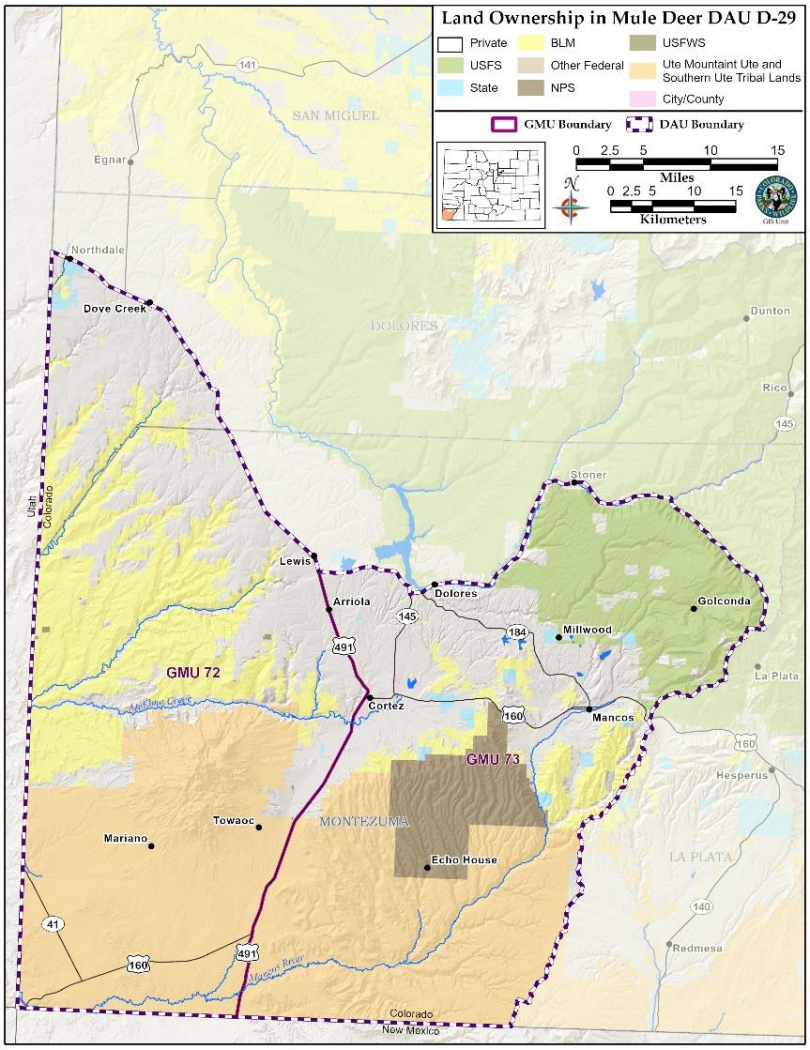
Post-hunt buck ratio: Pending

MESA VERDE MULE DEER HERD MANAGEMENT PLAN
DATA ANALYSIS UNIT D-29

Brad Weinmeister, Wildlife Biologist, Durango

October 2023

Mesa Verde Deer Herd (DAU D-29)	**GMUs: 72 and 73**
Post-hunt Population: Previous Objective: 5,500-7,000 2022 Estimate: 9,300 **Preferred Alternative: 9,000-12,000 deer**	
Post-hunt Sex Ratio (bucks:100 does): Previous Objective: 23-28 2022 observed: 27; modeled: 31 **Preferred Alternative: 23-28**	



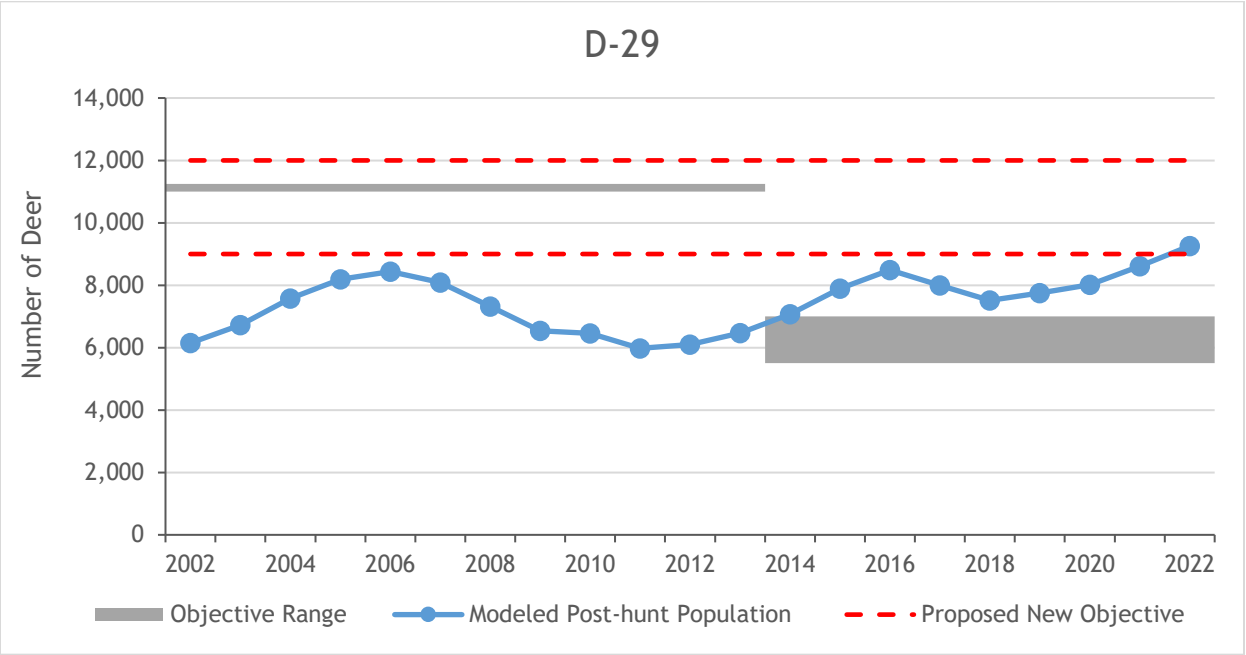


Figure D29-1. Deer DAU D-29 modeled post-hunt population estimate and objective range, years 2002-2022.

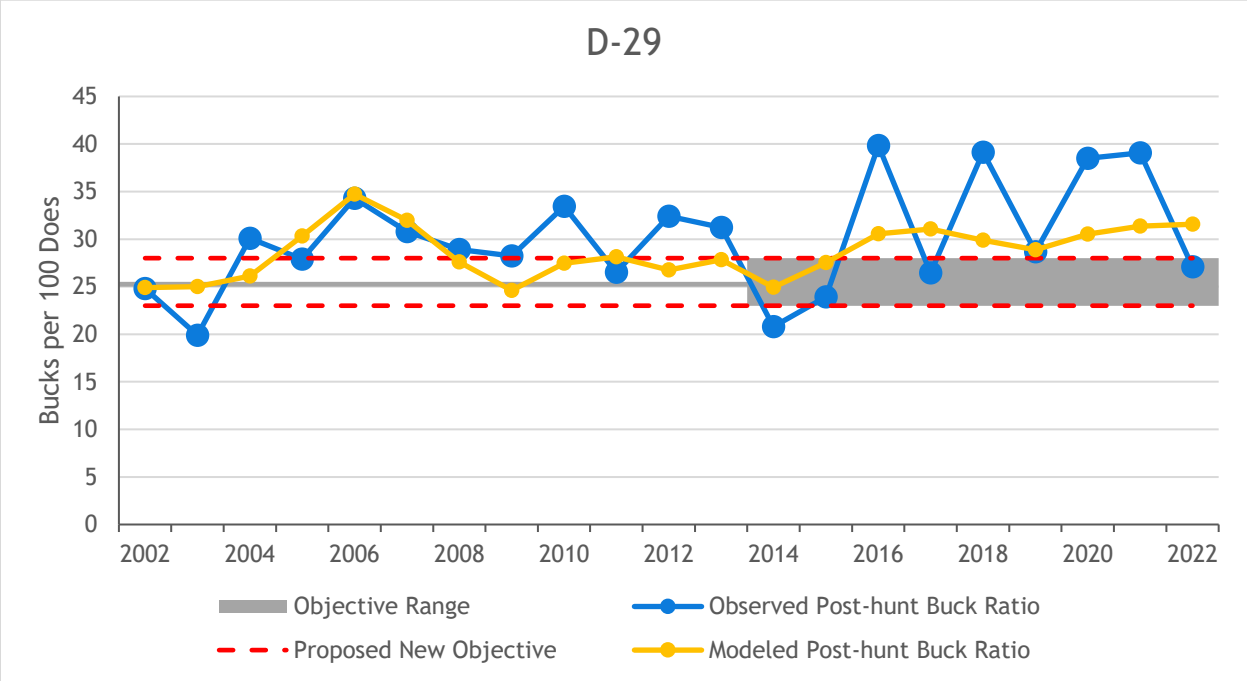


Figure D29-2. Deer DAU D-29 observed and modeled post-hunt sex ratio (bucks:100 does), years 2002-2022.

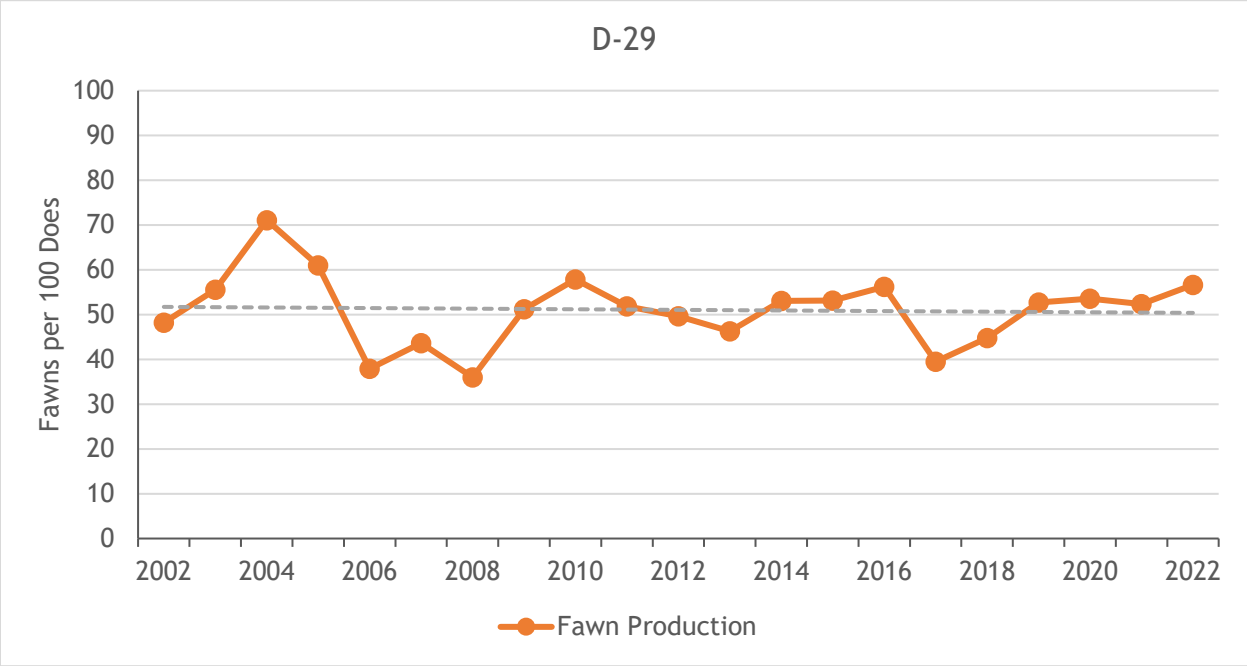


Figure D29-3. Deer DAU D-29 fawn production (observed post-hunt fawns:100 does ratio, years 2002-2022).

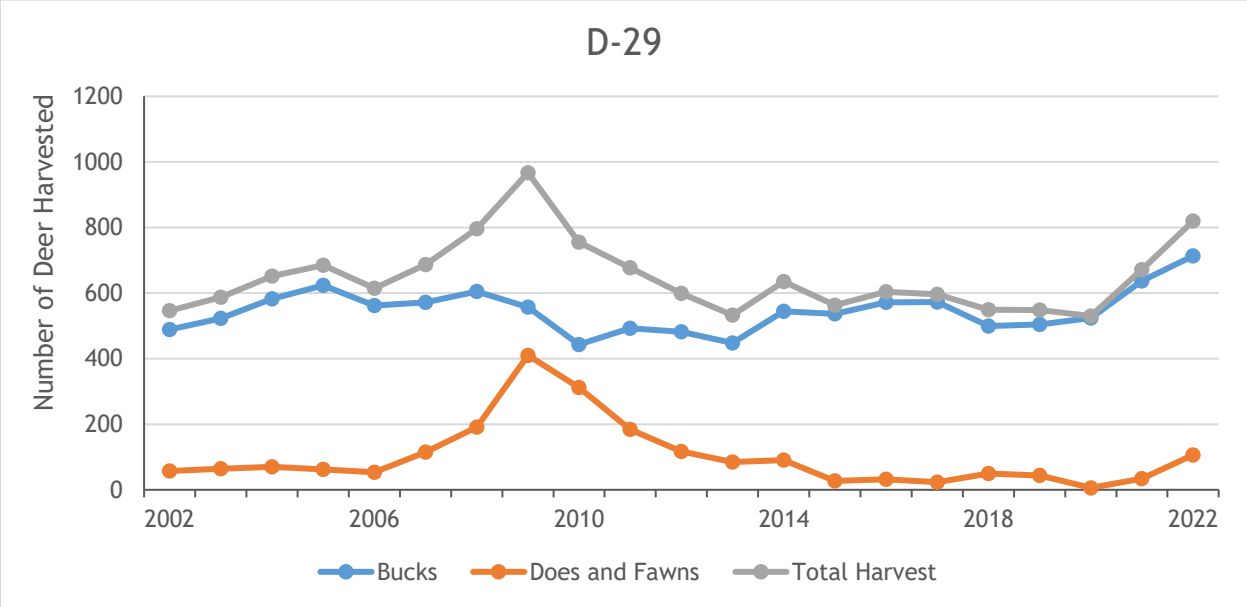


Figure D29-4. Deer harvest estimates in D-29, years 2002-2022.

Background Information

The Mesa Verde Deer Population consists of Data Analysis Unit (DAU) D-29. It is located in the southwest corner of Colorado and contains Game Management Units (GMUs) 72 and 73. The DAU is 1,871 square miles and includes portions of Montezuma and Dolores counties. The DAU is bounded on the north by Highways 491, 184, and 145, and Bear Creek, on the east by the Montezuma/La Plata County line, on the south by New Mexico, and on the west by Utah. The towns of Cortez and Mancos occur within the DAU, while Dove Creek and Dolores are on the northern boundary. Land ownership in the DAU is 37% Ute Mountain Ute tribal land, 31% private, 18% BLM, 9% U.S. Forest Service, 4% National Park, and less than 1% CPW and State Land Board.

The current post-hunt population objective of 5,500-7,000 deer was set in 2014. Over the past 20 years, the deer population has been on an increasing trend and has been estimated between 6,000 (2011) and 9,250 (2022) (Figure D29-1).

The average observed post-hunt buck ratio from 2002 to 2022 was 30 bucks:100 does with a range of 19-39 (Figure D29-2). The observed three-year (2020-2022) average of 34 bucks:100 does is above the post-hunt buck ratio management objective. The observed buck ratio has fluctuated a lot and is most likely from observer bias or error rather than from changes in buck numbers. In years of high sample size the buck ratio is often the lowest. Observed post-hunt fawn ratios averaged 51 fawns:100 does (range 36-71) between 2002 and 2022 (Figure D29-3). In 2022 the three-year and five-year averages were 51:100 and 49:100, respectively.

Buck harvest has varied over the last 20 years with a low of 443 bucks harvested (2010) to a high of 713 (2022), averaging 546 annually (Figure 5). Success rates for hunters do not vary much and the number of bucks harvested is driven more by the number of licenses available. Doe harvest is on private land through Private Land Only (PLO) licenses or game damage permits. In the past 20 years, doe harvest has ranged from six (2021) to 405 (2009) with an average of 100 (Figure D29-4). An estimated 106 does were harvested in 2022.

When the last management objectives were determined for this population in 2014, deer populations statewide were on a long-term decreasing trend. At the time the HMP was written, the D-29 deer herd had reached its lowest population level on record. At that time, the 1998 objective seemed unrealistic given current herd performance. In the past ten years, the population has grown and the old 1998 objective of 11,000 is not unrealistic. The majority of growth in the population has occurred on private lands, especially around the towns of Pleasant View and Cahone. The portion of the population that use public lands hasn't experienced the same increasing trend. Based on the herd performance over the past ten years, minimal game damage issues, and the desire to see more animals on public lands, CPW recommends increasing the population objective.

Buck licenses were limited in the DAU in 1999 when all over-the-counter buck licenses changed to limited. A fourth-season buck hunt is available in the DAU with limited opportunity. It is proposed to keep the same sex ratio objective from the previous plan.

Significant Issues

Due to human population growth, a significant concern in the DAU is the cumulative impacts to critical habitat, including winter ranges, migration corridors, production areas, and high-

elevation summer ranges. Exurban development is occurring in Montezuma and Dolores Counties and homes are replacing open lands that currently support wintering deer. Energy development has also increased in deer habitat on private and public lands resulting in direct and indirect habitat loss. Lastly, outdoor recreation continues to expand, placing more people in areas important to deer. Increases in recreation trails and recreation use is decreasing the amount of effective deer habitat. Managers and the public are concerned over the cumulative and prolonged impacts of development and recreation, which is disrupting migration and decreasing quality and quantity of habitat. Actions to enhance and protect important deer habitat will be essential to increase the deer population.

Drought has been present in southwest Colorado for more than two decades, negatively impacting deer habitat and decreasing the amount and quality of forage. Quality habitat provides food, shelter, space, and water and are important to produce robust mule deer populations.

Game damage caused by deer is present but minimal in the DAU. However, there are concerns about the distribution and harvest of deer. Portions of the deer population are more robust on agricultural fields and less so on public lands. To address this, managers would like to apply more harvest pressure on animals in agricultural areas and non-migratory deer, while reducing harvest pressure on migratory deer and those occurring on public lands.

Chronic Wasting Disease (CWD) was detected in the DAU in 2020 with a prevalence rate of 2.1%. Guidelines in CPW's CWD Response Plan (December 2018) will be used to address the spread of the disease. Hemorrhagic disease is also present in D-29. Within the DAU, the disease can cause die-offs of mule deer in the driest years. However, infection and sometimes death of individual animals are more common, with minimal impacts to on the overall population.

Management Objectives

CPW staff recommend increasing the population objective from the previous objective. This new proposed population objective is the same as the one implemented in 1998. Game damage is minimal in the DAU and would continue to be addressed as needed through game damage permits and PLO licenses. Management would allow the migratory population to grow on public lands, while maintaining the resident populations of deer occurring on and around agriculture fields. The majority of hunters who responded to the CPW survey in 2021 and 2022 indicated that they prefer a slight or moderate increase in the population, supporting CPW's proposed alternative.

The current sex ratio objective for D-29 is 23-28 bucks per 100 does. CPW proposes to keep the same objective. The majority of hunters who responded to CPW surveys in 2021 and 2022 were generally satisfied with the number of bucks in the population.

Management Alternatives

Three post-hunt population objective alternatives were considered for D-29:

Table D29-1. Proposed and recommended population objective ranges for the 2024 D-29 revised HMP.

Population Objective Alternatives:	
9,000 to 12,000 (midpoint 10,500)	(1) Approximately 50% increase in the proposed objective range midpoint
5,500 to 7,000 (midpoint 6,250)	(2) Status Quo (Maintain current population)
3,000 to 5,000 (midpoint 4,000)	(3) Approximately 40% decrease in the proposed objective range midpoint

Three post-hunt sex ratio objective alternatives were considered for D-29:

Table D29-2. Proposed and recommended sex ratio objective ranges for the 2024 D-29 revised HMP.

Sex Ratio Objective Alternatives:	
25-30	(1) Approximately 10% increase in the proposed objective range midpoint
23-28	(2) Status Quo (Maintain current sex ratio)
20-25	(3) Approximately 10% decrease in the proposed objective range midpoint

CPW Commission Approved Objectives:

Post-hunt Population: Pending

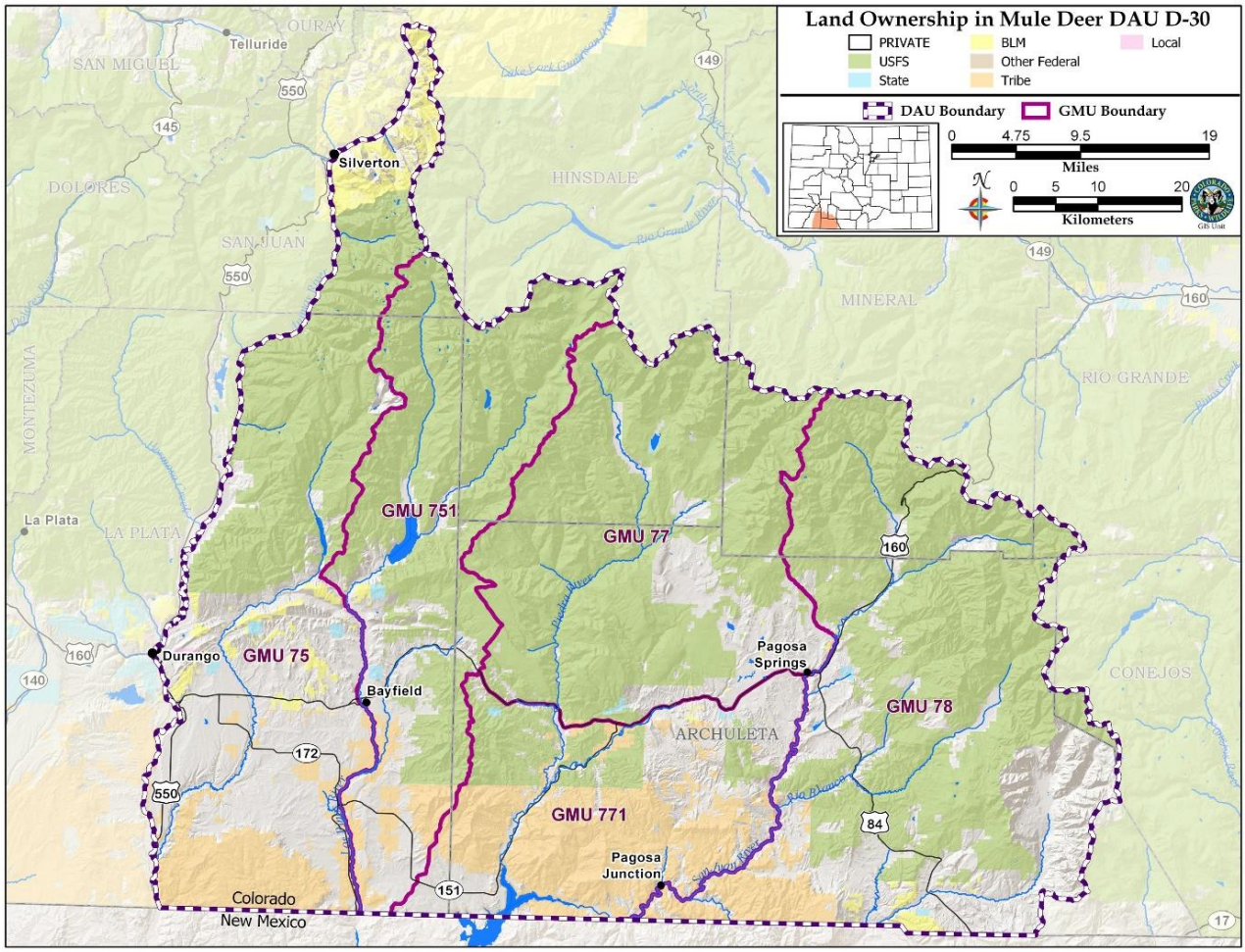
Post-hunt buck ratio: Pending

SAN JUAN BASIN MULE DEER HERD MANAGEMENT PLAN
DATA ANALYSIS UNIT D-30

Brad Weinmeister, Wildlife Biologist, Durango

October 2023

San Juan Basin Deer Herd (DAU D-30)	**GMUs: 75, 77, 78, 751, and 771**
Post-hunt Population: Previous Objective: 23,000-27,000 2022 Estimate: 22,700 **Preferred Alternative: 23,000-27,000 deer**	
Post-hunt Sex Ratio (bucks:100 does): Previous Objective: 26-30 2022 observed: 29; modeled: 32 **Preferred Alternative: 25-30**	



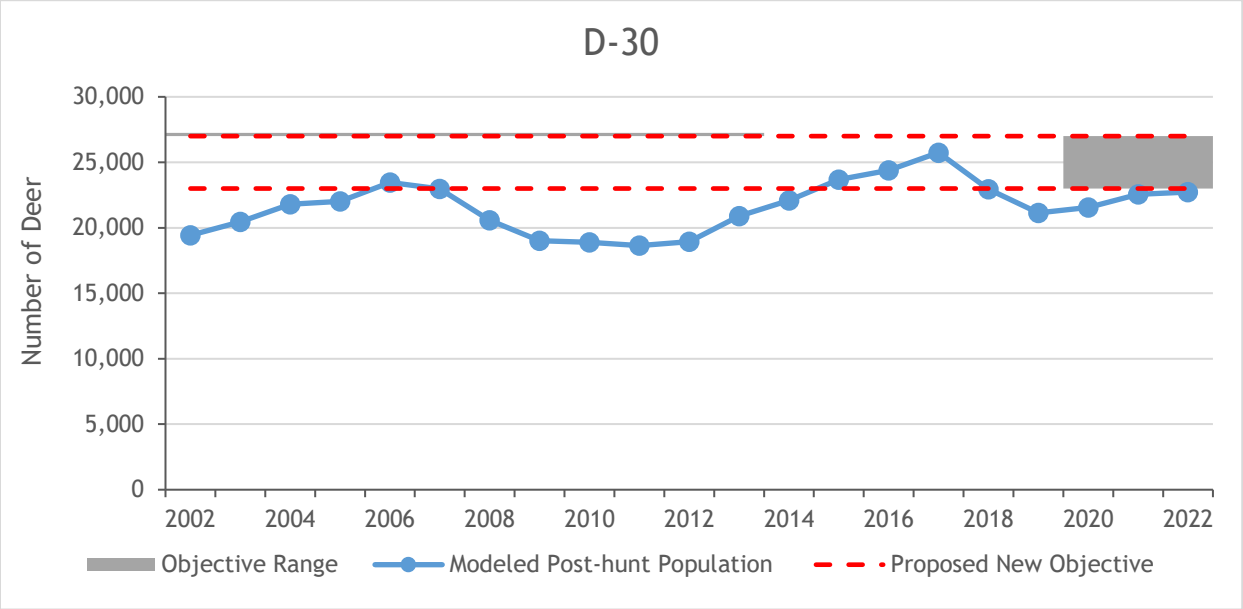


Figure D30-1. Deer DAU D-30 modeled post-hunt population estimate and objective range, years 2002-2022.

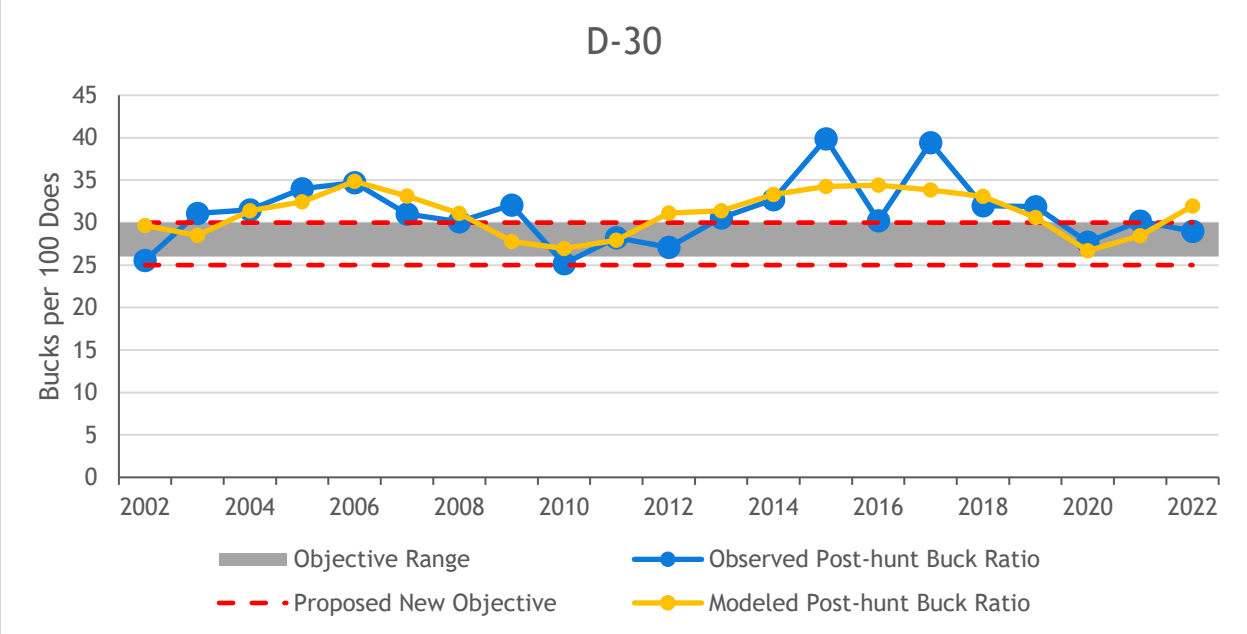


Figure D30-2. Deer DAU D-30 observed and modeled post-hunt sex ratio (bucks:100 does), years 2002-2022.

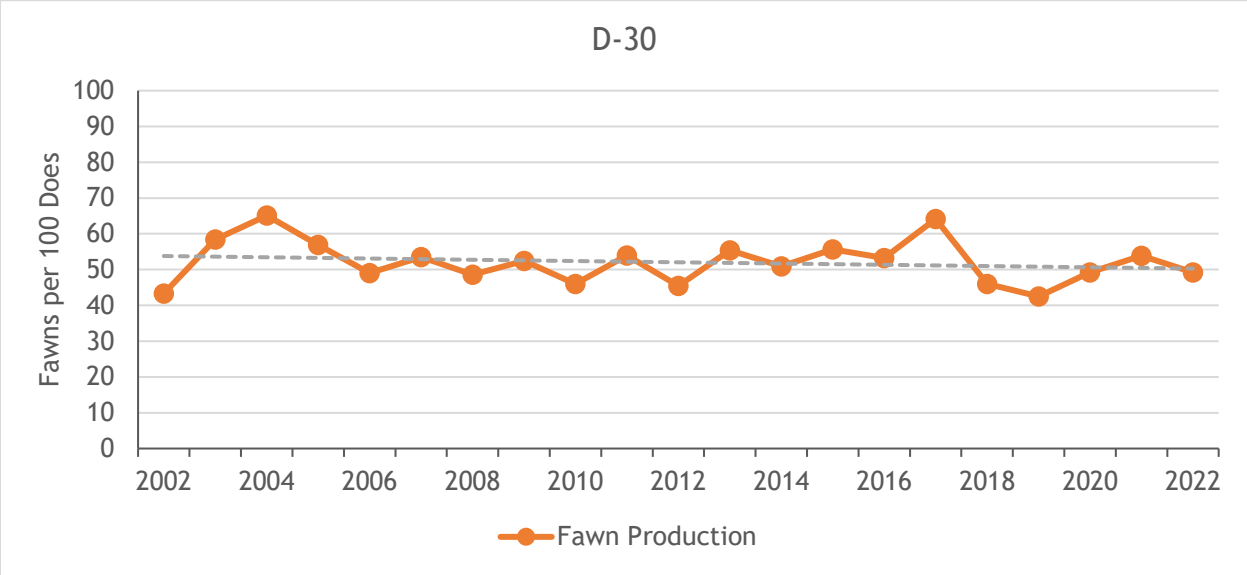


Figure D30-3. Deer DAU D-30 fawn production (observed post-hunt fawns:100 does ratio, years 2002-2022).

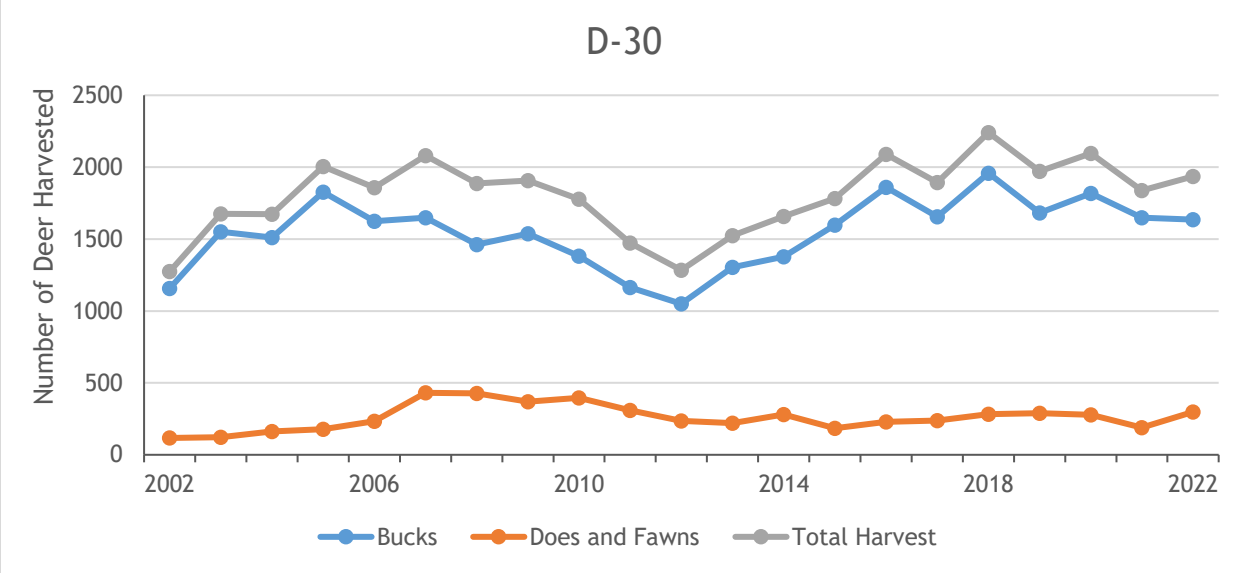


Figure D30-4. Deer harvest estimates in D-30, years 2002-2022.

Background Information

The San Juan Basin Deer Population consists of Data Analysis Unit (DAU) D-30. It is located in the southwest corner of Colorado and contains Game Management Units (GMUs) 75, 77, 78, 751, and 771. The DAU is 2,800 square miles and includes portions of La Plata, San Juan, Hinsdale, Mineral, and Archuleta counties. D-30 is bounded on the north and east by the Continental Divide, on the south by the New Mexico state line, and on the west by the Animas River and contains the towns of Durango, Bayfield, Ignacio, Allison, and Pagosa Springs. Land ownership is composed of U.S. Forest Service (55%), Bureau of Land Management (2%), private land (30%), and Southern Ute Tribal lands (12%).

The current post-hunt population objective of 23,000-27,000 deer was set in 2020. Over the past 20 years, the deer population has fluctuated between 18,000 (2011) and 26,000 (2017) (Figure D30-1). The population has been increasing over the past three years and the 2022 population was estimated at 22,700 deer.

The average observed post-hunt buck ratio from 2002 to 2022 was 31 bucks:100 does (Figure D30-2). The observed three-year (2020-2022) average of 29 bucks:100 does is at the upper end of the post-hunt buck ratio management objective. Buck numbers were high and over objective from 2013 to 2019, averaging 34:100 during that time period. Hunting licenses for bucks were increased, and since then, the ratio has dropped to an observed ratio of 29:100 in 2022. Observed post-hunt fawn ratios averaged 52 fawns:100 does (range 43–65) between 2002 and 2022 (Figure D30-3). The three-year and five-year averages were 51:100 and 48:100, respectively.

Buck harvest has varied over the last 20 years, with a low of 1050 bucks harvested (2012) to a high of 1959 (2018), averaging 1545 annually. In 2022 an estimated 1636 bucks were harvested in the DAU (Figure D30-4). Success rates for hunters do not vary much and the number of bucks harvested is primarily a factor of the number of licenses available. The years with the highest harvest were 2016-2020, and this was done to bring down the buck ratio as mentioned previously. Doe harvest is primarily on private land through Private Land Only (PLO) licenses or game damage permits, although there are a limited number of general licenses too. In the past 20 years, doe harvest has ranged from 111 (2002) to 422 (2008) with an average of 251 (Figure 5). An estimated 292 does were harvested in 2022.

A revision of the D-30 herd management plan was completed in 2020. At that time Colorado Parks and Wildlife staff and stakeholders felt that the previous objective worked well for this population. The only change made at that time was to add a range to the population objective and the Colorado Parks and Wildlife Commission (Commission) approved the recommendations. The proposed objectives for this plan maintains the current objectives recently approved by the Commission in 2020.

Buck licenses were limited in the DAU in 1999 when all over-the-counter buck licenses in Colorado were made limited. A fourth-season buck hunt is available in the DAU with limited opportunity. The sex ratio objective approved by the Commission in 2020 is the same as what is proposed for this plan update.

Significant Issues

Due to human population growth, a significant concern in the DAU is the accumulative impacts to critical habitat, including winter ranges, migration corridors, production areas, and high-elevation summer ranges. Exurban development is occurring in La Plata and Archuleta Counties and homes are replacing open lands that support wintering deer. Energy development has also increased in deer habitat on private and public lands resulting in direct and indirect habitat loss. Lastly, outdoor recreation continues to expand in La Plata and Archuleta Counties, placing more people in areas important to deer. Increased recreational trails and recreation use is decreasing the amount of effective habitat. Managers and the public are concerned over the cumulative and prolonged impacts of development and recreation, which is disrupting migration and decreasing the quality and quantity of habitat. Actions to enhance and protect important deer habitat will be essential to maintain a healthy deer population.

Drought has been present in southwest Colorado for more than two decades. This has negatively impacted deer habitat and has decreased the amount and quality of forage. Quality habitat provides food, shelter, space, and water and are important for producing robust mule deer populations.

Chronic Wasting Disease (CWD) was detected in the DAU in 2020 with a prevalence rate of less than 1%. Guidelines in CPW's CWD Response Plan (December 2018) will be used to address the spread and increase in prevalence rates. Hemorrhagic disease is also present in D-30. Within the DAU, the disease can cause die-offs of mule deer in the driest years. More common though are infections and sometimes death of individual animals, with minimal impacts to the overall population.

Management Objectives

CPW staff recommends maintaining the current population objective to meet stakeholder and CPW staff desires. There is overall satisfaction with the current management of this population. The majority of hunters who responded to CPW surveys in 2021 and 2022 indicated that they are generally satisfied with the number of deer in the population, supporting CPW's current and proposed alternative.

The current sex ratio objective for D-30 is 26-30 bucks per 100 does. CPW proposes maintaining this sex ratio objective, with a minor change of changing the lower end from 26 to 25. This will make the objective consistent with other nearby herds. The majority of hunters who responded to a CPW survey in 2021 and 2022 were geenrally satisfied with the number of bucks in the population.

Management Alternatives

Three post-hunt population objective alternatives were considered for D-30:

Table D30-1. Proposed and recommended population objective ranges for the 2024 D-30 revised HMP.

Population Objective Alternatives:	
27,000 to 31,000 (midpoint 29,000)	(1) Approximately 15% increase in the proposed objective range midpoint
23,000 to 27,000 (midpoint 25,000)	(2) Status Quo (Maintain current population)
19,000 to 23,000 (midpoint 21,000)	(3) Approximately 15% decrease in the proposed objective range midpoint

Three post-hunt sex ratio objective alternatives were considered for D-30:

Table D30-2. Proposed and recommended sex ratio objective ranges for the 2024 D-30 revised HMP.

Sex Ratio Objective Alternatives:	
30-35	(1) Approximately 15% increase in the proposed objective range midpoint
25-30	(2) Status Quo (Maintain current sex ratio)
20-25	(3) Approximately 15% decrease in the proposed objective range midpoint

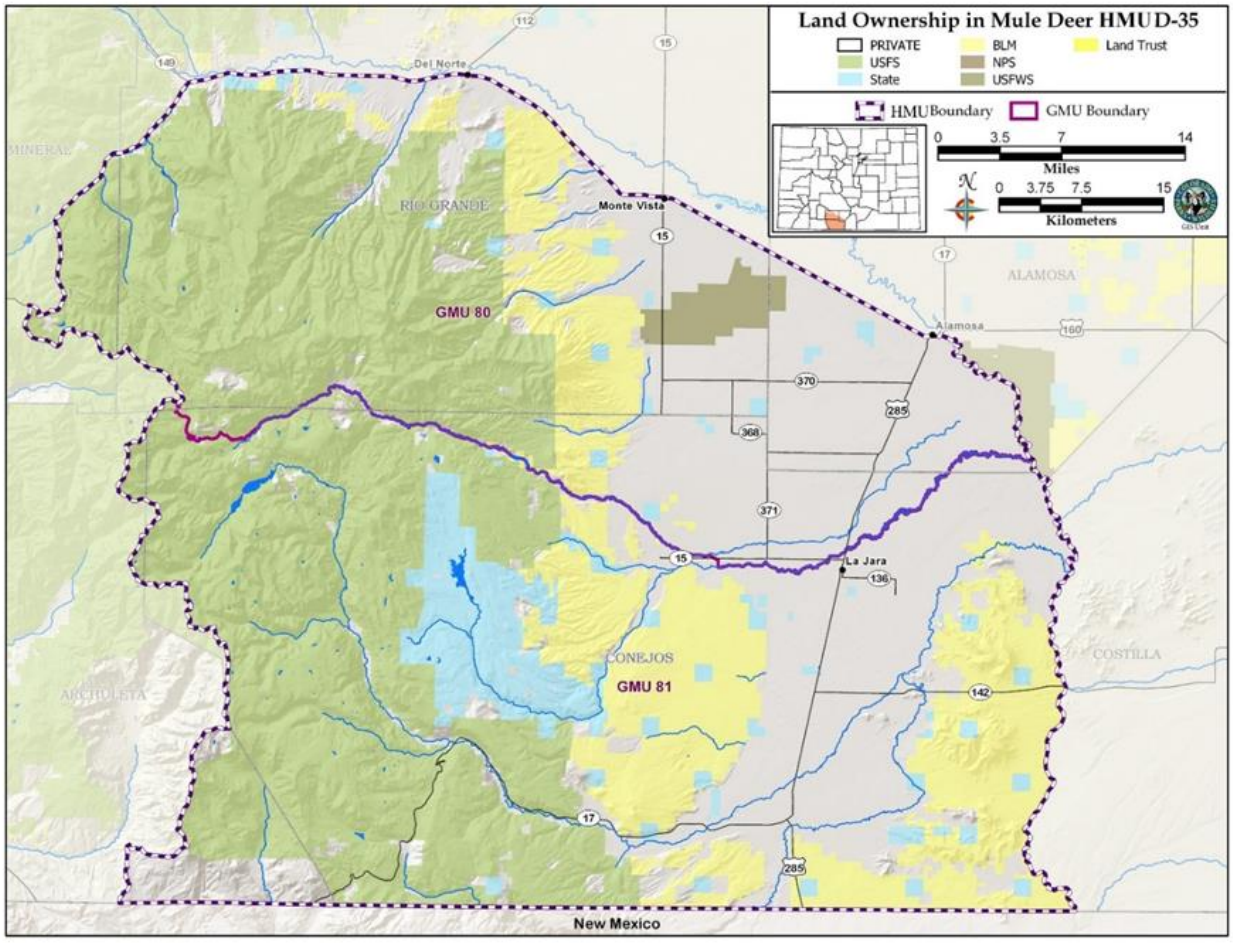
CPW Commission Approved Objectives:

Post-hunt Population: Pending

Post-hunt buck ratio : Pending

LOWER RIO GRANDE DEER HERD MANAGEMENT PLAN REVISION
DATA ANALYSIS UNIT D-35
Brent Frankland, Wildlife Biologist, Monte Vista

GMUs: 80 and 81 **Last HMP Approved Year: 2018**
Post-hunt Population: Previous Objective: 5,500-6,500; 2022 Estimate: 6,800 deer **Preferred Alternative: <u>Increase the population objective to 6,000-8,000 deer</u>**
<u>Post-hunt Sex Ratio (bucks:100 does)</u>: Previous Objective: 23-25; 2022 observed: 31; 3-yr average modeled: 30. **Preferred Alternative: <u>Increase to 25-30 bucks:100 does</u>**



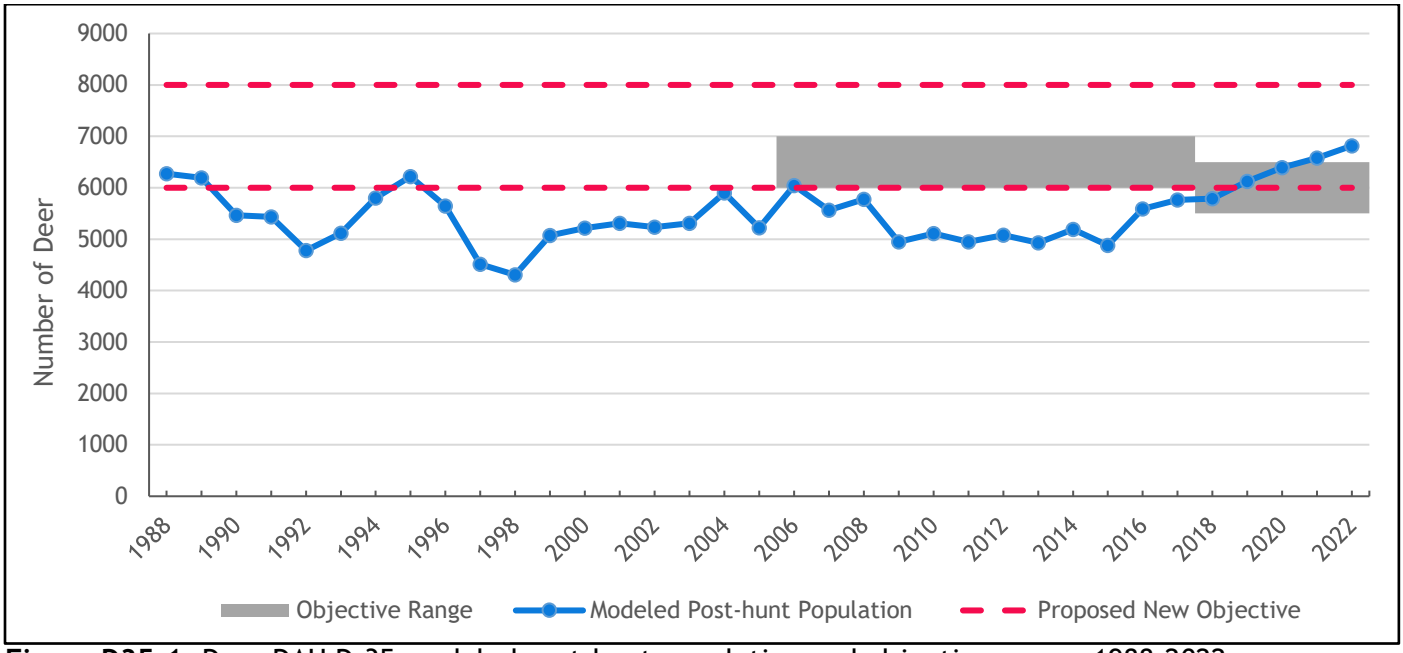


Figure D35-1. Deer DAU D-35 modeled post-hunt population and objective range, 1988-2022.

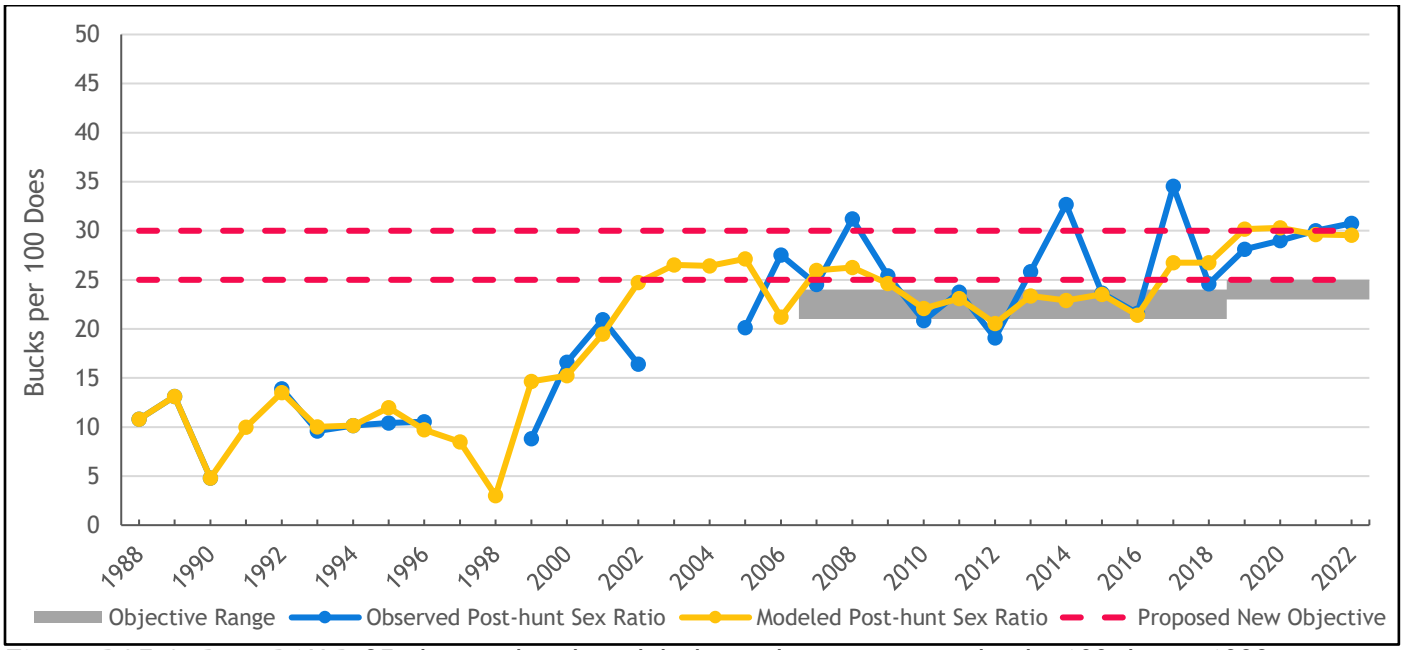


Figure D35-2. Deer DAU D-35 observed and modeled post-hunt sex ratio (bucks:100 does), 1988-2022.

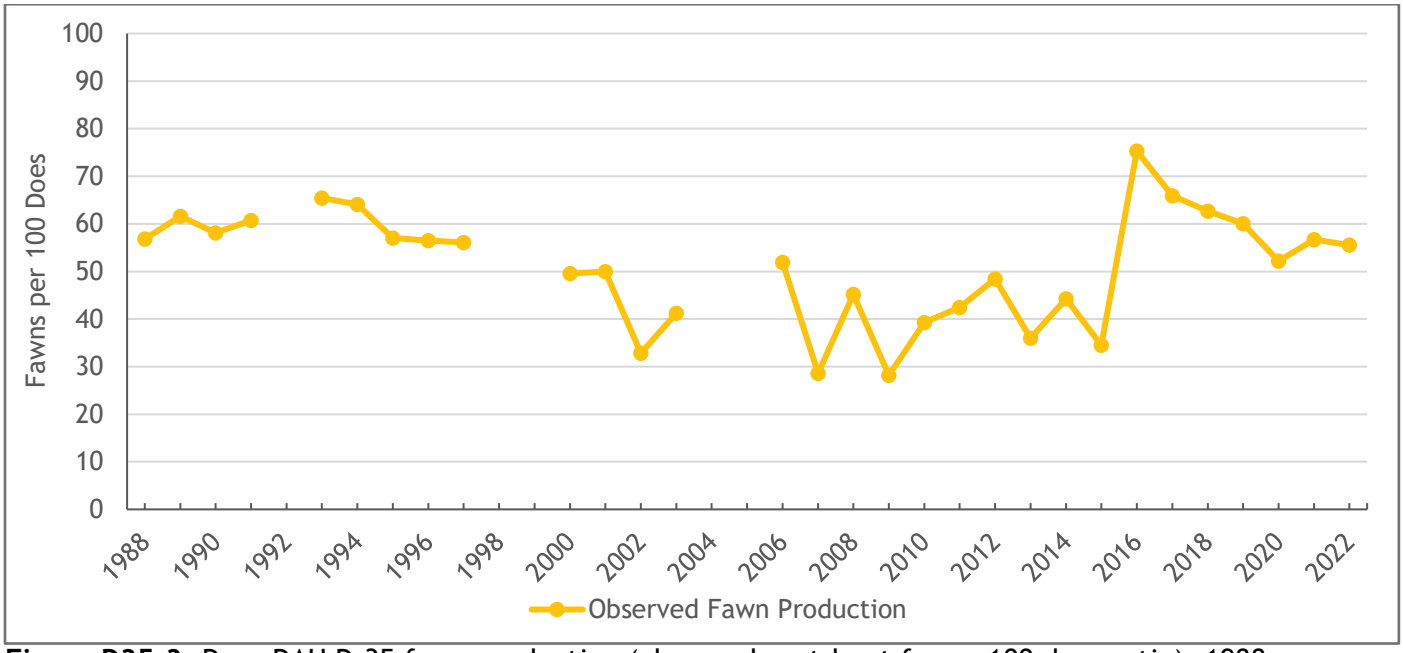


Figure D35-3. Deer DAU D-35 fawn production (observed post-hunt fawns:100 does ratio), 1988-2022.

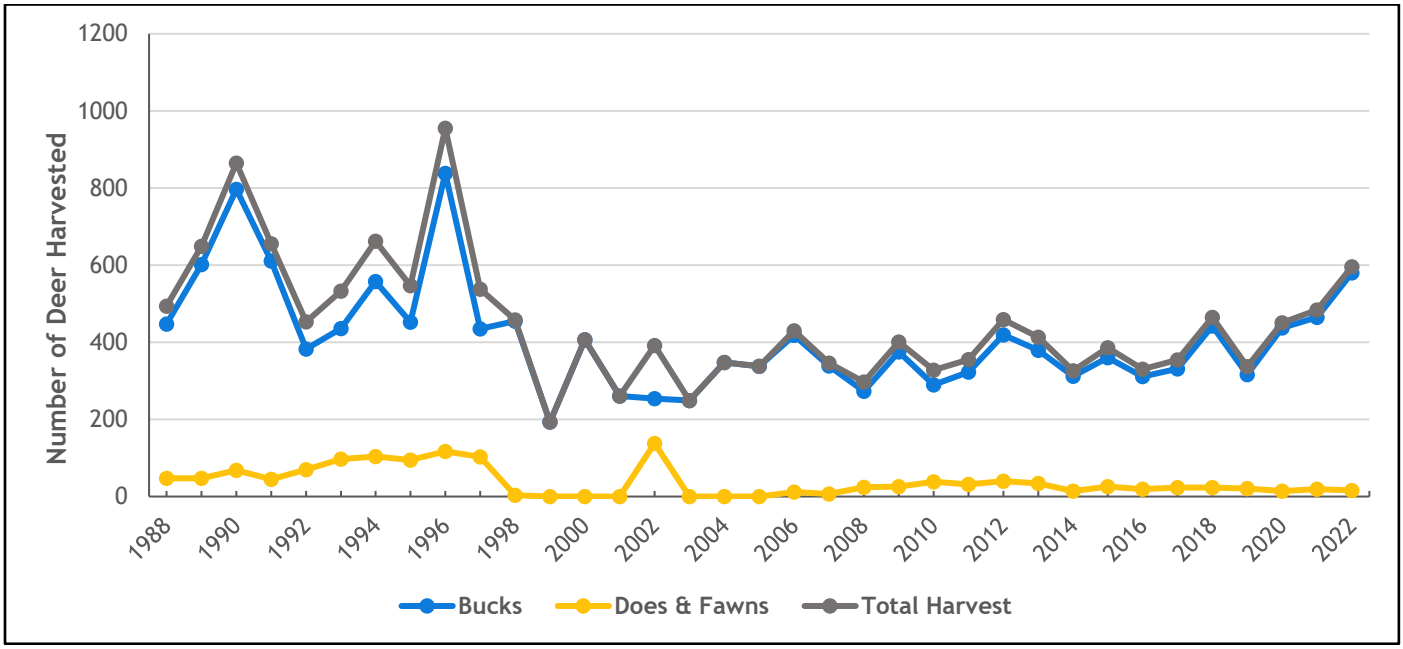


Figure D35-4. Deer harvest estimates in D-35, 1988-2022.

Background Information

The D-35 mule deer herd is in the southwestern region of the San Luis Valley. The geographic area of the Data Analysis Unit (DAU) comprises Game Management Units (GMUs) 80 and 81, totaling approximately 2,100 square miles. The mule deer winter range within the DAU includes roughly 692 square miles, whereas the summer range encompasses about 1,214 square miles. Portions of Alamosa, Archuleta, Conejos, Mineral, and Rio Grande counties make up the entire area. Public land constitutes about sixty-five percent of the DAU, while almost thirty-five percent is privately owned.

The objectives for the post-hunt population for D-35 were last revised in 2018 and set at 5,500-6,500 mule deer. At the time, the objectives were adjusted slightly to account for the perceived stability of the herd population over the preceding 20 years, allowing for a modest level of growth. From 1999 to 2018, the estimated population fluctuated between 5,000 and 6,000 animals. However, since 2018, the estimated population has continued on an upward trend, rising above the objective range to roughly 6,800 animals in 2022. The last time the herd was estimated to be greater than 6,000 animals was in the late 1980s and mid-1990s, with relatively sharp declines after both periods, the lowest estimate being at almost 4,000 mule deer in 1998. In 2023, CPW proposed antlerless licenses on public land to help address the growing population trend and stabilize the population within the proposed objective range. CPW has recently reassessed the population objective range and suggests broadening it to incorporate the trend more efficiently within management goals.

The D-35 observed post-hunt sex ratios have increased since CPW limited antlered licenses in 1999. Before the implementation of limited licenses, the observed sex ratio averaged less than ten bucks per 100 does. From 1999 to 2008, the average observed sex ratio rose to almost 21 bucks per 100 does. However, since 2008, the observed sex ratio has fluctuated considerably, averaging 27 bucks per 100 does. The modeled sex ratio has also fluctuated but appears to have leveled off over the past few years.

Before CPW limited buck licenses in 1999, the annual buck harvest averaged approximately 550 animals in the DAU. Since the limitation, the average buck harvest has been around 350 animals, which has increased to more than 390 animals over the past ten years. With the rising observed sex ratio, CPW shifted the buck licenses between seasons and raised them in 2017, 2018, and 2020 to curb the trend. Nonetheless, the observed and modeled sex ratio continued above the objective range. Harvest in the DAU is primarily affected by the number of licenses, the season structure, and weather conditions during the hunting seasons.

Before 1999, doe harvest averaged about 70 animals annually. However, CPW removed the doe licenses in 1999. Over the past ten years, doe harvest has only occurred as a management tool to mitigate game damage conflicts, averaging approximately 21 animals. The game damage licenses are not used to manage the overall population and thus have minor effects on the population trend. In 2023, CPW proposed an Issue Paper to implement doe licenses on public land. Pending Colorado State Wildlife Commission approval, the doe licenses will be available beginning in 2024. The limited doe licenses provide CPW with more management options. Harvest from these licenses should help sustain the herd population within the proposed objective range more effectively.

Over the past ten years, the combined hunting-season success rates have averaged approximately forty-one percent. However, harvest success rates are skewed between the archery, muzzleloader, and rifle seasons. The average archery success since 2013 is around twenty-eight percent. Comparatively, the second and third rifle seasons have averaged approximately fifty percent, and the fourth rifle season's success has averaged about fifty-six percent over the past ten years. Contrastingly, the muzzleloader season has averaged almost thirty-one percent.

Management Concerns

The quantity and quality of winter range habitat may limit the D-35 mule deer population carrying capacity. The winter range continues to diminish slowly, with increased development on private land and competition with domestic livestock. Similarly, summer recreational activities continue to expand throughout the DAU. The various anthropogenic impacts may affect distribution, reproduction, and fawning efforts restricting population growth. Since the previous HMP, CPW continued efforts to increase the population size of the D-35 herd. Although the population increased, it has done so beyond the objective range set at the time. Much of the population growth is likely due to improved fawn recruitment.

Mule deer are not a significant problem on agricultural land in the DAU, and depredation concerns are minimal. CPW continues to provide game damage and dispersal licenses to private landowners to address issues. Localized problems may result from restricted mule deer distribution during the winter months. Private landowners who experience mule deer depredation issues can access various management tools CPW offers.

Management Alternatives

For this HMP, CPW considered three alternatives for the post-hunt population size objectives and three alternatives for the post-hunt sex ratio objectives in Data Analysis Unit D35:

Table D35-1. Proposed population objective ranges for the 2024 D-35 HMP.

Post-hunt Population Objective Alternatives:	
5,500 to 6,500	(1) Status Quo
6,000 to 8,000	(2) Approximately 10%-20% increase in objectives - PREFERRED
7,000 to 9,000	(3) Approximately 25%-35% increase in objectives

Table E35-2. Proposed buck ratio objective ranges for the 2024 D-35 HMP.

Post-hunt Buck Ratio Objective Alternatives:	
20 to 25 Bucks per 100 does	(1) Status Quo
25 to 30 Bucks per 100 does	(2) Increase buck ratio objective by approximately 5 bucks per 100 does - PREFERRED
30 to 35 Bucks per 100 does	(3) Increase buck ratio objective by approximately 10 bucks per 100 does

Public Involvement

In the fall of 2023, CPW will offer a presentation online, available to the public to view at their discretion. In addition, CPW will provide an initial draft document online to the public for 30 days for review and commentary. CPW will also send the draft to the BLM, local county commissioners, the Habitat Partnership Program (HPP) committee, and the U.S. Forest Service for commentary and feedback. The draft will allow all constituents to participate in the public process, including non-consumptive recreationists, hunters, landowners, local stores, or business owners. CPW has examined and considered biological herd capabilities and social-political tolerance for this updated HMP.

Preferred Management Objectives:

Post-hunt Population

The preferred management objective for D-35 is Alternative 2, a post-hunt **population of 6,000 to 8,000 mule deer**. Alternative 2 aims to curb the population growth steadily, maintain management, and sustain the herd at its current estimated population level, allowing for a slight increase. This objective range provides the best balance for managing the deer herd, hunting recreational opportunities, minimizing agricultural conflicts, and maintaining habitat-carrying capacity. Conversely, Alternative 1 may result in CPW issuing additional licenses to rapidly reduce population growth, resulting in greater hunter competition and more people in the field during the hunting seasons. In contrast, Alternative 3 may result in CPW reducing licenses for the herd to increase in size; however, resulting in greater competition for the limited licenses and hence potentially increasing preference points requirements.

Post-hunt Sex Ratio

The preferred post-hunt sex ratio objective range for the D-35 mule deer herd is also Alternative 2, by increasing the objective to **25-30 bucks per 100 does**. The range supports most stakeholder desires, preferring a slightly higher sex ratio objective in the DAU. A higher objective from the previous HMP reduces the need for an aggressive harvest from what CPW has observed. However, higher sex ratios may increase CWD risk. The preferred range allows for the best balance between satisfactory hunting experiences and the desired hunting opportunities. With Alternative 1, CPW is likely to increase license numbers, which increases people in the field during the hunting seasons, potentially reducing success rates. Conversely, Alternative 3 may result in CPW reducing buck licenses and potentially increasing preference points, hence, longer wait times to draw. The higher the sex ratio, the greater the risk of the area becoming more exclusive, conceivably increasing demand for licenses and possibly raising preference point requirements.

Strategies for Achieving the Preferred Objectives:

Post-hunt Population – CPW will continue collecting annual inventory data and managing to the preferred mule deer population objectives. The population should persist as long as fawn recruitment remains strong. CPW will provide limited doe licenses to enhance management flexibility while ensuring that the population trend remains within the desired range. Tools to control private land depredation issues will stay in place. CPW will implement additional doe

harvest measures if the population estimate exceeds the preferred objective range or if there is a notable deterioration in habitat conditions.

Post-hunt Sex Ratio – CPW may need to increase buck-hunting opportunities until the observed sex ratio falls within the preferred objective range. After that, CPW will monitor the herd to balance buck-hunting opportunities and the mature buck level relevant to the objective range. Expected harvest from the buck licenses should sustain an acceptable adult buck population and stakeholder satisfaction. The preferred objective should also help to reduce the risk of CWD.

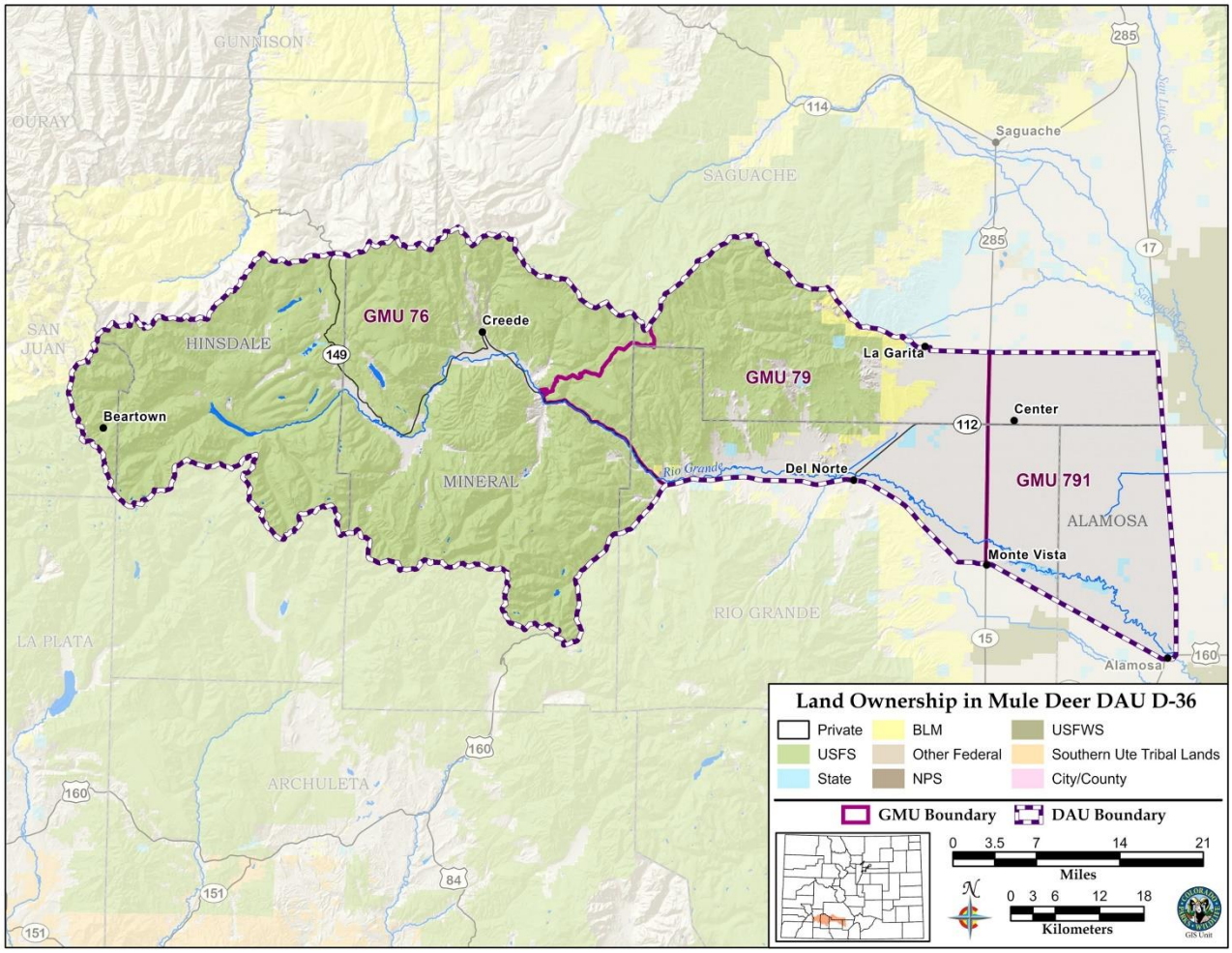
CPW Commission Approved Objectives:

Post-hunt Population: Pending

Post-hunt bull ratio: Pending

UPPER RIO GRANDE DEER HERD MANAGEMENT PLAN EXTENSION
DATA ANALYSIS UNIT D-36
Brent Frankland, Wildlife Biologist, Monte Vista

GMUs: 76, 79, and 791 **Last HMP Approved Year: 2022**
Post-hunt Population: Previous Objective: 2,200-2,800; 2022 Estimate: 2,600 deer. **Preferred Alternative: <u>Maintain population objective at 2,200-2,800 deer</u>**
<u>Post-hunt Sex Ratio (bucks:100 does)</u>: Previous Objective: 23-28; 2022 observed: 30; 3-yr average modeled: 29. **Preferred Alternative: <u>Status Quo at 23-28 bucks:100 does</u>**



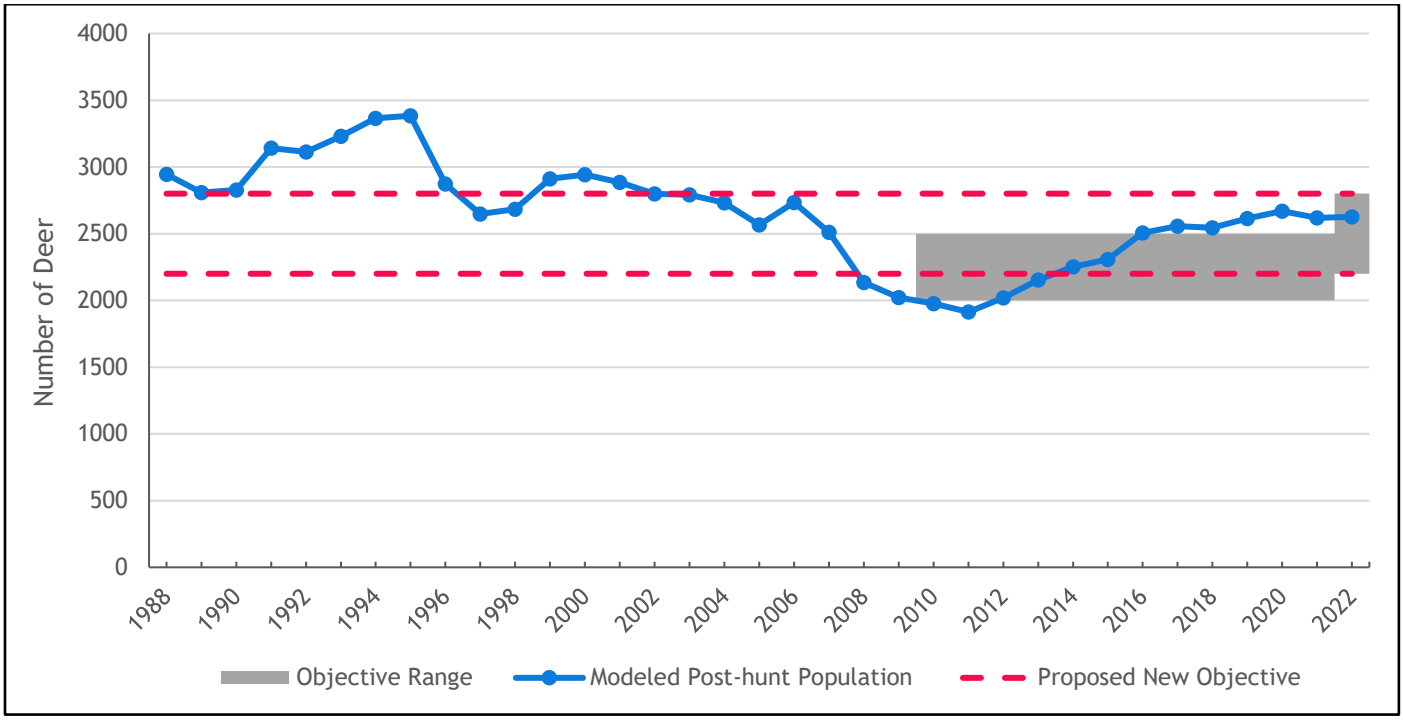


Figure D36-1. Deer DAU D-36 modeled post-hunt population and objective range, 1988-2022.

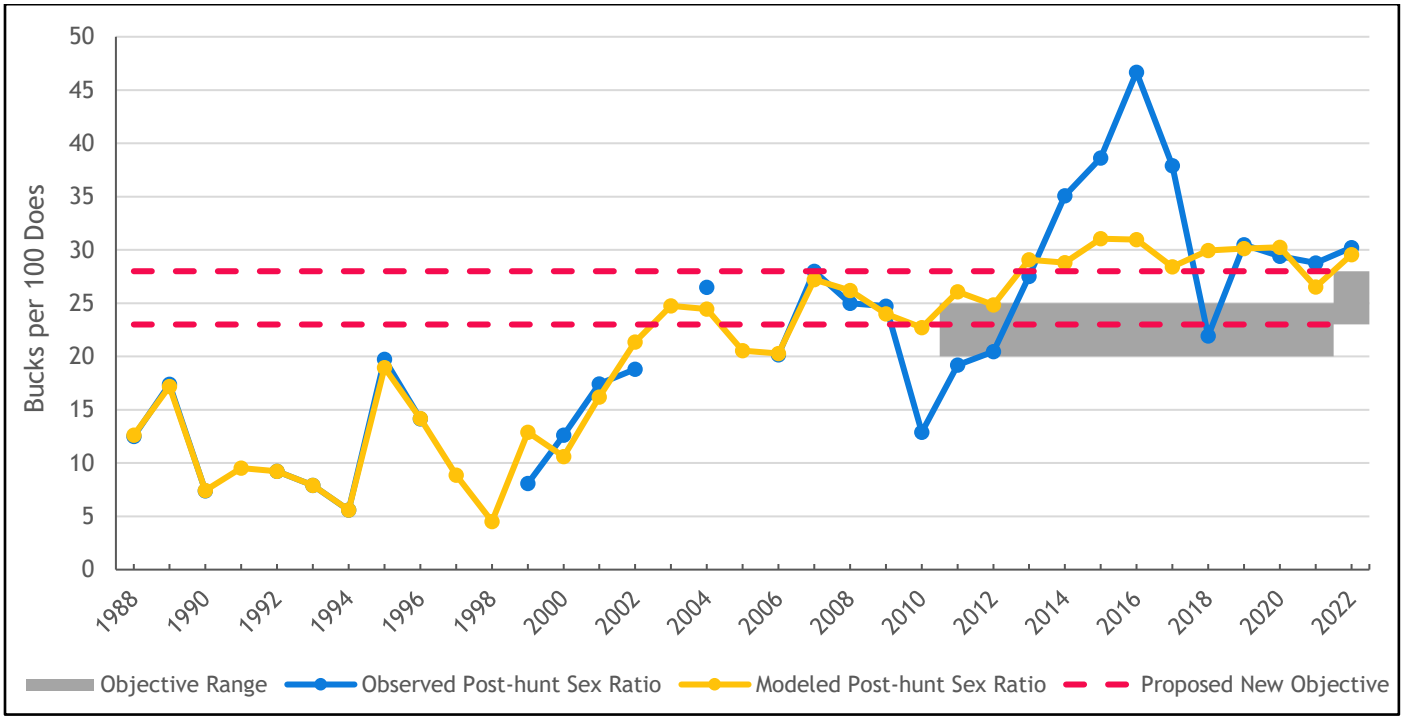


Figure D36-2. Deer DAU D-36 observed and modeled post-hunt sex ratio (bucks:100 does), 1988-2022.

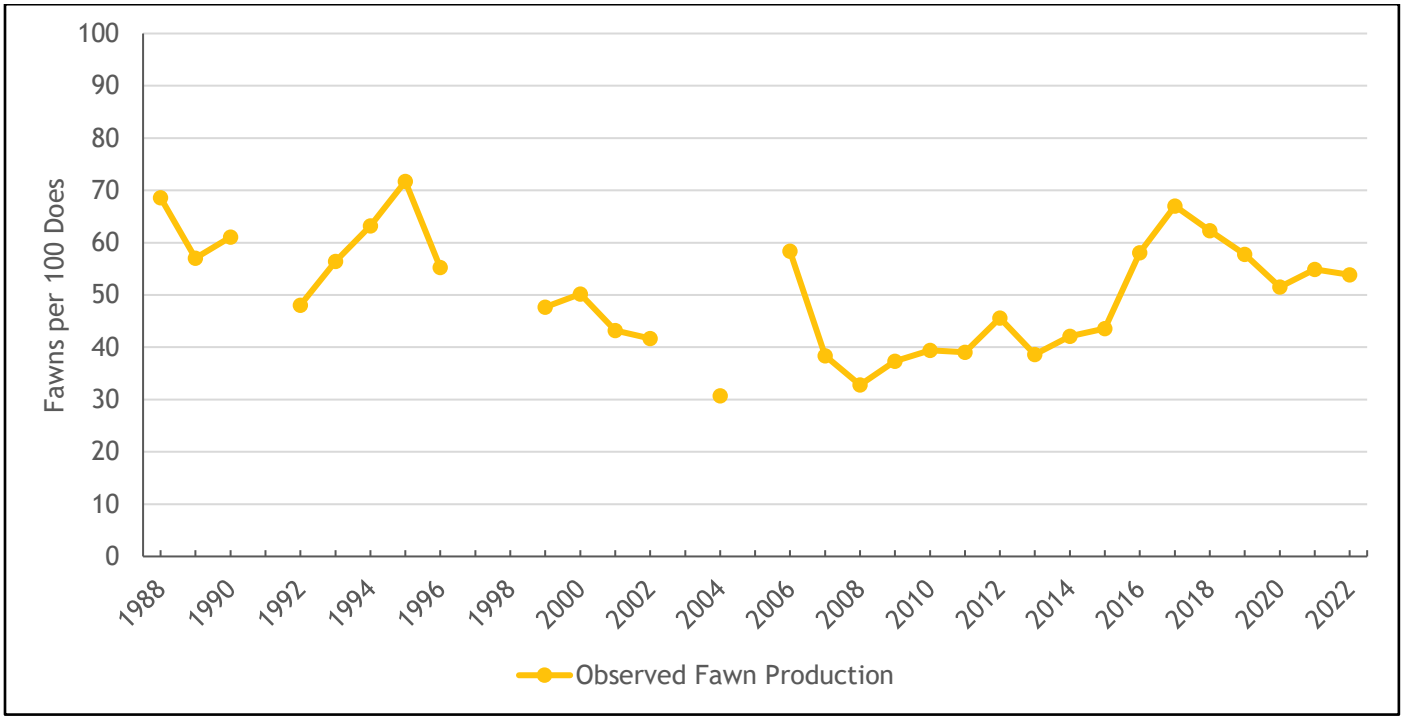


Figure D36-3. Deer DAU D-36 fawn production (observed post-hunt fawns:100 does ratio, 1988-2022).

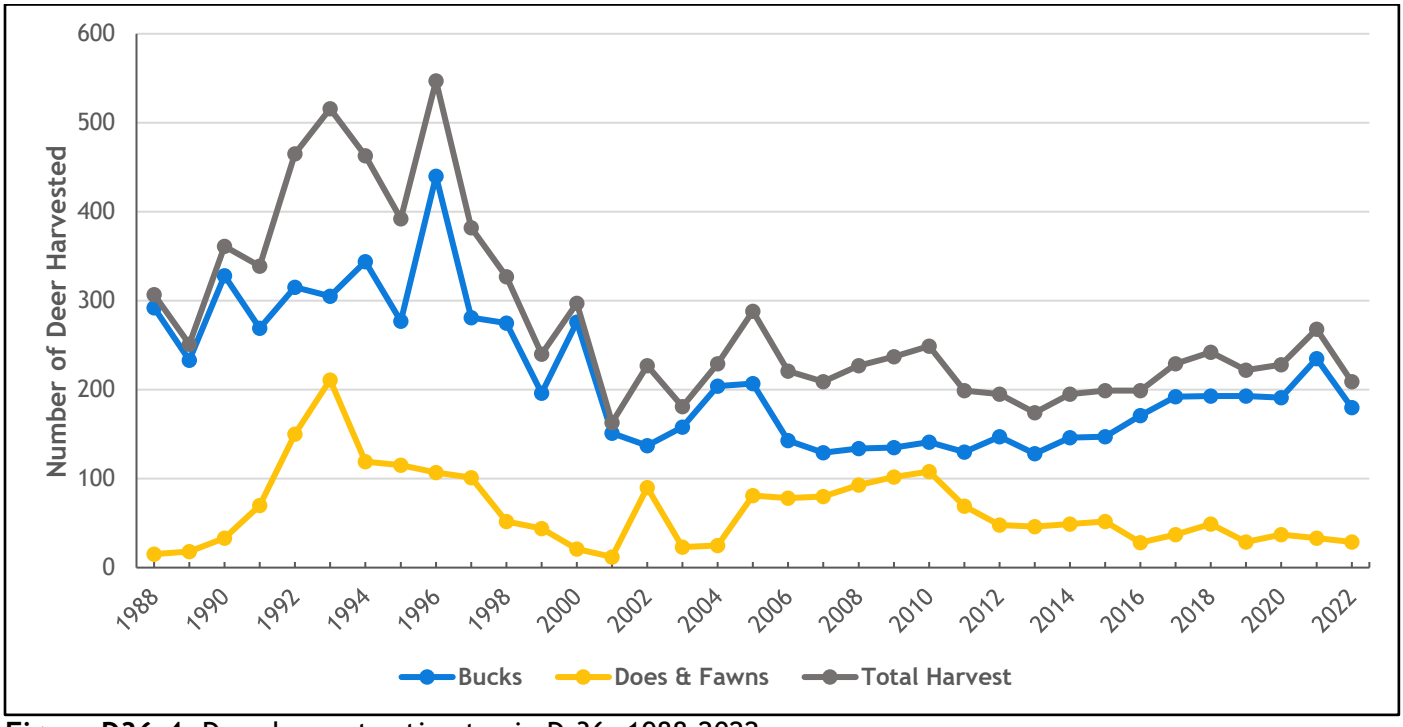


Figure D36-4. Deer harvest estimates in D-36, 1988-2022.

Background Information

The D-36 mule deer herd is in the western region of the San Luis Valley. The DAU (geographic area) comprises Game Management Units (GMUs) 76, 79, and 791, approximately 1,806 square miles. The mule deer winter range within the DAU includes roughly 352 square miles, whereas the summer range encompasses about 1,469 square miles. Portions of Alamosa, Hinsdale, Mineral, Rio Grande, Saguache, and San Juan counties make up the entire area. Public land constitutes about sixty-eight percent of the DAU, while the private sector owns almost thirty-two percent.

The estimated post-hunt population size for D-36 has been around 2,500 animals for the past five years. The population peaked at approximately 3,500 mule deer in 1995. Thereafter, the population declined for the next few years, ranging between 2,500 and 2,900 animals, until 2007. The population continued falling to its lowest level at roughly 1,900 animals in 2011. However, within the timeframe of the previous HMP, the population climbed to the upper end of the objective range. In 2022, CPW reassessed the population objective range to incorporate the trend more efficiently within management goals.

The D-36 observed sex ratio fluctuated but closely followed the model estimate until 1999, around 12 bucks per 100 does, at which time buck licenses became limited. From 2000, the sex ratio rose until 2009 (approximately 25 bucks per 100 does), then dropped in 2010 to about 13 bucks per 100 does. After that, the observed sex ratio continued rising to its highest level in 2016 (roughly 47 bucks per 100 does), fluctuating annually. In contrast, the model-estimated sex ratio has been trending above the 2010 objective range at around 29 bucks per 100 does. Since 2019, the observed sex ratio has been closer to the estimated value. In 2020, CPW detected a low prevalence of Chronic Wasting Disease (CWD) in the neighboring DAU (D-30), raising concerns about heightened sex ratios. Before CPW limited buck licenses in 1999, the annual buck harvest averaged approximately 294 animals in the DAU. Over the past ten years, buck harvest has averaged about 178 animals yearly. With a rising observed sex ratio, CPW increased the buck licenses slightly in 2017 in GMU 79 and 791 and again in 2018 throughout the DAU to curb the ascent and reduce it to the upper end of the objective range. Harvest from the additional licenses has leveled further increases in the trend. However, in 2022, CPW reassessed the sex ratio objectives, and an updated range was set to comply more accurately with management goals and constituents' desires.

Doe harvest has fluctuated since 1988, averaging roughly 62 animals annually. CPW removed doe licenses in GMU 76 in 2000. Over the previous ten years, the annual doe harvest from GMU 79 and 791 combined has averaged around 43 animals. Private-land-only (PLO) licenses, addressing depredation issues, are the most significant source of doe harvest.

The combined hunting-season success rates from 2013 to 2022 have averaged approximately fifty-five percent. However, harvest success rates are skewed between the archery, muzzleloader, and rifle seasons. The average archery success since 2013 is around twenty-eight percent. Comparatively, the second and third rifle seasons have averaged roughly fifty-six to fifty-eight percent, and the fourth rifle season's success has averaged about eighty-four percent over the past ten years. Since 2013, the muzzleloader season's success has fallen between the rifle and archery seasons, averaging almost forty-one percent.

Management Concerns

Significant factors limiting the D-36 population are the quantity and quality of winter range habitat. The winter range continues to diminish, with increased development on private land and competition with domestic livestock. Similarly, summer recreational activities continue to increase throughout the DAU. The various anthropogenic impacts may affect distribution, reproduction, and fawning efforts restricting population growth. Since 2015, CPW field personnel have observed improved fawn recruitment. The increased forage availability resulting from the 2013 West Fork Complex Fires may support a more robust deer herd; however, this results in a lack of cover for deer during significant winter storms.

Mule deer are not a significant problem on agricultural land in the DAU, and depredation concerns are minimal. CPW continues to provide game damage and dispersal licenses to private landowners to address issues. Localized problems may result from restricted mule deer distribution during the winter months. Private landowners who experience mule deer depredation issues can access various management tools CPW offers.

Management Alternatives

In 2022, CPW considered four alternatives for the post-hunt population size objectives and three alternatives for the post-hunt sex ratio objectives in Data Analysis Unit D36:

Table D36-1. Proposed population objective ranges for the 2024 D-36 HMP.

Post-hunt Population Objective Alternatives:	
1,800 to 2,300	(1) Approximately 10% decrease in objectives
2,000 to 2,500	(2) Status Quo
2,200 to 2,800	(3) Approximately 10% increase in objectives - APPROVED
2,400 to 3,000	(4) Approximately 20% increase in objectives

Table D36-2. Proposed buck ratio objective ranges for the 2024 D-36 HMP.

Post-hunt Buck Ratio Objective Alternatives:	
20 to 25 Bucks per 100 does	(1) Status Quo
23 to 28 Bucks per 100 does	(2) Increase buck ratio objective by approximately 3 bucks per 100 does - APPROVED
25 to 30 Bucks per 100 does	(3) Increase buck ratio objective by approximately 5 bucks per 100 does

Public Involvement

In the summer of 2021, CPW held a local public meeting in Creede, CO. Local constituents representing different community stakeholder groups attended the meeting. The overall view from the attendees was that they were somewhat pleased with deer management in the DAU. In addition, CPW provided an initial draft document online to the public for 30 days. CPW also sent the draft to the BLM, local county commissioners, the local Habitat Partnership Program (HPP) committee, and the U.S. Forest Service for commentary and feedback. The draft

allowed all constituents to participate in the public process, including non-consumptive recreationists, hunters, landowners, local stores, or business owners. CPW has re-examined and considered biological herd capabilities and social-political tolerance for this updated HMP. CPW will provide a draft of this HMP online for 30 days for public comment but proposes no changes to the objectives.

Preferred Management Objectives:

Post-hunt Population

The preferred management objective for D-36 is a post-hunt **population of 2,200 to 2,800 mule deer**, aiming to maintain management and sustain the herd at its current estimated population level, allowing for a slight increase. This objective range provides the best balance for managing the deer herd, hunting recreational opportunities, minimizing agricultural conflicts, and maintaining habitat-carrying capacity.

Post-hunt Sex Ratio

The preferred post-hunt sex ratio objective range for the D-36 mule deer herd is increasing the objective to **23-28 bucks per 100 does**. The range supports most stakeholder desires, preferring a slightly higher sex ratio objective in the DAU. A higher objective would reduce the need for an aggressive harvest from what CPW has observed. However, higher sex ratios may increase CWD risk. The preferred range allows for the best balance between satisfactory hunting experiences and the desired hunting opportunities.

Strategies for Achieving the Preferred Objectives:

Post-hunt Population – CPW will continue collecting annual inventory data and managing to the preferred mule deer population objectives. The population should persist as long as fawn recruitment remains strong without public land doe hunting licenses. Tools to control private land depredation issues will remain in place. CPW will consider doe harvest opportunities once the population estimate reaches the upper region of the preferred objective range or a significant deterioration in habitat conditions occurs.

Post-hunt Sex Ratio – CPW may need to increase buck-hunting opportunities until the observed sex ratio falls within the preferred objective range. After that, CPW will monitor the herd to maintain a balance between buck-hunting opportunities and the mature buck level relevant to the objective range. Expected harvest from the buck licenses should sustain an acceptable adult buck population and stakeholder satisfaction. The preferred objective would reduce the risk of CWD from the sex ratio levels CPW has observed in recent years.

CPW Commission Approved Objectives:

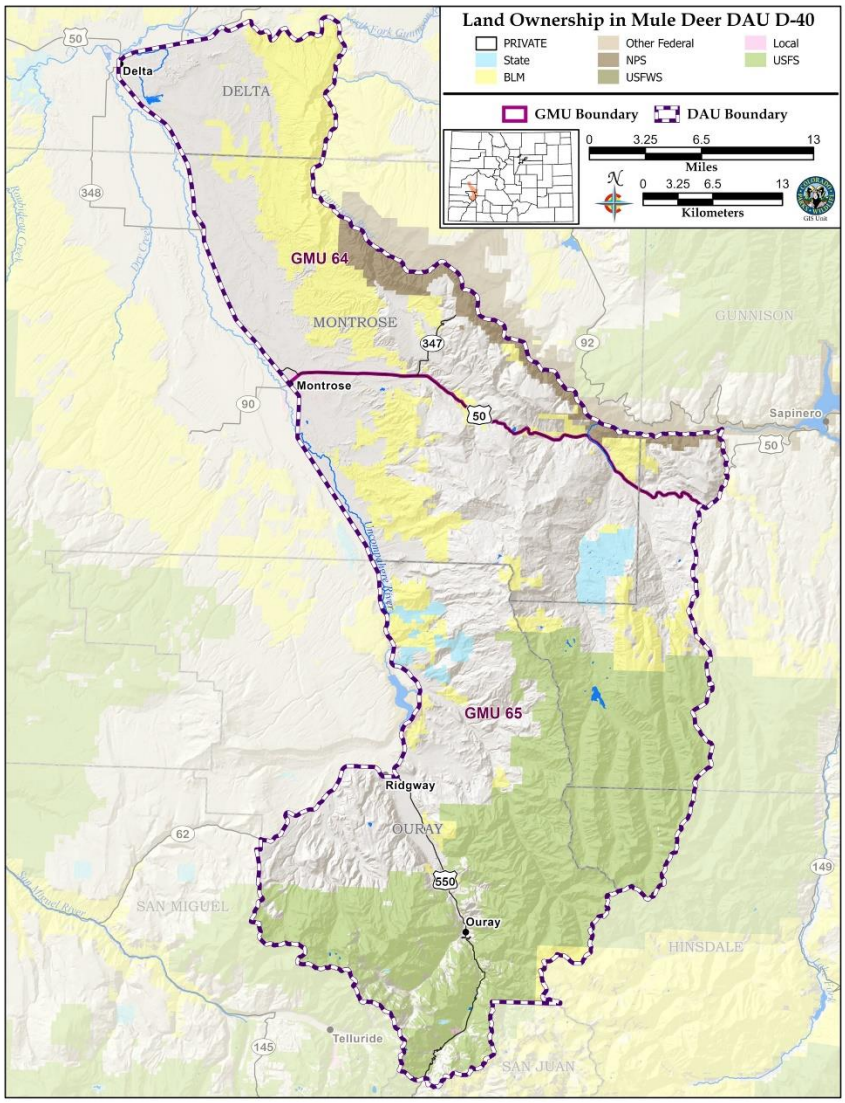
Post-hunt Population: Pending

Post-hunt bull ratio: Pending

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

Alyssa Kircher, Wildlife Biologist, Montrose

GMUs: 64 and 65 Last HMP Approval Year: 2022
Post-hunt Population: Previous Objective: 6,500-8,500; 2022 Estimate: 5,900. **Preferred Alternative: Extend the current population objective of 6,500-8,500 deer**
Post-hunt Observed Sex Ratio (bucks:100 does): Previous Objective: 25-30; 2022 observed: 23; modeled: 22. **Preferred Alternative: Amend the current sex ratio objective to 22-27 bucks:100 does**



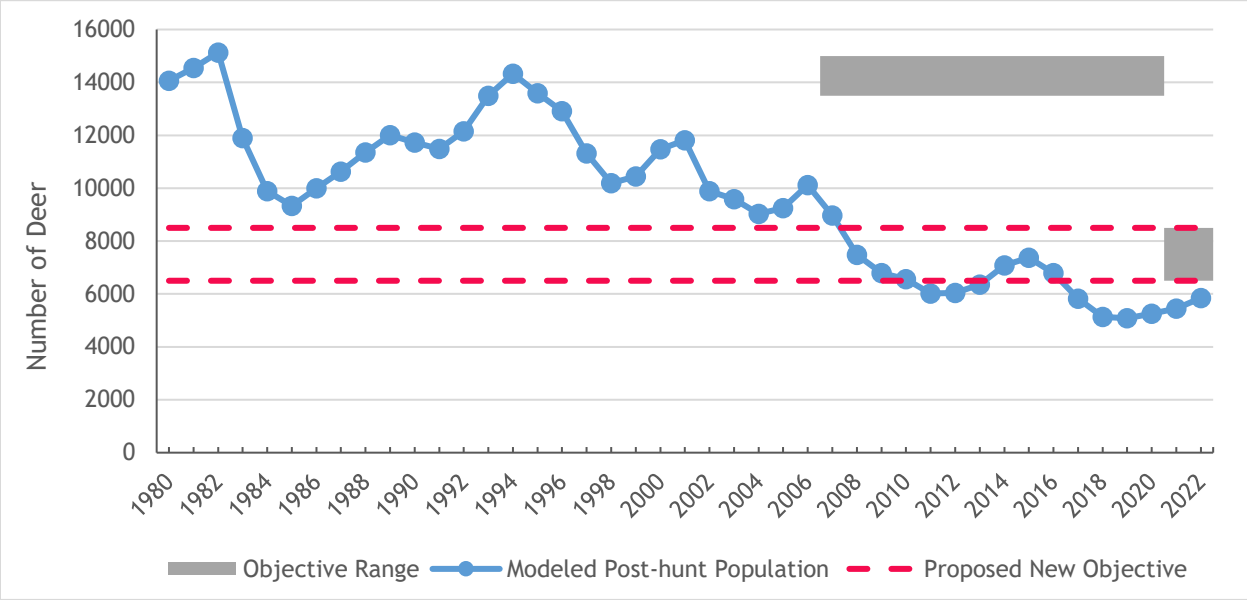


Figure D40-1. Deer DAU D-40 modeled post-hunt population and objective range, years 1980-2022.

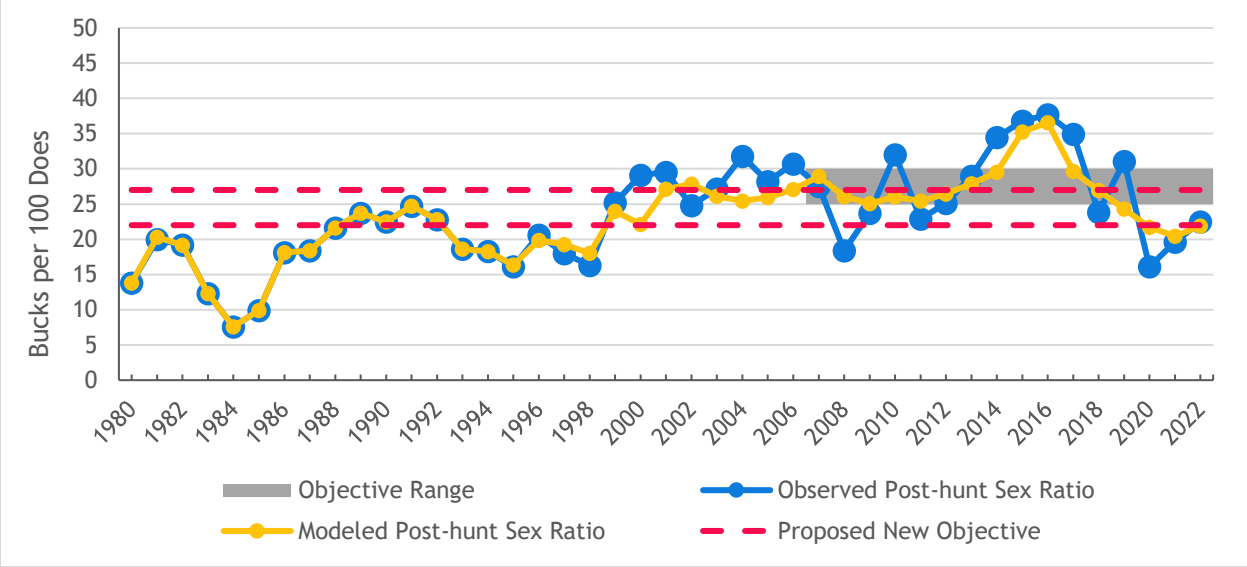


Figure D40-2. Deer DAU D-40 observed and modeled post-hunt sex ratio (bucks:100 does), years 1980-2022.

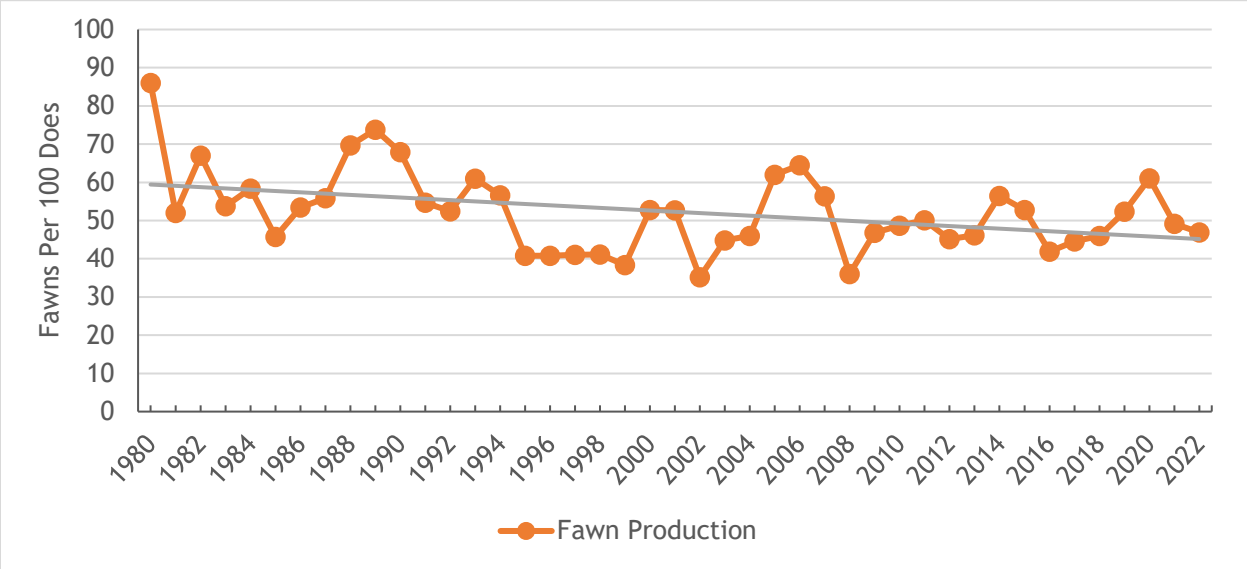


Figure D40-3. Deer DAU D-40 fawn production (observed post-hunt fawns:100 does ratio, years 1980-2022).

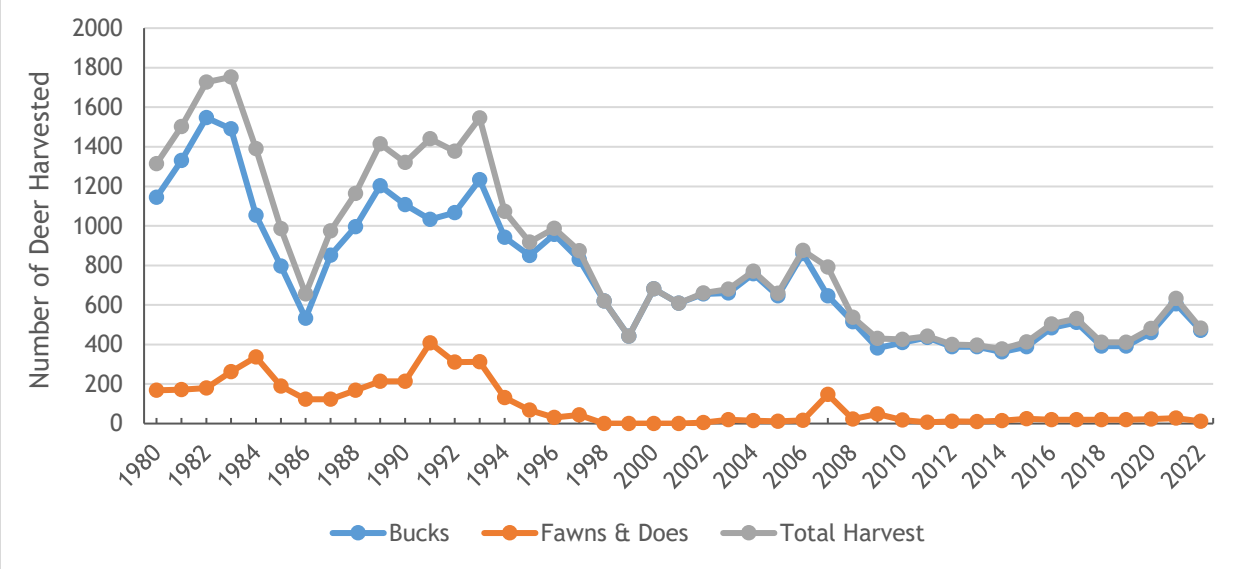


Figure D40-4. Deer harvest estimates in D-40, years 1980-2022.

Background Information

Data Analysis Unit (DAU) D-40 is 941 square miles in southwestern Colorado and includes parts of Delta, Gunnison, Hinsdale, Montrose, and Ouray Counties. DAU D-40 consists of Game Management Units 64 (GMU; 269 mi^2) and 65 (672 mi^2) and includes parts of the Uncompahgre, Gunnison, and Cimarron River drainages. 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. There are also two wilderness areas within the DAU: the Uncompahgre Wilderness (~99,000 acres of USFS and 3,400 acres of BLM) and Mount Sneffels Wilderness (16,500 acres of USFS).

Deer are found throughout the DAU. Deer occur in their highest densities in the summer months in higher elevations comprised of aspens, spruce, Douglas fir, and Gambel's oak. In the winter months, deer use the lower elevations and more arid environments of the DAU with pinyon-juniper forests and agricultural fields where the climate is milder. Important wintering areas for deer in GMU 64 include Bostwick Park, Jones Draw, the south side of Poverty Mesa, Coffee Pot Ridge, Cimarron Mesa, and Fitzpatrick Mesa. In GMU 65, important wintering areas include the Cimarron and Billy Creek State Wildlife Areas, Shinn Park, the area between Alkali Creek and Cow Creek, and Miller Mesa. A growing population of residential deer occupy agricultural fields in the Uncompahgre Valley paralleling US Highway 550 and US Highway 50.

DAU D-40 has been on an overall declining trend since the early 1990s. There have been a few small increases in the population over the last 30 years, but it has never recovered to its former high of approximately 15,000 deer in the early 1980s. The population has been on a slight increasing trend for the last five years. The 2007 herd population objective was 13,000-15,000 with an estimated 13,500 deer. The 2022 population was estimated at 5,900 deer. During the 2022 update of this HMP, CPW staff and public stakeholders stated a desired increase in deer populations above current modeled estimates. This plan was updated and approved by the Parks and Wildlife Commission (PWC) in 2022 with a new objective range of 6,500-8,500, acknowledging that the 2007 objective range would be difficult to achieve given current population trends.

The average observed and modeled post-hunt buck ratio over the last five years is 23 bucks:100 does. The buck ratio objective set and approved by the PWC in 2022 was 25-30 bucks:100 does. For the 2024 HMP revision, CPW recommends a lower buck ratio of 22-27 bucks:100 does to better reflect current ratio trend within this herd. Observed post-hunt fawn ratios averaged 51 fawns:100 does over the last five years. Fawn to doe ratios have declined slightly over the previous three years.

Harvest in DAU D-40 has remained stable over the last 10 years. Harvest averaged approximately 460 deer per year the previous ten years compared to about 1,300 deer from 1980-1990 when this population peaked and deer licenses were not yet limited statewide. Preference point minimums for licenses in D-40 range from 0-5 points, with some licenses drawing out as second choice or leftover (depending on residency). Antlerless licenses are limited to private-land-only and game damage licenses to control resident deer populations and minimize game damage in the Uncompahgre Valley. In 2022, 471 bucks and 11 does were harvested by 1,070 hunters with a success rate of 45%.

As a result of persistently declining deer populations on the Uncompahgre Plateau and across the west, CPW and other agencies and organizations have searched for solutions. CPW limited license numbers and established the Uncompahgre Plateau (D-19), adjacent to D-40, as an intensive deer study area beginning in 1997 to monitor over-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 various reasons. Suitable winter range habitat has diminished due to land conversions and human development. As human populations rise, vehicle traffic increases, impacting deer survival rates and movement patterns. Roadkill along the US Highway 550 corridor is prevalent, especially for deer. In response to increased wildlife-vehicle collisions, exclusion fencing and jump-outs were added to the highway right-of-way to keep wildlife from entering roadways. Exclusion fencing can inadvertently impact movement within home ranges without adequate crossing structures. CPW, CDOT, and other partners are working to increase permeability on this stretch of highway. Additionally, outdoor recreation has increased dramatically over the last decade. Recreation can have many impacts including loss of effective habitat, changes in seasonal migration patterns, and potentially lower survival rates. Historical and current overgrazing by domestic livestock, persistent drought, and competition with elk have all contributed to decreased habitat quality across the landscape.

Although claims for deer damage are not excessive and are currently lower than historic levels, there are still deer damage claims every year. Game damage outside of the claims process is increasing in the Montrose County portion (Uncompahgre Valley) of the DAU due to an increasing non-migratory deer herd residing year-round on agricultural land. Game damage complaints have decreased in Ouray and Gunnison County portions of the DAU. Frequently, prevention materials and game damage distribution management hunts are requested and given to landowners to proactively deal with damage before a claim is made. These methods also increase landowner tolerance for wildlife on private properties.

Additionally, Chronic Wasting Disease (CWD) is present in D-40. This disease occurs in deer, elk, and moose. CWD is an infectious prion (misfolded protein) disease that affects the nervous system over approximately three years. 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. CWD was first detected in D-40 in 2017 and the current estimated prevalence rate is 3.7% in the DAU. 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 GMUs 62, 64, and 65 when only resident deer are located in the Uncompahgre Valley. This hunt allows hunters to target deer that are more likely to transmit CWD to higher-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 Alternatives

Post-hunt population and buck ratio objective alternatives considered for the 2024 D-40 HMP:

Table D40-1. Proposed population and buck ratio objective ranges for the 2024 D-40 HMP.

Population Objective Alternatives:		Buck Ratio Objective Alternatives:	
6,500 to 8,500 (midpoint 7,500)	**(1) Preferred- (Status Quo) 27% increase in the current population estimate to the middle of the proposed objective range.**	**22 to 27 bucks per 100 does**	**(3) Preferred**
4,000 to 6,000 (midpoint 5,000)	(2) Approximately 15% decrease in the current population estimate to the middle of the proposed objective range. Current population estimate is within this range.	25 to 30 bucks per 100 does	(2) status quo from 2022 HMP
5,000 to 7,000 (midpoint 6,000)	(3) Approximately 2% increase in the current population estimate to the middle of the proposed objective range. Current population estimate is within this range.	30 to 35 bucks per 100 does	(3)

Management Objectives

CPW plans to increase populations to meet stakeholder and CPW staff desires. Overall, the DAU's habitat carrying capacity has likely decreased compared to historic plans, and current habitat likely cannot support historic deer numbers. However, increasing this herd slightly would align with stakeholder desires (Alternative 1). Decreasing this herd is not desired and would be difficult because the demand for limited licenses is already lower than the quota offered for some licenses (Alternative 2). Increasing license numbers would not necessarily increase harvest. It could also make encountering animals on public lands more difficult because increased pressure on public lands could cause deer to move onto private lands that do not allow hunting or only allow limited hunting. A 2% increase is attainable with the current population, but a larger increase is desired by CPW and stakeholders (Alternative 3).

CPW would like to amend the buck ratio slightly to better reflect how current buck ratios are trending. Stakeholders desire more mature bucks on the landscape; however, CPW feels that the buck ratio should be reflective of allowing opportunity to hunt deer with consideration given to management of CWD prevalence. The preferred objective of 22-27 bucks per 100 does overlaps the current objective range and is a decrease from the current ratio objective (Alternative 1). The current plan's buck ratio of 25-30 bucks per 100 does has not been achieved since 2019 (Alternative 2). The current 3-year average has hovered around 19 bucks per 100 does. The preferred objective allows for a balance of opportunity for hunters to get a deer license, allows for diverse ages of bucks on the landscape, and allows CPW to work to keep CWD prevalence in check. Increasing the buck:doe ratio to 30-35 bucks:100 does would necessitate a reduction in the current number of deer licenses in this DAU (alternative 3). Increasing the observed buck:doe ratio would be difficult to achieve with so few bucks already on the landscape and slow population growth. Increasing the number of mature bucks on the landscape would have potential to contribute to an increase in CWD prevalence (since mature bucks are more likely to have CWD). For this reason, an increased buck ratio would not be a preferred alternative.

Strategies for addressing management issues and achieving objectives

The population in D-40 has had low fawn recruitment (survival of a fawn from birth to one year of age) in recent years. The population faces reduced habitat availability from increased development and recreation, a decline in habitat quality due to drought and competition with livestock and elk, and a lack of habitat connectivity. These impacts have contributed to reduced population performance for the last decade.

CPW manages sex ratios and population size by increasing or decreasing licenses by total quota, by season, and by sex, depending on the objectives for each herd. This herd has historically been managed for a balance of opportunity and population growth, and staff would like to continue this management strategy. Additionally, the last several years have been managed proactively to limit CWD spread. Although the prevalence is low, this as an important strategy to continue into the future. Antlerless game damage licenses would still be available for landowners to deter deer from causing damage and to increase landowner tolerance, but antlerless licenses are not anticipated to be available in the draw for the near future until populations recover. Buck licenses will continue to be offered to manage CWD concerns and allow for moderate hunting opportunity. Additionally, predator and competing ungulates will continue to be managed.

In addition to license management, CPW recognizes the importance of habitat protection and habitat quality improvement. CPW will continue to support conservation easements that benefit big game habitat and protect habitat connectivity between seasonal ranges. In addition, CPW will continue to support projects that aid in movement across the landscape for wildlife and keep people safe on the roads with structures like underpasses and overpasses. CPW regularly communicates with land management agencies such as the USFS and BLM, landowners, county governments, CDOT, and NGOs and will continue to collaborate with these government agencies and organizations. These agencies can help with large-scale habitat management projects to improve carrying capacity and connectivity and regulate recreation on public lands, which could bolster struggling deer populations, like D-40.

Stakeholder Outreach

During the stakeholder outreach process for the 2022 Herd Management Plan revision, surveys designed with hunters and landowners in mind were sent on September 17, 2021 with an input period ending on October 29, 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 who have expressed interest in herd management. There were 374 respondents to the survey, providing CPW with a comprehensive view of stakeholder thoughts and opinions. Overall, respondents were evenly split between increasing or decreasing the herd and preferred for the buck ratio to remain status quo.

Additionally, hunters were randomly selected to complete the 2022 Deer Hunter Attitude Survey after the completion of their hunting seasons. There were 274 respondents who answered the opt-in questions for D-40. Overall, hunters wanted to see a slight to moderate increase in the deer population and were satisfied with their overall hunting experience. Hunters also preferred hunting bigger bucks (higher buck ratio) than hunting more often (lower buck ratio). The majority of respondents also did not feel crowded while deer hunting.

The draft HMP for D-40 will be sent to local county commissioners in Delta, Gunnison, Montrose, Hinsdale, and Ouray Counties. Draft plans will also be sent to the HPP, USFS, the BLM, and Backcountry Hunter and Anglers (BHA). The HMP will be posted on the CPW website for 30 days, allowing stakeholders to comment on the alternatives in the plan.

CPW Commission Approved Objectives:

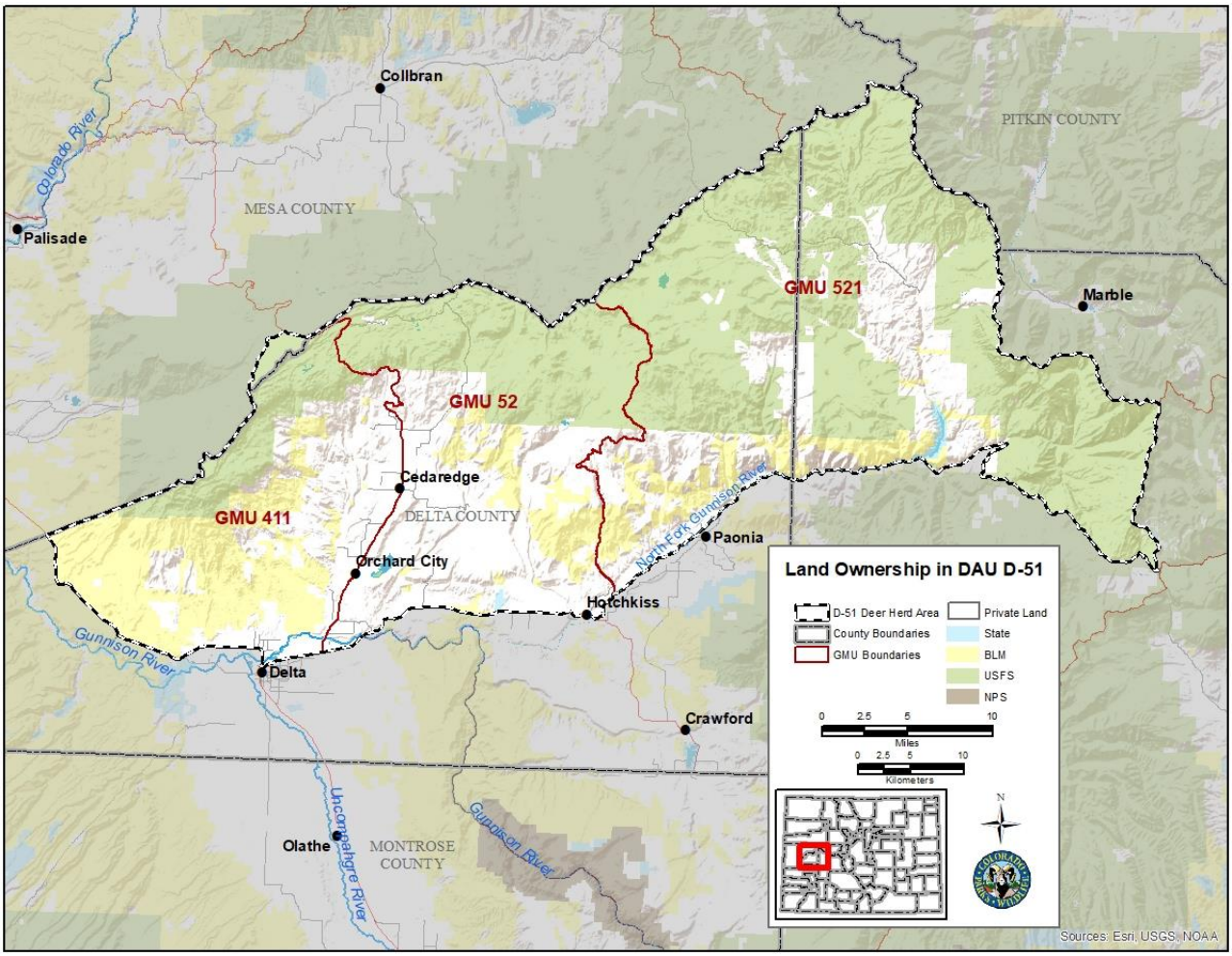
Post-hunt Population: Pending

Post-hunt buck ratio: Pending

SOUTH GRAND MESA DEER HERD MANAGEMENT PLAN EXTENSION
DATA ANALYSIS UNIT D-51

Evan Phillips, Wildlife Biologist, Montrose

GMUs: 52, 411, 521 Last HMP Approval Year: 2018
Post-hunt Population: Previous Objective: 8,000 – 10,000; 2022 Estimate: 9,100. **Preferred Alternative: Extend the current population objective of 8,000 - 10,000 Deer**
Post-hunt Observed Sex Ratio (bucks:100 does): Previous Objective: 25-30; 2022 observed: 24; modeled: 36 **Preferred Alternative: Extend the current sex ratio objective of 25-30 bucks:100 does**



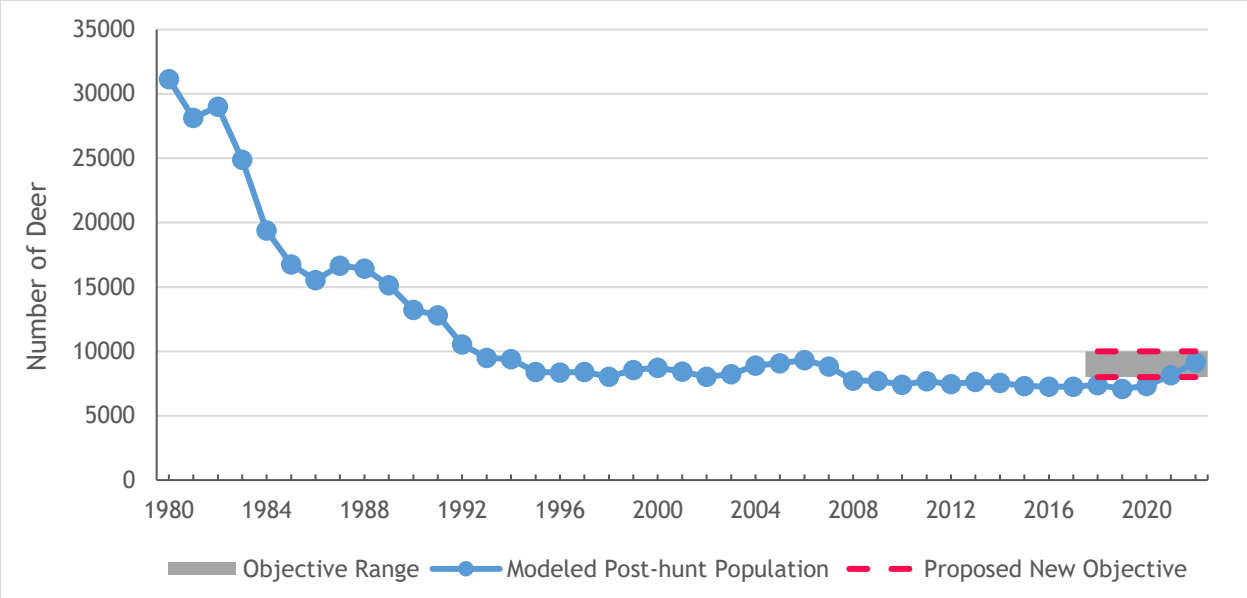


Figure D51-1. Deer DAU D-51 modeled post-hunt population and objective range, years 1980-2022.

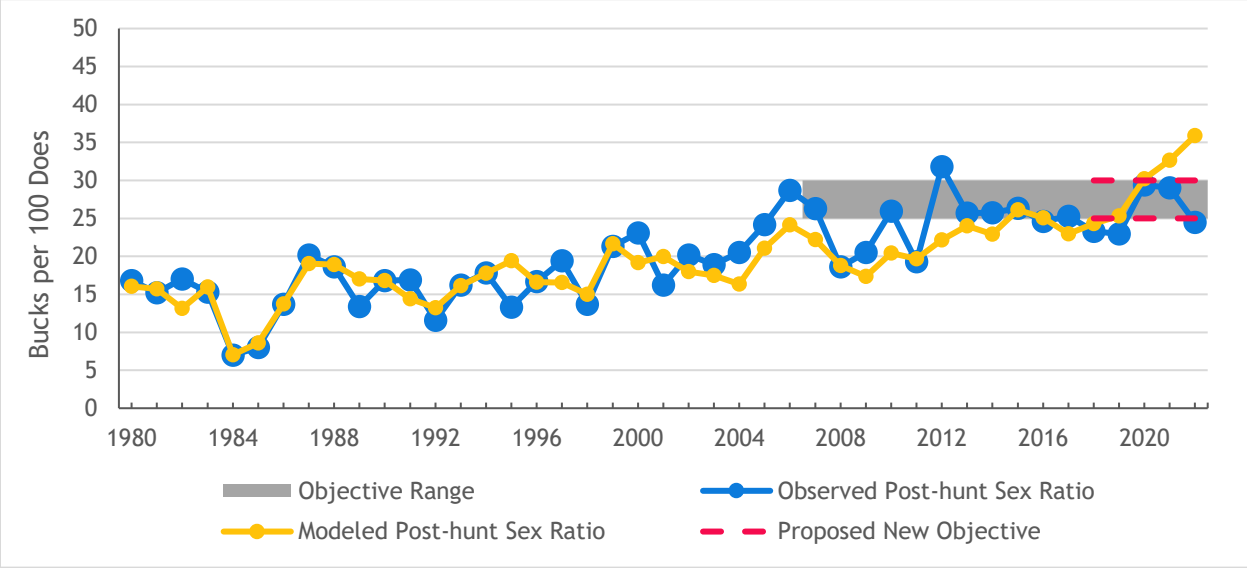


Figure D51-2. Deer DAU D-51 observed and modeled post-hunt sex ratio (bucks:100 does), years 1980-2022.

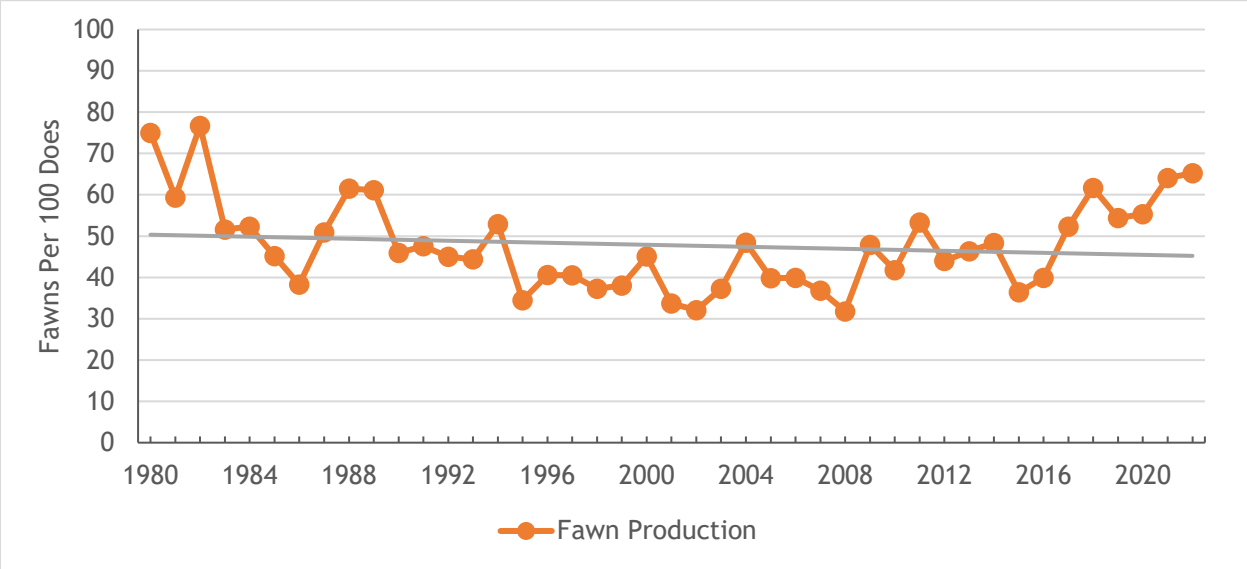


Figure D51-3. Deer DAU D-51 fawn production (observed post-hunt fawns:100 does ratio), years 1980-2022.

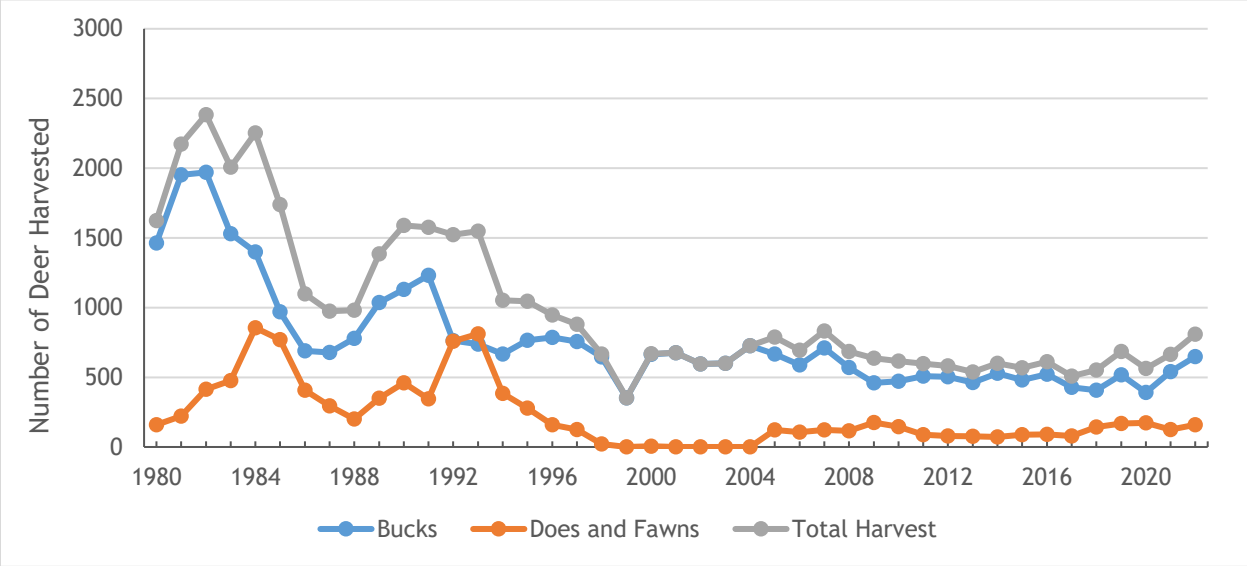


Figure D51-4. Deer harvest estimates in D-51, years 1980-2022.

Background Information

Data Analysis Unit (DAU) D-51 is 1002 square miles in southwestern Colorado and includes parts of Delta, Gunnison, and Mesa Counties. DAU D-51 consists of Game Management Units (GMUs) 52, 411, and 521. Land ownership in DAU E-43 is 35% private and 65% public (US Forest Service, Bureau of Land Management, National Park Service, and the State of Colorado). There is one wilderness area within the DAU: Raggeds Wilderness.

Deer occur throughout GMUs 52, 411, and 521, but migratory behavior determines spatial and temporal density across the units. The Herd Management Plan was revised in 2018 and the

population objective was set to 8,000 to 10,000, which, following public input, targeted increasing the population from the current population at that time. It is well documented that overall, the population of mule deer on the South Grand Mesa, and most of Colorado, has experienced significant declines since the 1980s (Gill et al. 2001). From 1995 to 2020, the South Grand Mesa deer herd population was estimated to be relatively stable at an average of 8,000 deer (Figure D51-1). The estimated population has increased slightly the last few years; the 2022 post-hunt population was 9,100 deer, which is within the population objective range.

The average observed post-hunt sex ratio between 1980 and 2022 was 20 bucks:100 does. The average observed post-hunt sex ratio from 2018 to 2022 was 26 bucks:100 does (Figure D51-2), within the current sex ratio objective of 25-30 bucks:100 does. The 2018 – 2022 fawn: doe ratio was 60 fawns per 100 does. This fawn: doe ratio has increased by approximately 15 fawns per 100 does in a 10-year period; the 2007-2017 average was 43 fawns per 100 does (Figure D51-3).

Deer harvest since 1999, when deer licenses in GMUs 52, 411, and 521 were changed from unlimited to limited, is a function primarily of license allocation and season structure. Weather also plays a role in harvest by affecting success rates. From 2018 to 2022 an average of 501 bucks were harvested annually in D-51 (Figure D51-4). Antlerless licenses were not issued from 1999 to 2004 in an attempt to address deer population declines from the 1980s through the 1990s. In 2005, antlerless deer licenses were issued with private-land-only restrictions to help private landowners alleviate agricultural damage due to deer.

Significant Issues

Habitat loss and degradation is occurring in D-51 due to increased pressures of human population growth and development and recreation uses of the land, similar to the rest of the Southwest Region of Colorado. Ongoing drought and climate change also negatively impacts the quality of deer habitat that remains. Non-migratory resident deer populations within the developed areas of Cedaredge and the surrounding communities have increased in recent years and problems such as road kill and damage to private property are increasing.

Diseases are an issue in the South Grand Mesa deer herd. Chronic wasting disease (CWD) has been documented with a prevalence rate of 7% in GMU 52, 411, and 521 during mandatory testing in 2020 and 2021. A new early rifle either-sex private-land-only deer season was started to encourage more harvest in specific areas within the DAU to help reduce prevalence and target the lower end of the buck:doe ratio. Epizootic Hemorrhagic Disease Virus (EHDV) has been documented in this area and although mule deer are relatively more resistant than other species, it can impact the population in some cases.

Management Alternatives

Three post-hunt population objective alternatives were considered in 2018 for D-51:

Table D51-1. Proposed population objective ranges considered in 2018 for the D-51 HMP.

Post-hunt Population Objective Alternatives:	
8,000 to 10,000 (midpoint 9,000)	**(1) Approximately 10% increase from the current population estimate** (STAFF PREFERRED)
7,500 to 9,500 (midpoint 8,500)	(2) Maintain current population size
6,000 to 8,000 (midpoint 7,000)	(3) Approximately 10% decrease from the current population estimate

Three post-hunt sex ratio objective ranges were considered in 2018 for D-51:

Table D51-2. Proposed sex ratio (bucks:100 does) objectives ranges considered for the 2018 D-51 HMP.

Post-hunt Sex Ratio Objective Alternatives:	
20-25 bucks:100 does	(1) Decrease from the current sex ratio objective range
25-30 bucks:100 does	(2) Maintain the current sex ratio objective range (STAFF PREFERRED)
30-35 bucks:100 does	(3) Increase from the current sex ratio objective

Management Objectives

CPW's staff-preferred objective is to extend the D-51 management objectives approved in the 2018 HMP. Continuing to manage to deer population objectives set in 2018 should not significantly increase conflicts with agriculture producers and aligns with the public's desire for this herd based on public involvement. Managing for 25-30 bucks:100 does also corresponds to the majority of responses from public participation.

Stakeholder Outreach

In 2017, an extensive stakeholder outreach process was conducted, which included a public scoping meeting, a public input survey, a survey of landowners and randomly selected license holders from 2015-2017, and a 30-day open comment period of the draft plan. (Appendix D51-A).

CPW Commission Approved Objectives:

Post-hunt Population: Pending

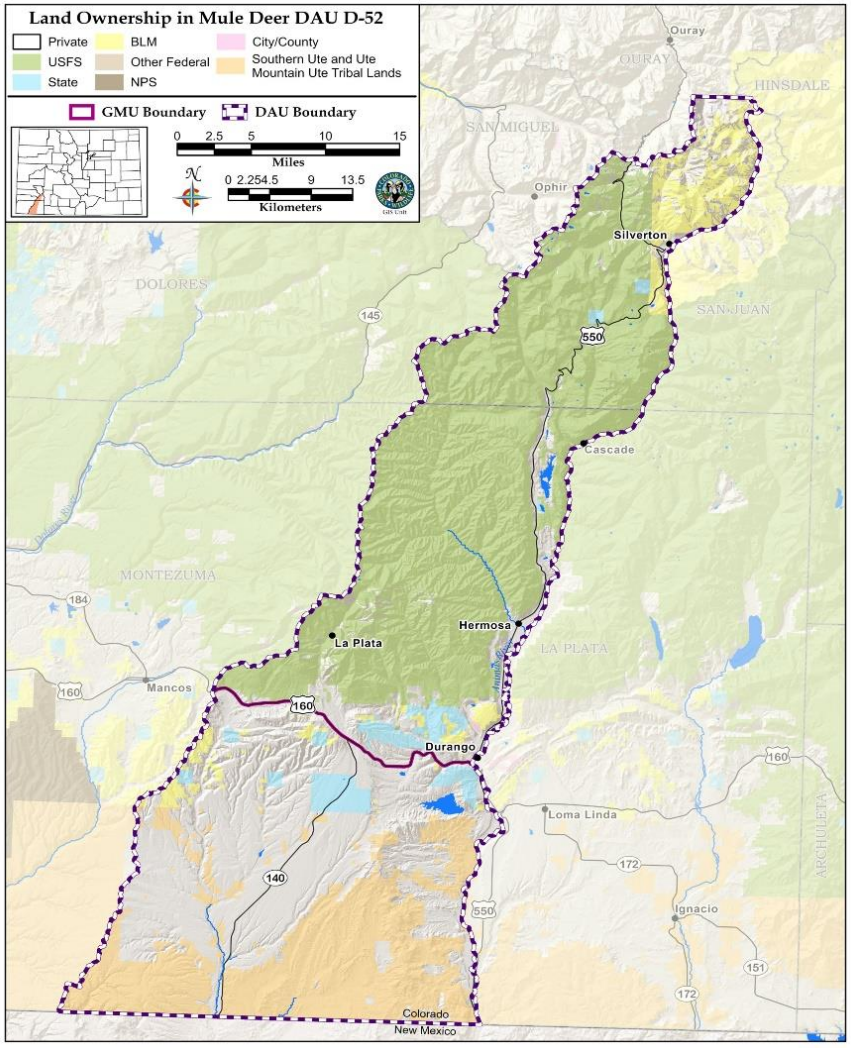
Post-hunt buck ratio: Pending

HERMOSA MULE DEER HERD MANAGEMENT PLAN
DATA ANALYSIS UNIT D-52

Brad Weinmeister, Wildlife Biologist, Durango

October 2023

Hermosa Deer Herd (DAU D-52)	**GMUs: 74 and 741**
Post-hunt Population: Previous Objective: 4,000-6,000 2022 Estimate: 4,500 **Preferred Alternative: 4,000-6,000 deer**	
Post-hunt Sex Ratio (bucks:100 does): Previous Objective: 25-30 2022 observed: 36; modeled: 24 **Preferred Alternative: 25-30**	



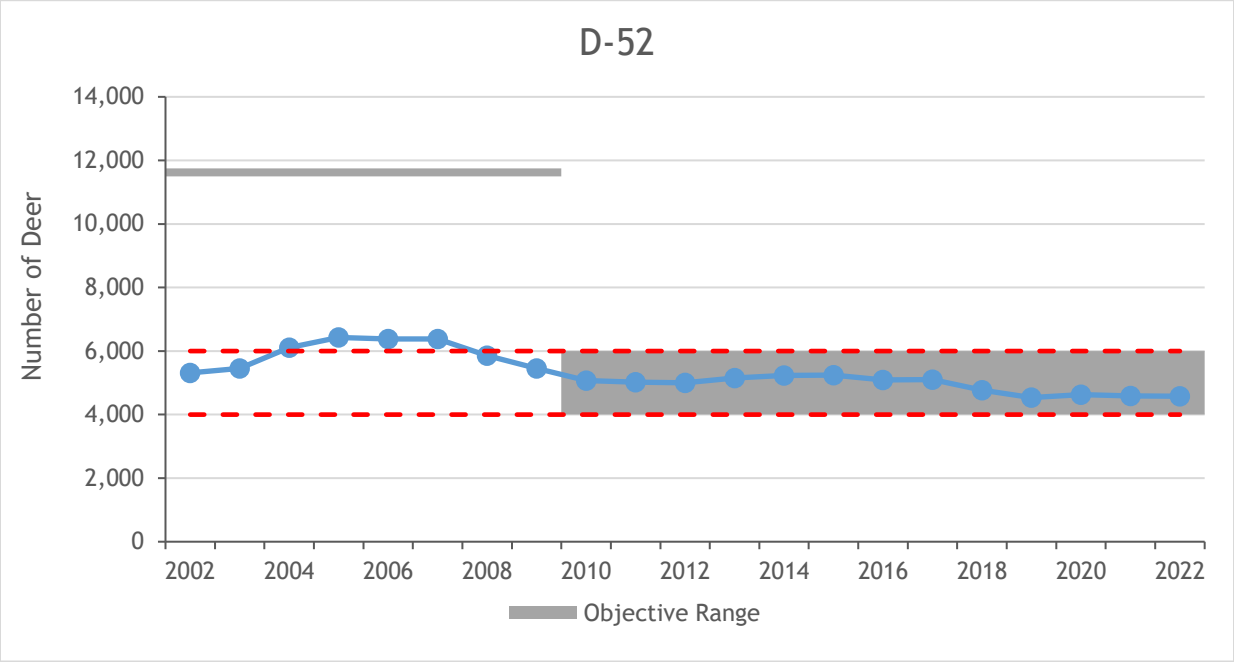


Figure D52-1. Deer DAU D-52 modeled post-hunt population estimate and objective range, years 2002-2022.

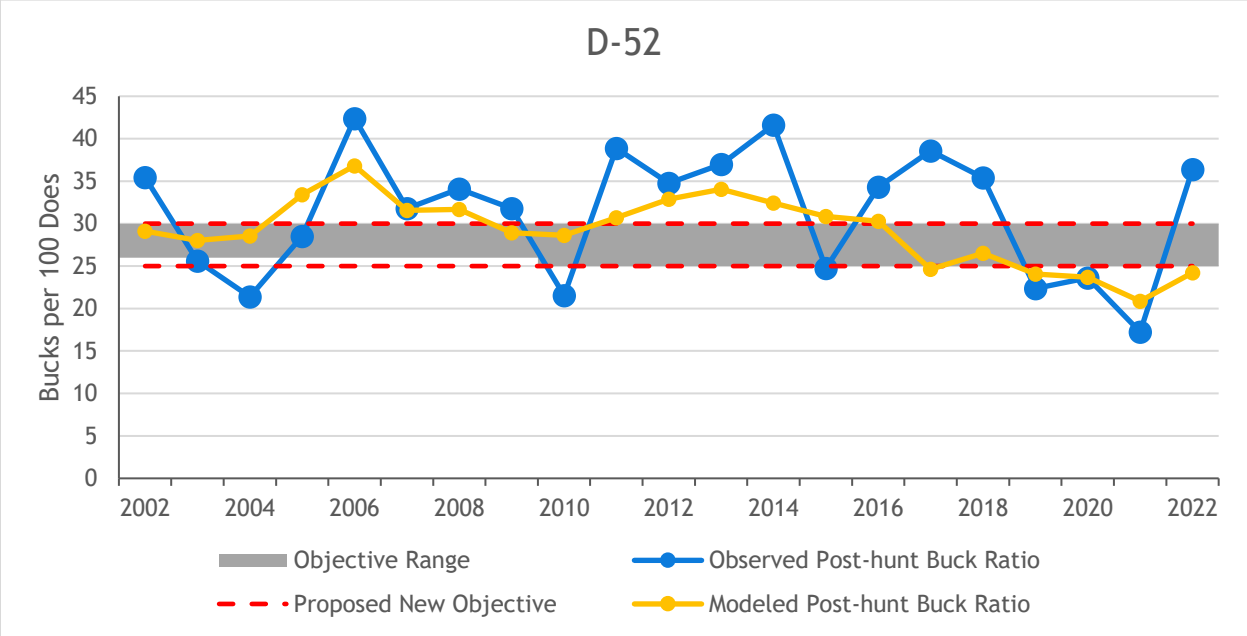


Figure D52-2. Deer DAU D-52 observed and modeled post-hunt sex ratio (bucks:100 does), years 2002-2022.

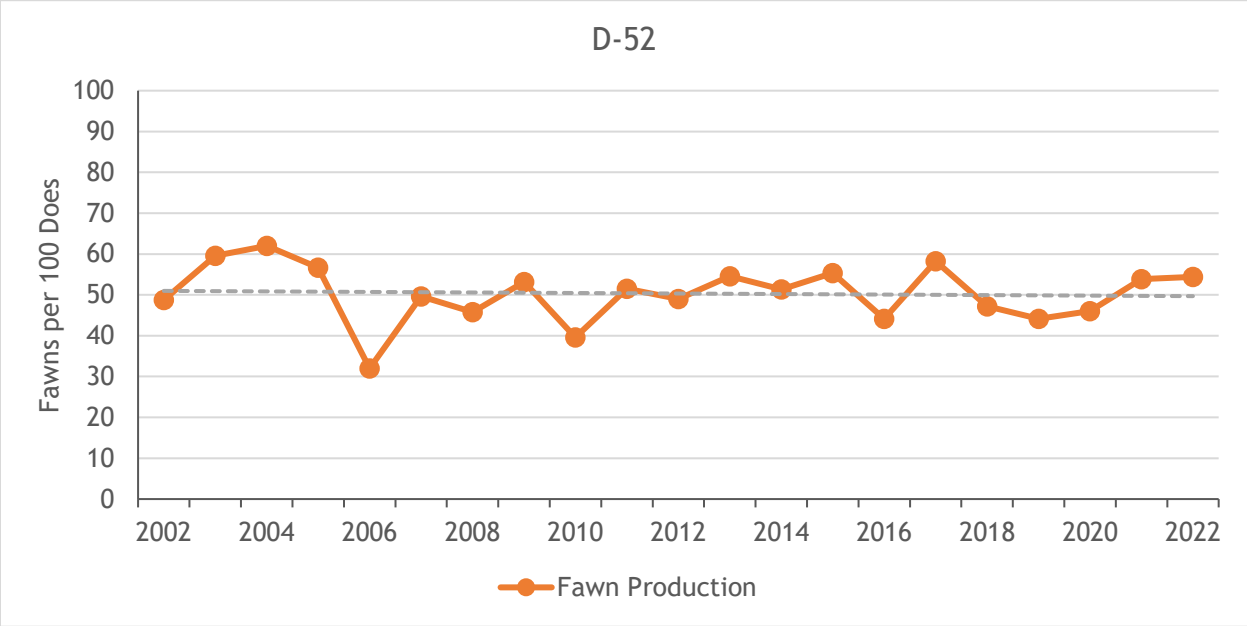


Figure D52-3. Deer DAU D-52 fawn production (observed post-hunt fawns:100 does ratio, years 2002-2022).

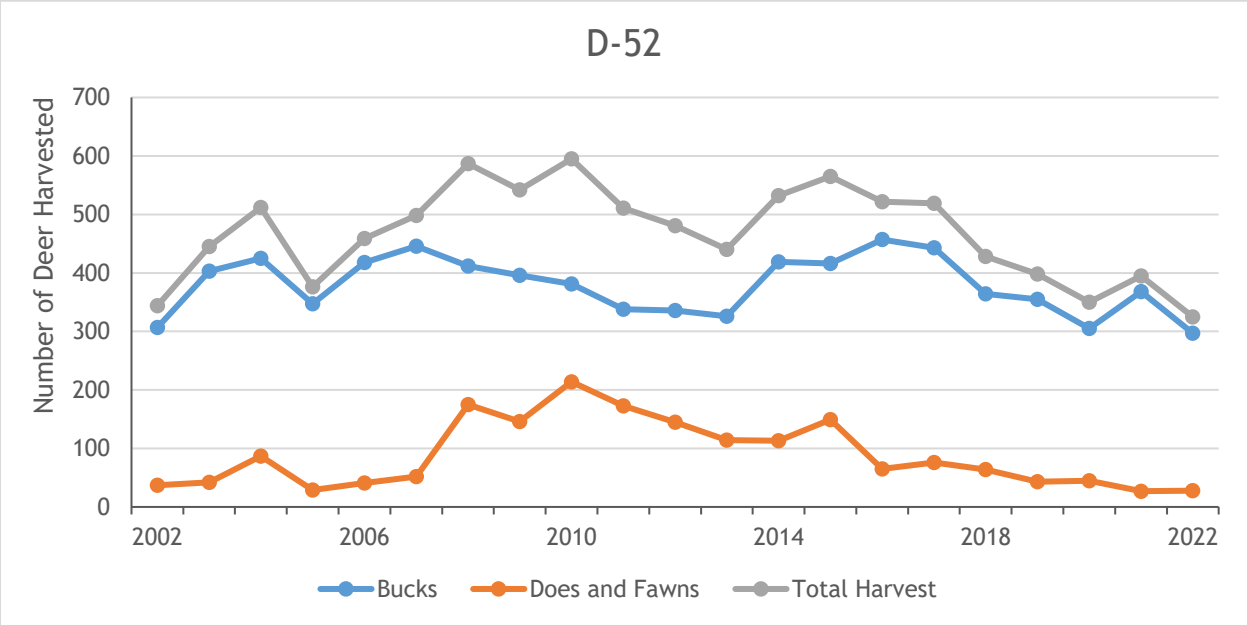


Figure D52-4. Deer harvest estimates in D-52, years 2002-2022.

Background Information

The Hermosa Deer Population consists of Data Analysis Unit (DAU) D-52. It is located in the southwest corner of Colorado and contains Game Management Units (GMUs) 74 and 741. The DAU is 1,000 square miles and includes portions of La Plata and San Juan counties. D-52 is bounded on the north by the Continental Divide, on the south by the New Mexico state line, on the east by the Animas River, and on the west by the Dolores/Animas watershed divide. The towns of Durango, Silverton, Hesperus, and Breen occur within the DAU. Land ownership is composed of 42% U.S. Forest Service (which includes the Hermosa Creek Special Management Area and Wilderness Area), 5% Bureau of Land Management, 32% private land, and 17% Southern Ute Tribal (SUIT) land.

The current post-hunt population objective of 4,000-6,000 deer was set in 2010. Over the past 20 years the deer population has been on a declining trend and has been estimated between 4,500 (2019) and 6,400 (2005) (Figure D52-1). The population has been stable over the past three years and the 2022 population was estimated at 4,600 deer.

The average observed post-hunt buck ratio from 2002 to 2022 was 31 bucks:100 does (Figure D52-2). The observed three-year average (2020-2022) of 26 bucks:100 does is at the lower end of the post-hunt buck ratio management objective. Observed buck numbers have fluctuated a lot, most likely from observer bias or error rather than from changes in buck numbers. Observed post-hunt fawn ratios averaged 50 fawns:100 does (range 32–62) between 2002 and 2022 (Figure D52-3). The three-year and five-year averages were 51:100 and 49:100, respectively.

Buck harvest has varied over the last 20 years with a low of 297 bucks harvested (2022) to a high of 457 (2016), averaging 379 bucks annually (Figure D52-3). Success rates for hunters do not vary much and the number of bucks harvested is primarily a factor of the number of licenses available. Doe harvest is on private land through Private-Land-Only (PLO) licenses or game damage permits. In the past 20 years, doe harvest has ranged from 26 (2021) to 206 (2010) with an average of 86 (Figure D52-4). An estimated 28 does were harvested in 2022.

The last revision of the D-52 herd management plan was done in 2010. The management objectives have been working well for this population and there was overall satisfaction with this management. Based on this, CPW recommends maintaining the current management strategy in the new HMP.

Buck licenses were limited in the DAU in 1999 when all over-the-counter buck licenses changed to limited. A fourth season buck hunt is available in the DAU with limited opportunity. CPW proposes maintaining the same sex ratio objective from the previous plan.

Significant Issues

Due to human population growth, a significant concern in the DAU is the cumulative impacts to critical habitat, including winter ranges, migration corridors, production areas, and high-elevation summer ranges. Exurban development is occurring in La Plata and San Juan Counties and homes are replacing open lands currently supporting wintering deer. Energy development has also increased in deer habitat on private and public lands resulting in direct and indirect habitat loss. Lastly, outdoor recreation continues to expand in La Plata and San Juan Counties, placing more people in areas important to deer. Increased recreational trails

and recreation use is decreasing the amount of effective deer habitat. Managers and the public are concerned over the cumulative and prolonged impacts of development and recreation, which is disrupting migration and decreasing quality and quantity of habitat. Actions to enhance and protect important deer habitat will be essential to maintain a healthy deer population.

Drought has been present in southwest Colorado for more than two decades. This has negatively impacted deer habitat and has decreased the amount and quality of forage. Quality habitat provides food, shelter, space, and water and is essential to produce robust mule deer populations.

Chronic Wasting Disease (CWD) has not been detected in the DAU, but is in adjacent DAUs to the west, north and east. It can be expected that CWD will arrive in the DAU in the near future. Hemorrhagic disease is present in D-52. Within the DAU, the disease can cause die-offs of mule deer in the driest years. More common though are infection and sometimes death of individual animals with minimal impacts to the overall population.

Management Objectives

CPW staff recommends maintaining the current population objective to meet stakeholder and CPW staff desires. There is overall satisfaction with the current management of this population. The majority of hunters who responded to CPW surveys in 2021 and 2022 indicated that they are generally satisfied with the number of deer in the population, supporting CPW's current and proposed alternative.

The current sex ratio objective for D-52 is 25-30 bucks per 100 does. CPW proposes keeping this objective in the plan revision. Results from the 2021 and 2022 surveys show that hunters were evenly split regarding their satisfaction with the number of bucks in the population.

Management Alternatives

Three post-hunt population objective alternatives were considered for D-52:

Table D52-1. Proposed and recommended population objective ranges for the 2024 D-52 revised HMP.

Population Objective Alternatives:	
5,000 to 7,000 (midpoint 6,000)	(1) Approximately 20% increase in the proposed objective range midpoint
4,000 to 6,000 (midpoint 5,000)	(2) Status Quo (Maintain current population)
3,000 to 5,000 (midpoint 4,000)	(3) Approximately 20% decrease in the proposed objective range midpoint

Three post-hunt sex ratio objective alternatives were considered for D-52:

Table D52-2. Proposed and recommended sex ratio objective ranges for the 2024 D-52 revised HMP.

Sex Ratio Objective Alternatives:	
30-35	(1) Approximately 15% increase in the proposed objective range midpoint
25-30	(2) Status Quo (Maintain current sex ratio)
20-25	(3) Approximately 15% decrease in the proposed objective range midpoint

CPW Commission Approved Objectives:

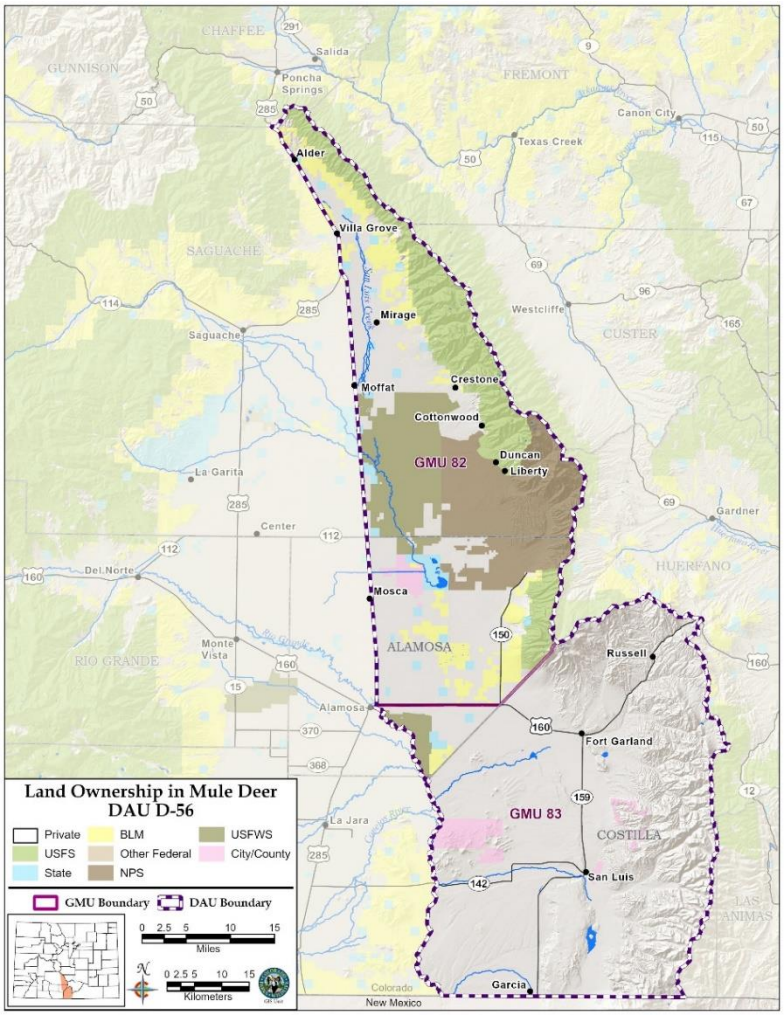
Post-hunt Population: Pending

Post-hunt buck ratio: Pending

TRINCHERA AND SAND DUNES (SANGRE DE CRISTO MOUNTAINS) DEER HERD MANAGEMENT PLAN REVISION
DATA ANALYSIS UNIT D-56 (Previous D-31 and D-37 combined)

Brent Frankland, Wildlife Biologist, Monte Vista

GMUs: 82 and 83 **Last HMP Approved Year: D-31 in 2010, D-37 in 2021**
Post-hunt Population: Previous Objective: D-31 - 2,000-2,500, D-37 - 2,300-3,000; 2022 Estimate: D-56 3,400 **Preferred Alternative: Maintain a combined population objective of 4,300-5,500 deer**
Post-hunt Sex Ratio (bucks:100 does): Previous Objective:D-31 – 35-40, D-37 – 25-29; 2022 observed: D-31 – 30; 3-yr average modeled: 41; D-37 – 28; 3-yr average modeled: 31 **Preferred Alternative: 30-35 bucks:100 does**



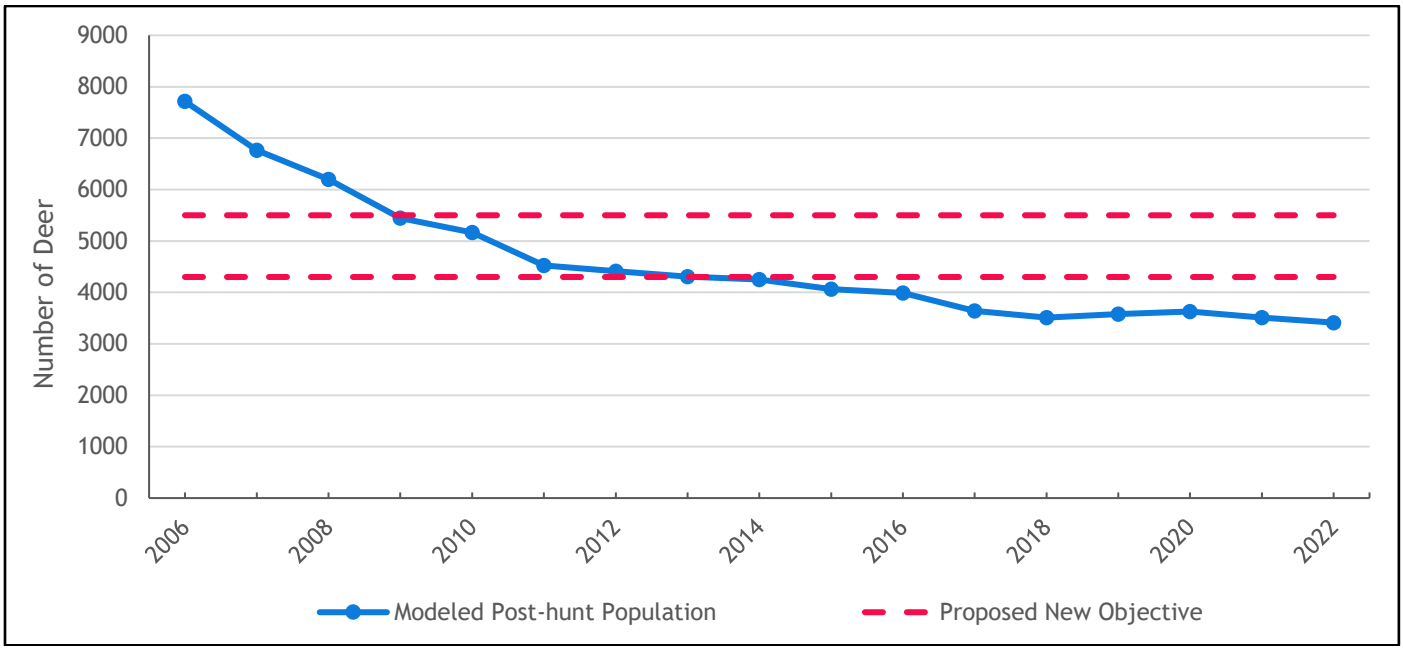


Figure D56-1. Deer DAU D-56 modeled post-hunt population and objective range, 2006-2022.

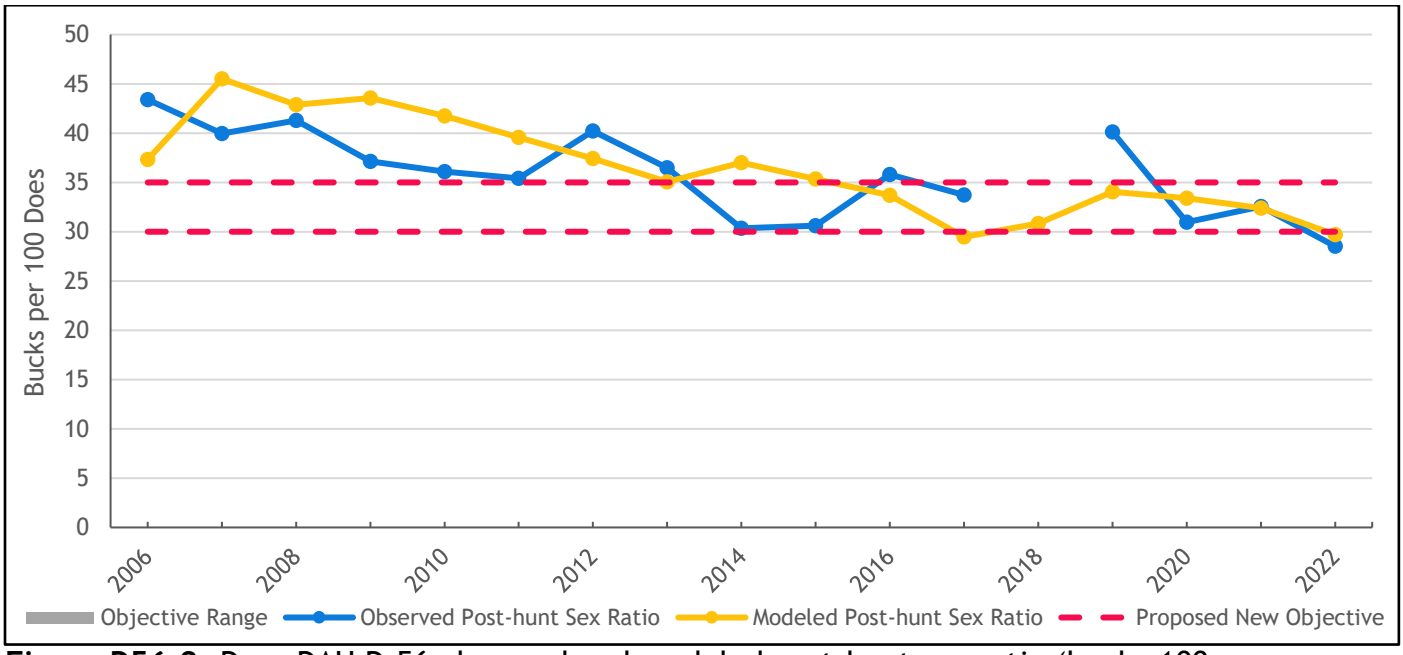


Figure D56-2. Deer DAU D-56 observed and modeled post-hunt sex ratio (bucks:100 does), 2006-2022.

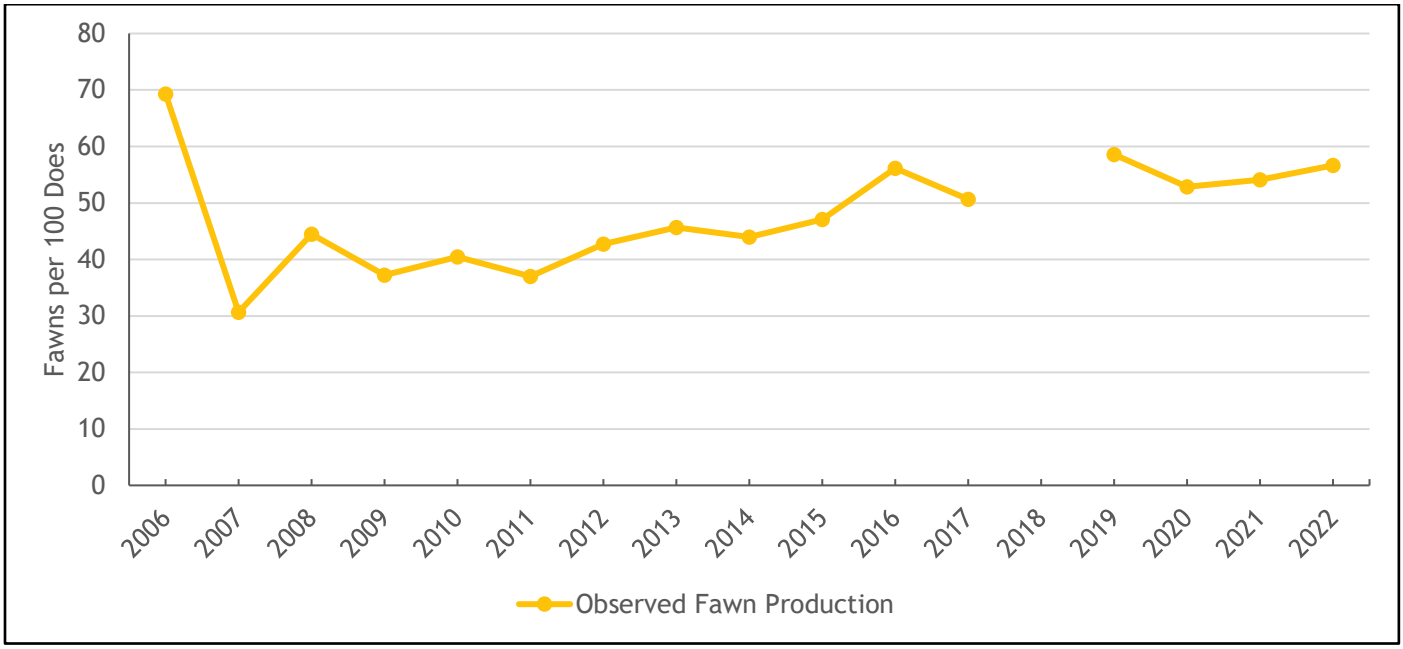


Figure D56-3. Deer DAU D-56 fawn production (observed post-hunt fawns:100 does ratio, 2006-2022).

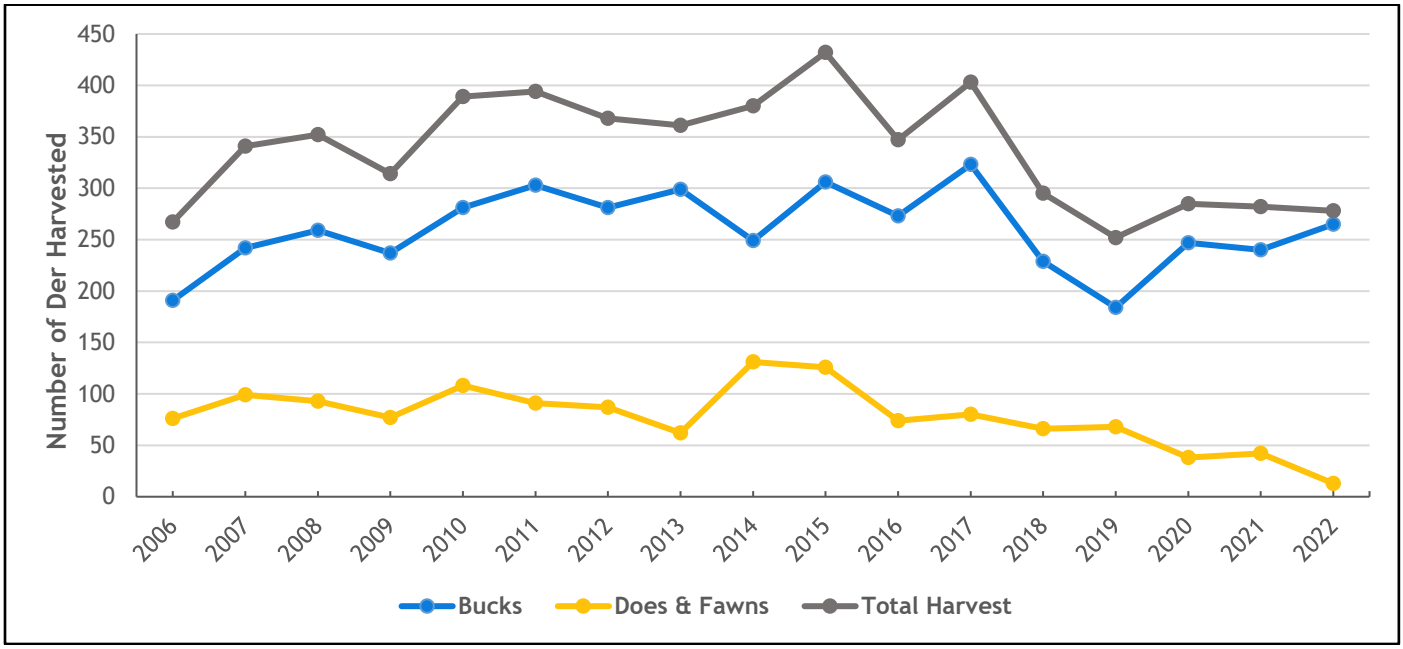


Figure D56-4. Deer harvest estimates in D-56, 2006-2022.

Background Information

After careful consideration, CPW decided to combine two past adjacent DAUs, namely D-31 and D-37, into a single DAU, now referred to as D-56. The reason to combine the two DAUs into one larger geographical DAU is for CPW to model and manage the mule deer more efficiently on the east side of the San Luis Valley. In the past, poor DAU boundaries and sporadic data collection resulted in potentially underestimating the population in GMU 83 (southern herd) and potentially overestimating the population in GMU 82 (northern herd). The previous D-31 mule deer herd is in the southeastern region of the San Luis Valley, while the previous D-37 mule deer herd is in the northeastern region. This newly proposed DAU (geographic area) D-56 comprises the combined past D-31 and D-37 DAUs, each of which consists of a single Game Management Unit (GMU), 82 (in D-37), and 83 (in D-31), with an approximate area of 2,339 square miles. The mule deer winter range within D-56 includes roughly 657 square miles, whereas the summer range encompasses about 922 square miles. Portions of Alamosa, Saguache, and all of Costilla counties comprise the entire area. Public land constitutes about thirty-six percent of the DAU, while roughly sixty-four percent is privately owned.

Before 2006, the previous D-31 (GMU 83) and D-37 (GMU 82) herd population estimates fluctuated annually; however, there were several years in which CPW did not collect inventory data, or the data collected may have needed to be more accurate. Modeling the D-56 population from 2006 indicates it dropped from about 7,700 deer to almost 3,500 in the late 2010s. Since then, the population has remained relatively stable. In 2021, CPW updated the D-37 Herd Management Plan (HMP) population objective to allow for growth in GMU 82. Most mule deer hunters responding to the 2022 Big Game Harvest Survey for the GMU 82 were “somewhat satisfied” with the number of deer; however, a significant proportion would prefer to see more animals in the area. From the survey, most hunters would like to see an increase in the population over the next ten years.

On the contrary, CPW last revised the D-31 HMP in 2010, intending to stabilize the population estimate within the objectives at the time and allow for growth. According to the 2022 Big Game Harvest Survey, most deer hunters were relatively satisfied with the number of deer in GMU 83. However, the hunters would like the population to stay relatively stable over the next ten years with a slight increase. Nonetheless, the mule deer herd in GMU 83 is not evenly distributed; it is primarily located in the northern portion of Costilla County on private land, particularly in the fall and winter. Furthermore, the movement of animals between GMU 82 and 83 is known to occur.

Since 2006, the observed post-hunt sex ratios in GMUs 82 and 83 have also fluctuated considerably. Much of the fluctuation may have been due to annual inconsistent sightability factors and the distribution of animals with varying weather conditions, combined with movements across GMU boundaries. CPW raised the sex ratio objective in GMU 82 in 2021 to 25-29 bucks:100 does to manage for more mature bucks than the previous (2010) HMP while still allowing for hunter opportunities on public land. Since implementing the objectives for GMU 82, the observed sex ratio has been at the upper end of the desired range. Alternatively, GMU 83's observed sex ratio has been within or slightly lower than the objective range set in 2010. The area south of Hwy 160 is predominantly privately owned, making managing precisely to a desired sex ratio objective challenging. Nonetheless, the hunting community, private property owners, and CPW personnel would like to maintain management for a more mature buck population within GMU 83. Thus, CPW intends to manage for a slightly lower buck ratio in GMU 82 while providing improved public hunting opportunities and managing for a higher buck ratio in GMU 83 because of land ownership constraints and safety concerns. Thus, a median overall D-56 objective of 30 – 35 bucks:100 does is preferred.

For this revised HMP, modeling the combined northern (GMU 82) and the southern (GMU 83) mule deer populations within the larger geographical context, the modeled sex ratio dropped from the late 2000s (at approximately 45 buck:100 does) to the late 2010s (to around 29 bucks:100 does). Since then, the modeled sex ratio has remained relatively stable within the newly revised D-56 sex ratio objective range.

Before CPW limited buck licenses in 1999, the annual buck harvest in GMU 82 averaged approximately 220 animals. From that time through to 2006, the reduction in licenses resulted in an average harvest of 75 animals, but the sex ratio rose rapidly. To curb the rising sex ratio, CPW started increasing the buck licenses in 2007. Thereafter, CPW incrementally increased the licenses to reduce the sex ratio to the objective range set in 2010 and again in 2021. As for GMU 83, until 2021, management of license numbers was predominantly controlled by private landowners, most notably the Trinchera Ranch, under a "Ranching For Wildlife" (RFW) agreement with oversight by CPW. The private landowners controlling hunter access made it extremely challenging for CPW to achieve the desired harvest. In addition, since 2022, the Trinchera Ranch has withdrawn from the RFW program, resulting in fewer animals being harvested, particularly does. Before 2010, the buck harvest in GMU 83 averaged approximately 180 bucks, and 80 does. Since implementing the previous HMP in GMU 83, the buck harvest dropped to about 120 animals and doe harvest to 70 animals, with only 13 does harvested in 2022. For the entire geographic area for this HMP, the average harvest since 2010 is around 270 bucks, and 70 does, with significantly less doe harvest in 2022. However, the harvest is not evenly distributed throughout the DAU D-56 area, particularly in GMU 83. Most of the harvest in GMU 83 occurs in the northern area of Costilla County.

Additionally, license management is notably different between GMUs 82 and 83. For this new D-56 HMP, the mule deer in both GMUs will continue to be managed separately, as they have previously been under separate DAUs. The differences in management are due to the vast amount of private land that encompasses the southern half of D-56 in GMU 83, constraining precise local management. CPW will continue to allocate licenses to manage for increased hunter opportunity and lower buck ratios in GMU 82 and lower license allocation and higher buck ratios in GMU 83, just as in the past. The overall buck ration objective in D-56 will be the middle ground of these two ratios. CPW will also continue to provide depredation doe licenses as needed, which predominantly takes place south of Hwy 160.

Over the past ten years, the combined hunting-season success rates throughout D-56 have averaged 66%. However, harvest success rates are skewed between those in GMU 82, at approximately 46%, and those in GMU 83, at more than 86%. The harvest success differences between the northern and southern populations are likely due to deer distribution and available access. An example is the average archery success since 2013 in GMU 82 is about 16%; in contrast, the archery success in GMU 83 is around 69%. Comparatively, the harvest success in GMU 82 during the second and third rifle seasons is approximately 50% but more than 86% in GMU 83. Conversely, the harvest success rates do not vary significantly in the later fourth rifle season, when the animals are typically at lower elevations of the Sangre de Cristo mountain foothills; GMU 82 average success over the past ten years is about 81%, and GMU 83 success is around 72%. Since 2013, the muzzleloader season's success has fallen between the rifle and archery seasons, averaging 35% in GMU 82 and 89% in GMU 83.

Management Concerns

Significant factors that may limit the D-56 population are the quantity and quality of winter range habitat. The winter range continues to diminish slowly, with increased development on private land and competition with domestic livestock fragmenting the range. Similarly, summer recreational activities continue to increase throughout the DAU but are restricted somewhat in the Costilla County portion of the area due to it being predominantly privately owned. The various anthropogenic impacts may affect distribution, reproduction, and fawning efforts, restricting population growth. Deer numbers dropped rapidly during the late 2000s until about 2011; the decrease continued but was considerably less until around 2018. The cause of the decline is unknown, but CPW attributed the cause to one or more of the following:

1) Interspecific competition with an increasing elk herd for limited resources.
2) Habitat succession limits the amount of quality habitat and forage available.
3) Record droughts from 1999 through 2004.
4) Potential illegal harvest of animals, particularly in GMU 83.

Nevertheless, since 2018, the population has stabilized but is trending below the objective range for this HMP.

Mule deer are not a significant problem on agricultural land in the northern half of the DAU, and depredation concerns are minimal. In contrast, the DAU's southern half is primarily under private ownership. Several large undeveloped residential subdivisions exist within the private land but with an established road infrastructure. Many private parcel owners are not on their property during hunting seasons when numerous hunters take advantage of the landowner's absence by hunting on these properties without their permission. Although this is illegal, hunters risk harvesting animals without the landowner's presence, thus avoiding trespass charges. The trespass concerns have created significant issues between hunters, landowners, and CPW from a human-safety aspect, illegal harvesting of wildlife, and the potential destruction of private property. To address issues, CPW will continue providing game damage and dispersal licenses to private landowners. Localized problems may result from restricted mule deer distribution during the winter months. Nevertheless, private landowners who experience mule deer depredation concerns can access various management tools CPW offers. Similarly, CPW will address the trespass problems on a case-by-case basis.

Management Alternatives

In 2010, CPW considered two alternatives for the post-hunt population size objectives and three alternatives for the post-hunt sex ratio objectives in Data Analysis Unit D-31:

Table D31-1. Proposed population objective ranges for the 2010 D-31 HMP.

Post-hunt Population Objective Alternatives:	
2,000 to 2,500	(1) Status Quo - Approved
2,500 to 3,000	(2) Approximately 20% increase in objectives

Table D31-2. Proposed buck ratio objective ranges for the 2010 D-31 HMP.

Post-hunt Buck Ratio Objective Alternatives:	
25 to 30 Bucks per 100 does	(1) Decrease buck ratio objective by approximately 10 bucks per 100 does
35 to 40 Bucks per 100 does	(2) Status Quo - APPROVED
45 to 50 Bucks per 100 does	(3) Increase buck ratio objective by approximately 10 bucks per 100 does

In 2021, CPW updated the D-37 post-hunt population size and sex ratio relative to the context current at the time:

Table D37-1. Proposed population objective ranges for the 2021 D-37 HMP.

Post-hunt Population Objective Alternatives:	
2,200 to 3,000	(1) Approximately 20% increase in objectives - APPROVED

Table D37-2. Proposed buck ratio objective ranges for the 2021 D-37 HMP.

Post-hunt Buck Ratio Objective Alternatives:	
25 to 29 Bucks per 100 does	(1) Increase buck ratio objective by approximately 5 bucks per 100 does - APPROVED

For this HMP, D-56, combining the previous approved DAUs 31 and 37 and the higher and lower points of the past objectives:

Table D56-1. Proposed population objective ranges for the 2024 D-56 HMP.

Post-hunt Population Objective Alternatives:	
4,300 to 5,500	(1) Combination of previous objectives

Table E56-2. Proposed buck ratio objective ranges for the 2024 D-56 HMP.

Post-hunt Buck Ratio Objective Alternatives:	
30 to 35 Bucks per 100 does	(1) Combination of previous objectives

Post-hunt Population

The preferred management objective range for D-56 is to combine the previously approved objectives set for the northern population (GMU 82) in 2021 and the southern population (GMU 83) established in 2010 to an overall post-hunt **population of 4,300 to 5,500 mule deer**. CPW proposes monitoring and modeling the entire DAU as one entity; however, management will continue to differ between the mule deer in GMU 82 and GMU 83 based on land ownership, accessibility to the animals, and human safety concerns. The goal is to increase and maintain the herd through prudent management within the preferred objective range, simultaneously allowing for hunter opportunities within CPW control. The objective range allows the best balance and flexibility for managing the herd, recreational opportunities, minimizing agricultural conflicts, maintaining habitat carrying capacity, and creating a safe environment. Management for the life of this HMP would use the strategies mentioned below.

Post-hunt Sex Ratio

Similar to the population objective range, the preferred sex ratio objective range for the D-56 mule deer herd is to combine the previously approved objectives set for GMU 82 in 2021 and GMU 83 set in 2010 to an overall median post-hunt objective range of **30-35 bucks per 100 does**. The range supports most stakeholder desires, preferring a slightly higher sex ratio objective in GMU 83, where licenses are highly limited, and a lower sex ratio in GMU 82, where hunting opportunities are greater and there is more accessibility to the animals. The preferred range allows for the best balance between satisfactory hunting experiences and the desired hunting opportunities throughout the DAU.

Public Involvement

In 2020, CPW provided a draft HMP document for D-37 (Sand Dunes Deer Herd) to the public for a 30-day review. In addition, CPW sent the draft plan to the Bureau of Land Management (BLM), Baca National Wildlife Refuge (BNWR), Greater Sand Dunes National Park and Preserve (GRSA), local county commissioners, the local Habitat Partnership Program (HPP) committee, and the United States Forest Service (USFS) for review and commentary. The draft allowed all constituents to participate in the public process, including non-consumptive recreationists, hunters, landowners, local stores, or business owners. In 2009, CPW held a public meeting in Alamosa, CO, for the D-31 HMP (Trinchera Deer Herd), where local constituents representing different community stakeholder groups attended the meeting. CPW also provided a draft HMP online for a 40-day public review and to solicit feedback. Similar to the D-37 HMP, CPW sent a draft of the D-31 HMP to the local HPP committee and county commissioners. CPW's feedback from public involvement during the past HMP processes was that they were somewhat pleased with deer management in the areas. Most constituents would prefer to see more mule deer in the entire geographic area of D-56. However, CPW needs to be cautious about increasing the mule deer population in GMU 83 without increasing the distribution of the animals. CPW has re-examined and considered biological herd capabilities and social-political tolerance for this updated HMP. CPW will provide this updated HMP online for a 30-day public review; however, as stipulated earlier, there will be no changes to current management conducted in GMU 82 and GMU 83 within the DAU, and individual GMU management will remain separate.

Preferred Management Objectives:

Post-hunt Population

The preferred management objective for D-56 is a post-hunt herd **population of 4,300 to 5,500 mule deer**, aiming to maintain current management separately in the northern and southern populations and allow the overall herd to grow to the objective range. This objective range provides the best balance for managing the deer herd, hunting recreational opportunities, minimizing agricultural conflicts, and maintaining acceptable habitat-carrying capacity.

Post-hunt Sex Ratio

The preferred post-hunt sex ratio objective range for the entire D-56 mule deer herd is attaining a median objective range to encompass the current sex ratio objectives in GMU 82 and GMU 83 to **30-35 bucks per 100 does**. The range supports most stakeholder desires, preferring management towards a slightly higher sex ratio in GMU 83 and a lower sex ratio in GMU 82 of the DAU. Establishing a median objective range for the current northern and southern population allows CPW flexibility to manage the different areas within the DAU safely, effectively, and within the needs and constraints of local constituents. The preferred range allows for the best balance between satisfactory hunting experiences, the desired hunting opportunities, and reducing human safety concerns.

Strategies for Achieving the Preferred Objectives:

Post-hunt Population – CPW will continue collecting annual inventory data and managing to the preferred mule deer population objectives. The population should persist as long as fawn recruitment remains strong and public land doe hunting licenses are minimal. The Trinchera

Ranch may decide at some stage within the timeframe of this HMP to re-enlist into the RFW program, at which additional buck and doe harvest may take place. However, reenlistment is unknown and not currently within the Ranch's management plans. CPW will address potential reenlistment if requests emanate. Tools to control private land depredation issues will remain in place. CPW will consider public land doe harvest opportunities once the population estimate reaches the upper region of the preferred objective range or a significant deterioration in habitat conditions occurs.

Post-hunt Sex Ratio – CPW will maintain current and separate management of buck-hunting opportunities in GMU 82 (northern population) and GMU 83 (southern population) to sustain the observed and predicted sex ratio within the overall DAU preferred objective range. After that, CPW will monitor the D-56 entire herd and individual populations within to balance buck-hunting opportunities and the mature buck level relevant to the objective range. CPW will be mindful of maintaining a higher adult buck population in GMU 83 with the restriction of licenses, human safety concerns, and improved hunting opportunities in GMU 82. Expected harvest from the buck licenses should sustain an acceptable mature buck population and stakeholder satisfaction within the preferred objective range. The objectives, particularly in the GMU 82, should reduce the risk of CWD from the higher sex ratio levels CPW has observed in the past.

CPW Commission Approved Objectives:

Post-hunt Population
Pending

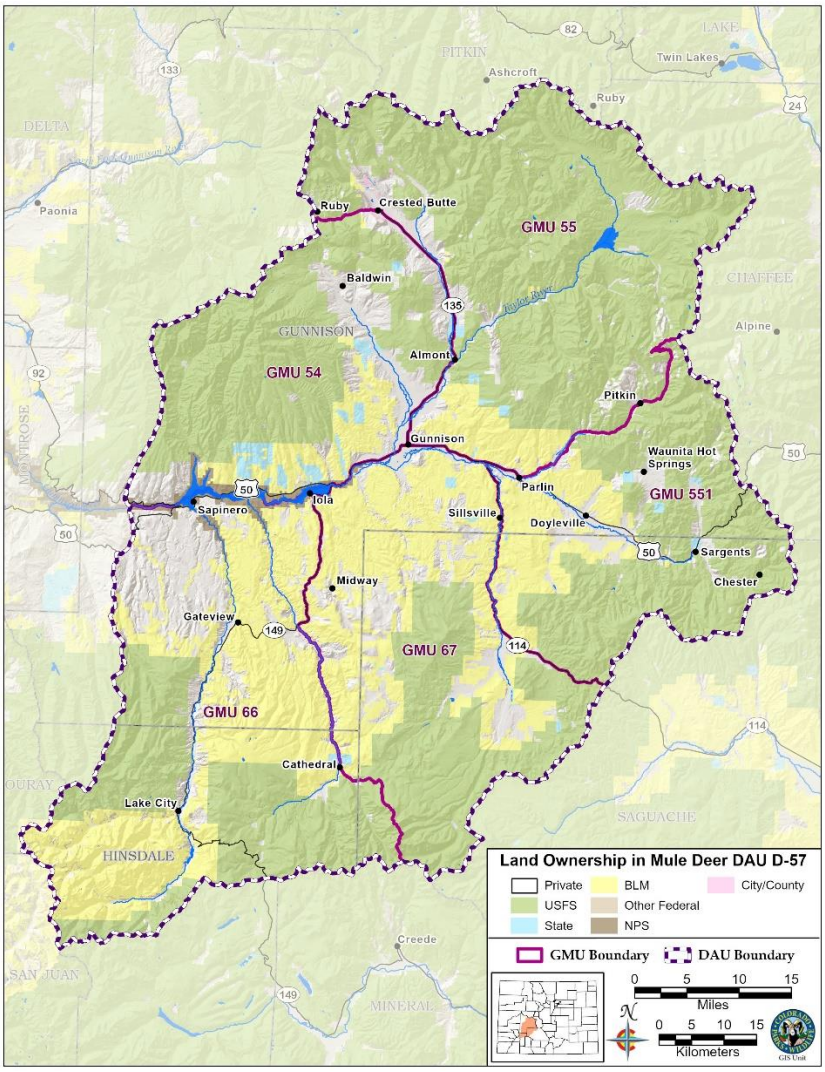
Post-hunt buck ratio
Pending

GUNNISON BASIN MULE DEER HERD MANAGEMENT PLAN
DATA ANALYSIS UNIT D-57

Alyssa Meier, Wildlife Biologist, Gunnison

October 2023

Gunnison Basin Deer Herd (DAU D-57)	**GMUs: 54, 55, 66, 67, and 551**
Post-hunt Population: Previous Objective: 15,400-16,900 (combined D-21, D-22, D-25) 2022 Estimate: 18,900 **Preferred Alternative: 17,000-20,000 deer**	
Post-hunt Sex Ratio (bucks:100 does): Previous Objective: 35-40 2022 observed: 50; modeled: 48 **Preferred Alternative: 35-40**	



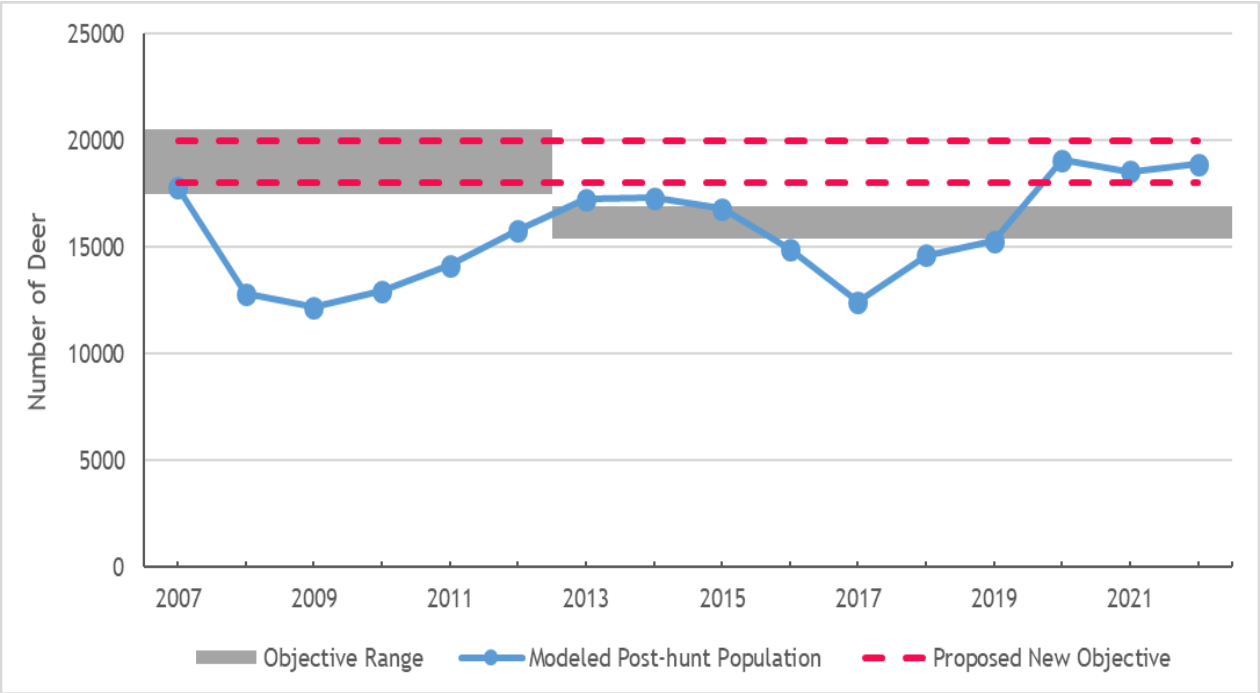


Figure D57-1. Deer DAU D-57 modeled post-hunt population estimate and objective range, years 2007-2022.

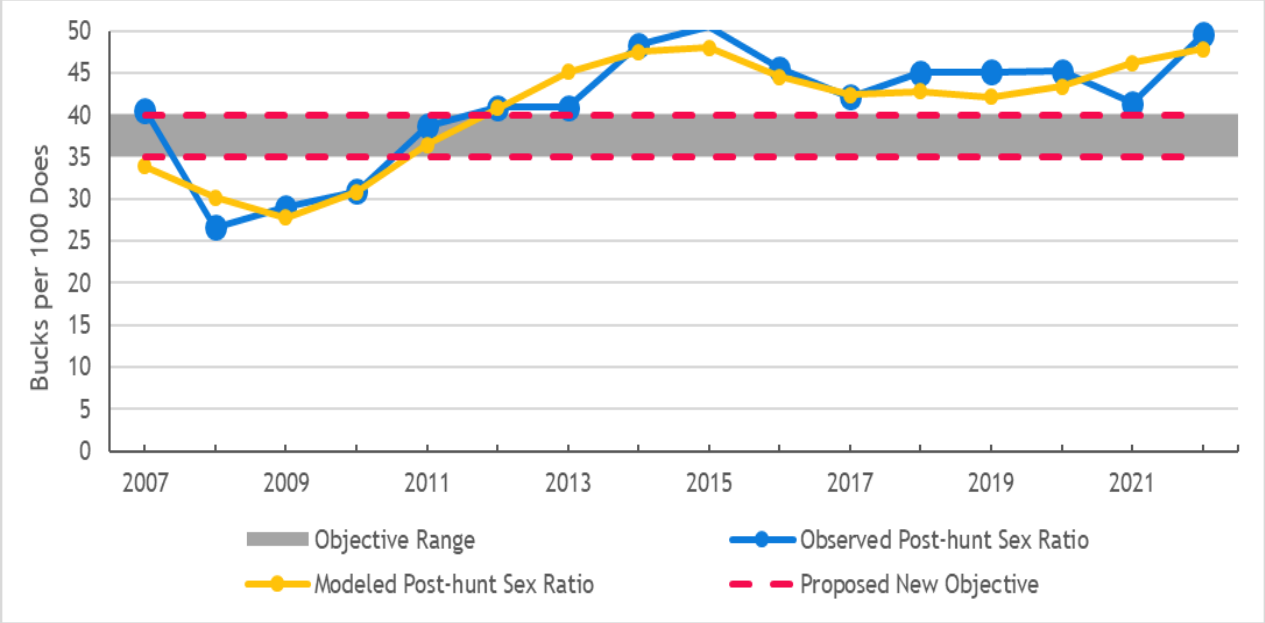


Figure D57-2. Deer DAU D-57 observed and modeled post-hunt sex ratio (bucks:100 does), years 2007-2022.

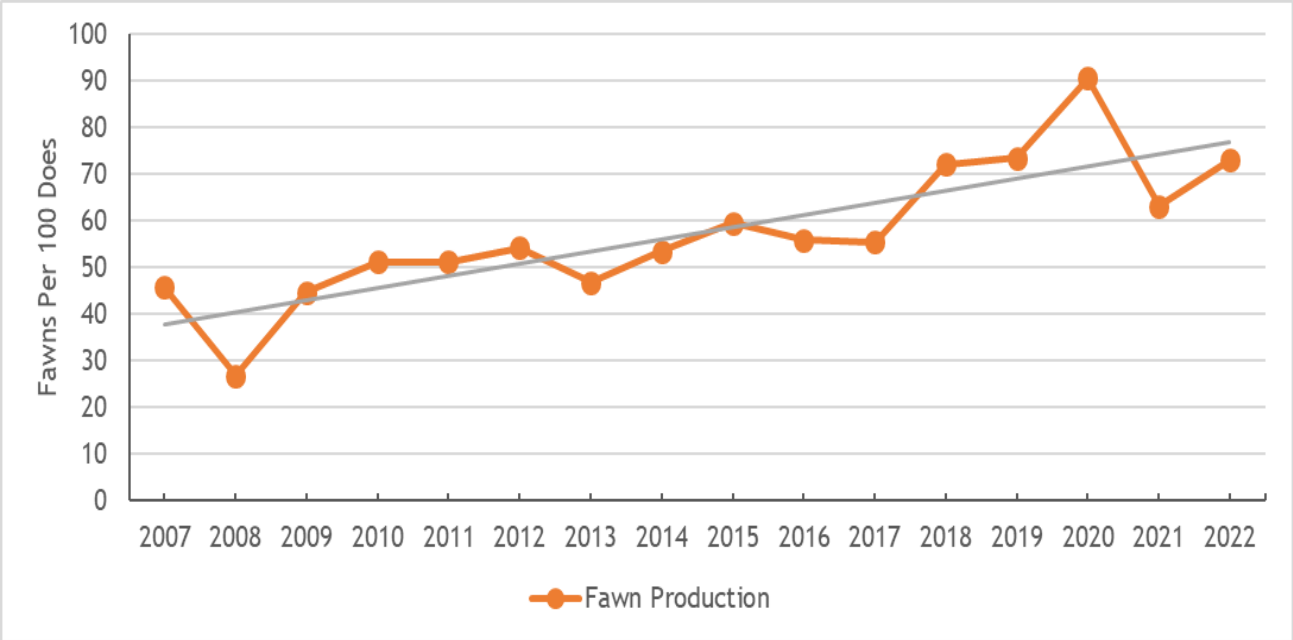


Figure D57-3. Deer DAU D-57 fawn production (observed post-hunt fawns:100 does, years 2007-2022).

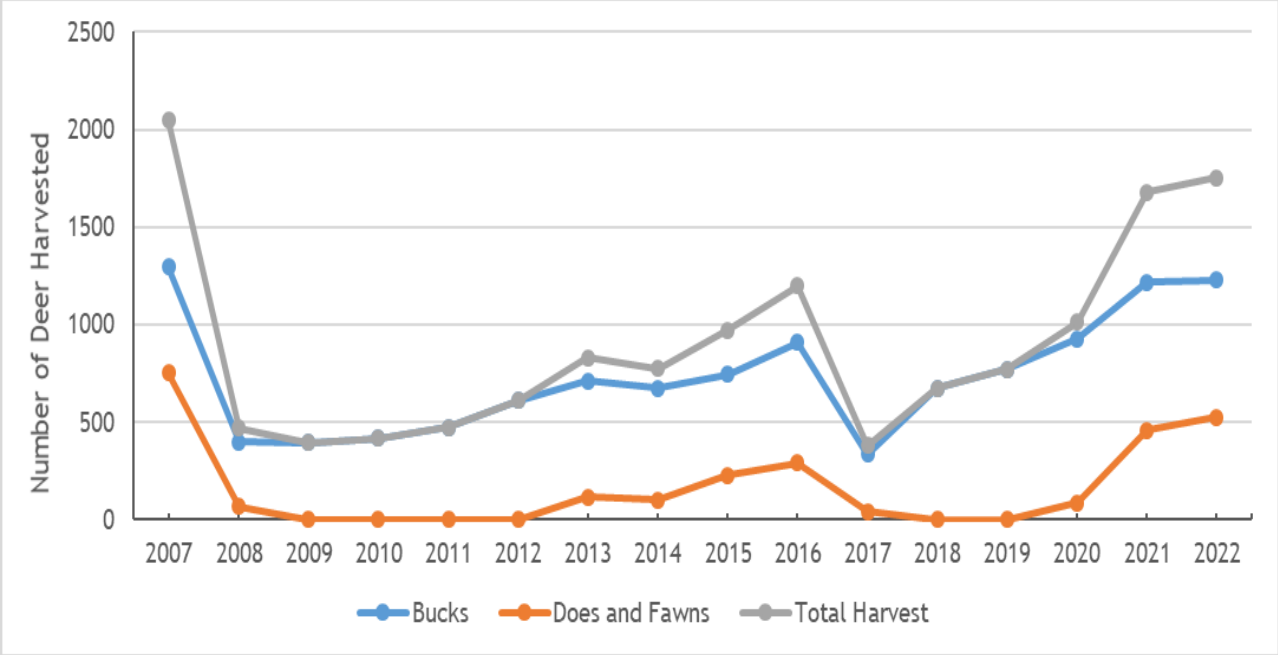


Figure D57-4. Deer harvest estimates in D-57, years 2007-2022.

Background Information

The Gunnison Basin Deer Population is now designated as Data Analysis Unit (DAU) D-57. It is located in southwest Colorado and encompasses Game Management Units (GMUs) 54, 55, 66, 67, and 551. The DAU is 3,589 square miles and includes portions of Gunnison, Hinsdale, and Saguache counties. The DAU is bounded on the north by the Gunnison-Pitkin Co. line, on the east and south by the Continental Divide, and on the west by the Hinsdale-San Juan Co. line, Hinsdale-Ouray Co. line, Cimarron River-Henson Creek divide and Big Blue Creek-Little Cimarron River divide, U.S. 50, Big Blue Creek, and Curecanti Creek. The towns of Gunnison, Crested Butte, and Lake City are located within the DAU. Land ownership in the DAU is 56% U.S. Forest Service, 25% Bureau of Land Management, 16% private, 1% National Park, and 1% CPW and State Land Board. Historically, this DAU has been managed as three DAUs: D-21, D-22, and D-25. Following discussions both internally and with the local community and stakeholders, CPW staff have decided to combine the three DAUs into one larger DAU encompassing the Gunnison Basin to better and more efficiently manage what is biologically one large deer population. Nearly 15 years of radio collar monitoring supports this new management paradigm.

The previous post-hunt population objectives for D-21, D-22, and D-25 were set in 2013 at 5,000-5,500 for both D-21 and D-22, and 5,400-5,900 for D-25. These populations suffered a significant winter-related die-off during the winter of 2007/2008, and to a lesser extent during the winter of 2016/2017, but have since rebounded to a current combined deer population estimate of approximately 18,900 deer (Figure D57-1). Based on a comprehensive assessment of biological data, and following engagement with hunters and other stakeholders such as the local Habitat Partnership Program (HPP) committee and the Gunnison Wildlife Association (GWA), CPW staff are proposing a new population objective of 17,000-20,000, which spans the post-hunt 2022 estimate. This objective would be an increase from the previous combined population objective of 15,400-16,900 deer for the current combined D-21, D-22, and D-25 DAUs.

The previous post-hunt buck:doe ratio objectives for D-21, D-22, and D-25 were set in 2013 at 35-40 bucks per 100 does. The average observed post-hunt buck ratio from 2007 to 2022 for these three DAUs was 41 bucks:100 does with a range of 27-50 (Figure D57-2). The observed three-year (2020-2022) average of 45 bucks:100 does is above the post-hunt buck:doe ratio objective for these three DAUs. CPW staff recommends that the sex ratio objective for DAU D-57 remain at 35-40 bucks:100 does.

Post-hunt fawn ratios and recruitment may be a good indicator of habitat conditions, herd health, and herd size relative to carrying capacity. Observed post-hunt fawn ratios averaged 57 fawns:100 does (range 27-90) between 2007 and 2022 (Figure D57-3). Above average fawn:doe ratios have been observed in the Gunnison Basin over recent years with concomitant population growth. In 2022 the observed five-year post-hunt average was 74 fawns:100 does.

Buck harvest has averaged 737 animals since 2007, but has varied greatly, with a low of 338 bucks harvested in 2017 and a high of 1,295 in 2007 (Figure D57-4). In 2022, the five-year average buck harvest was 964 animals. Success rates for hunters do not vary greatly, with the number of bucks harvested driven primarily by population size and the number of licenses available. Public land and private-land-only antlerless licenses are allocated in this DAU and licenses fluctuate depending on population size relative to the objective. Since 2007, antlerless harvest (does and fawns) has averaged 167 animals annually, ranging from zero

following harsh winters resulting in population declines, to 754 in 2007 (Figure 5). A combined estimate of 525 does and fawns were harvested in 2022.

Big game hunter survey data indicates that hunters are generally satisfied with their deer hunting experience across the Gunnison Basin, but there is some desire to see a slight to moderate increase in the deer population. In the winter-driven system of the Gunnison Basin, hunter preferences and experience must be weighed against habitat considerations and the biological and socio-political carrying capacity of the landscape. Furthermore, Gunnison Basin hunters also indicated by a 3-1 margin that they prefer to be able to hunt mature bucks even if it means hunting less often. All buck licenses in the Gunnison Basin, and across Colorado, were limited in 1999. A variety of hunting seasons and opportunities are presently available across D-57, including archery and muzzleloader seasons during the month of September, as well as three regular rifle seasons across the months of October and November. CPW's Big Game Season Structure policy mandates season dates and timing, and is evaluated and updated every five years.

Significant Issues

Many issues surround mule deer management in the Gunnison Basin, and they generally fall into either a biological or socio-political category. Many of the issues raised during this planning process were similar to those discussed in 2012 during the previous planning effort. There are multiple important factors influencing mule deer population dynamics in the Gunnison Basin other than hunter harvest. Some of those factors include, but are not limited to, winter and drought severity, habitat availability and condition, fragmentation, competition with elk, increasing traffic volumes on local highways, and overall human development and expansion. A significant concern in D-57 is cumulative impacts on mule deer habitats, including winter range, migration corridors, production areas, and high-elevation summer ranges, due to human encroachment and anthropogenic influence. Exurban development continues throughout the DAU, impacting open lands supporting seasonal mule deer habitat. Outdoor recreation has increased dramatically, fragmenting habitat and diminishing effectiveness. Managers and the public remain concerned over the cumulative and prolonged impacts of development and associated land uses, decreasing the quality and quantity of available habitat, thus potentially reducing animal carrying capacity. Future actions to protect and enhance habitat will be essential for maintaining the Gunnison Basin deer population.

Like many places in the Rocky Mountain West, spring and summer ranges in D-57 are more expansive than the limited winter range. Most winter range areas occur many miles from summer range and can only be reached following lengthy migrations. Winters may be severe in the Gunnison Basin and the quantity and quality of winter habitat is arguably the primary limitation for herd productivity and sustainability in this region. Although superbly adapted to Rocky Mountain climates, mule deer in the Gunnison area are periodically subjected to severe winters which may result in significant mortality. The winters of 1978-79, 1983-84, 1996-97, 2007-08, and 2016-17 are recent examples of how unforgiving winters may be in the area. Dramatic population fluctuations are no longer acceptable to the general public and big game hunters, based on the emotional response to seeing large numbers of animals die and the potential impacts on hunt quality and opportunity. The same may be said for local economic interests that rely on predictable levels of wildlife-related tourism. CPW maintains a policy pertaining to feeding big game animals during severe winters, and supplemental feeding programs have been initiated during four of the five winters previously mentioned with

variable success. The winter of 2007-08 was particularly severe and had lasting repercussions.

Mule deer management in the Gunnison Basin is ultimately constrained by severe winters, and the ecological carrying capacity of winter range. During harsh winters, big game in the Basin tend to congregate along highway corridors, particularly along US Highway 50, making them extremely visible and vulnerable to vehicle collisions. Highway traffic volumes have increased markedly over the last 10 years, and will likely continue to increase into the future. Animals in declining body condition paired with excessive roadkill, often leads to advocacy for CPW-led supplemental feeding operations. In addition, there is a lengthy history of winter feeding and baiting efforts in Gunnison, which has led to an expectation for such programs, despite their questionable efficacy and considerable cost. Determining a precise winter carrying capacity across D-57 has proven challenging in the past, and capacity may change annually based on the current year's conditions. While many hunters desire to see more animals across the landscape, wildlife managers must remain conscious of habitat capacity when setting HMP objectives. The hunting community and the general public should not expect supplemental feeding programs during severe winters, and instead should direct their advocacy toward habitat conservation and mitigation for seasonal conflicts, including wildlife-vehicle collisions. Furthermore, Chronic Wasting Disease (CWD) has not yet been detected in the Gunnison Basin, but occurs in neighboring DAUs to the north, west, and south. Future management and discussions related to supplemental feeding or baiting programs should include ongoing consideration of CWD presence and prevalence, with efforts made to avoid the expansion and proliferation of the disease into D-57.

A key element of mule deer management is the public's desired level of hunting opportunity. Some hunters prefer to hunt every year, whereas others would wait five or more years to hunt in a highly sought-after unit. Some hunters forego multiple years of hunting in order to build preference points, while others are willing to buy expensive landowner vouchers to hunt every year. Mature mule deer bucks remain one of the most sought-after big game animals in the western United States, and hunters continuously seek opportunities to hunt mature deer. Demand for limited deer licenses in the Gunnison Basin remains high. For the 2023 rifle seasons, the average number of preference points (across D-57) required to draw an antlered license for a Resident or a Non-Resident was as follows: Second Rifle- 1 Res/4 Non-Res; Third Rifle- 7 Res/15 Non-Res; Fourth Rifle- 12 Res/22 Non-Res. The trade-offs of maintaining mature bucks and high buck:doe ratios while providing reasonable hunting opportunities continues to be discussed and debated amongst constituents.

Management Alternatives

Three post-hunt population objective alternatives were considered for D-57:

Table D57-2. Proposed and recommended population objective ranges for the D-57 revised 2024 HMP.

Population Objective Alternatives:	
17,000 to 20,000 (midpoint 18,500)	(1) Moderate increase from previous combined D-21, D-22, and D-25 population objectives, but congruent with current population estimate of 18,900 deer
16,000 to 19,000 (midpoint 17,500)	(2) Slight increase from previous combined D-21, D-22, and D-25 population objectives, but congruent with current population estimate of 18,900 deer
15,000 to 18,000 (midpoint 16,500)	(3) Status Quo of combined D-21, D-22, and D-25 population objectives, but below the current population estimate of 18,900 deer.

Three post-hunt sex ratio objective alternatives were considered for D-57:

Table D57-2. Proposed and recommended sex ratio objective ranges for the D-29 revised 2024 HMP.

Sex Ratio Objective Alternatives:	
40-45	(1) Increase in the proposed objective range
35-40	(2) Status Quo (Maintain current sex ratio)
30-35	(3) Decrease in the proposed objective range

Management Objectives

CPW staff recommend an increase to the D-57 population objective from the previous D-21, D-22, and D-25 DAU Plan objectives of 15,400-16,900 deer. A revised population objective of 17,000-20,000 is generally congruent with the current population estimate of 18,900 deer. Winter range availability and severe winters are the limiting factors for this mule deer population, therefore increasing the objective beyond 20,000, based on current population estimates, is not advisable. Game damage is minimal in the Gunnison Basin and would continue to be addressed as needed through existing management tools including PLO hunt codes or targeted damage hunts. The majority of hunters who responded to CPW surveys in 2021 and 2022 indicated that they are satisfied with their current hunting experience, but would like to see a slight or moderate increase in the population. Increasing the population objective through this planning process supports that desire by maintaining the D-57 deer herd at or slightly above the current estimate of nearly 19,000 deer.

The post-hunt buck:doe ratio objectives for D-21, D-22, and D-25 were all set at 35-40 bucks per 100 does in 2013. CPW staff propose to keep the same objective for the combined D-57 DAU. Most Gunnison Basin deer hunters who responded to CPW surveys in 2021 and 2022 were generally satisfied with the number of bucks in the population, and prefer to hunt mature bucks as opposed to hunting every year. This relatively high buck:doe ratio objective ensures that mature bucks are maintained within the population, although hunter selectivity, technology, and information sharing all contribute to what hunters may see across the landscape during annual hunting seasons.

Stakeholder Outreach

Each year, a random sample of big game hunters are selected to participate in post-season harvest surveys to derive annual harvest estimates. In addition to their primary harvest survey, hunters may choose to answer several questions exploring their satisfaction with various aspects of their hunt. CPW has referred to these as “opt-in” questions. In 2022, 1,016 respondents (out of 2,814 hunters) answered these opt-in questions for the D-57 hunting units. Overall, hunters were generally satisfied with their hunting experience and the number of deer they saw, but wanted to see a slight to moderate increase in the deer population. Hunters also preferred hunting mature bucks (higher buck ratio) over hunting more often (lower buck ratio) by a 3-1 margin. Hunter crowding was an issue in some GMUs, and less so in others. These opt-in survey results have proven useful for evaluating Herd Management Plan objectives, and exploring hunter attitudes toward current and future management.

Area 16 CPW staff regularly engage with various constituents, both formally and informally, in discussions about mule deer management in the Gunnison Basin. CPW staff met with the Gunnison Wildlife Association and the Gunnison Basin HPP committee in August 2023 to discuss management alternatives related to this Herd Management Plan revision. The draft D-57 HMP will be sent to local county commissioners, the USFS, and the BLM. The HMP will be posted on the CPW website for 30 days, allowing stakeholders to comment on the alternatives in the plan.

CPW Commission Approved Objectives:

Post-hunt Population
Pending

Post-hunt buck ratio
Pending