

# COLLEGIATE RANGE PRONGHORN HERD MANAGEMENT PLAN

## DATA ANALYSIS UNIT PH-39

GAME MANAGEMENT UNITS  
48, 56, and 481



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*Approved Date, Year by the Colorado Parks and Wildlife Commission*



## EXECUTIVE SUMMARY

<b>Collegiate Range Pronghorn Herd (DAU PH-39)</b>	<b>GMUs: 48, 56, 481</b>
<b>Post-hunt Population: Previous Objective: 150; Estimate for 2019: ~200</b>	
<b>Preferred Alternative: <u>Increase population objective to 150-200 pronghorn</u></b>	
<b>Post-hunt Sex Ratio (Bucks:100 Does): Previous Objective: 50:100 (Pre-hunt);</b>	
<b>Post-hunt 2018 modeled estimate: 19; Preferred Alternative: <u>20-25:100 post-hunt</u></b>	

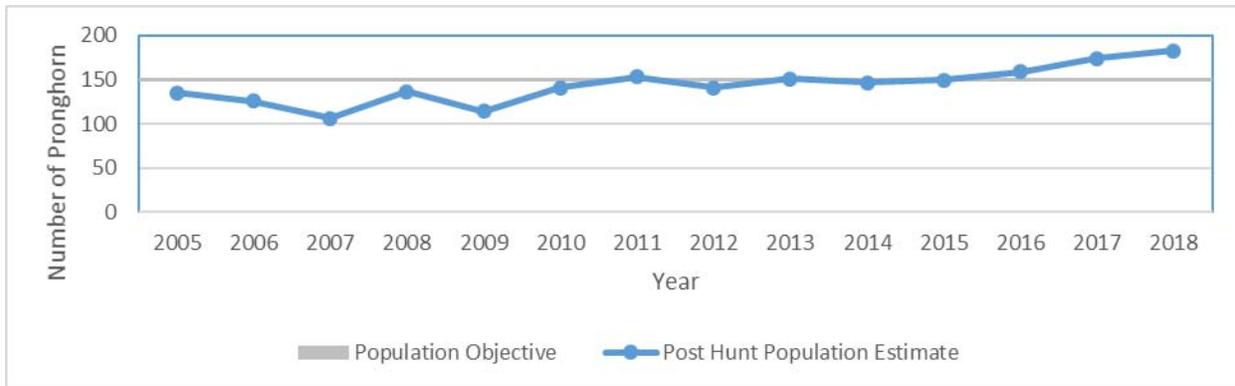


Figure 1. Pronghorn DAU PH-39 DAU modeled post-hunt population, 2005-2018.

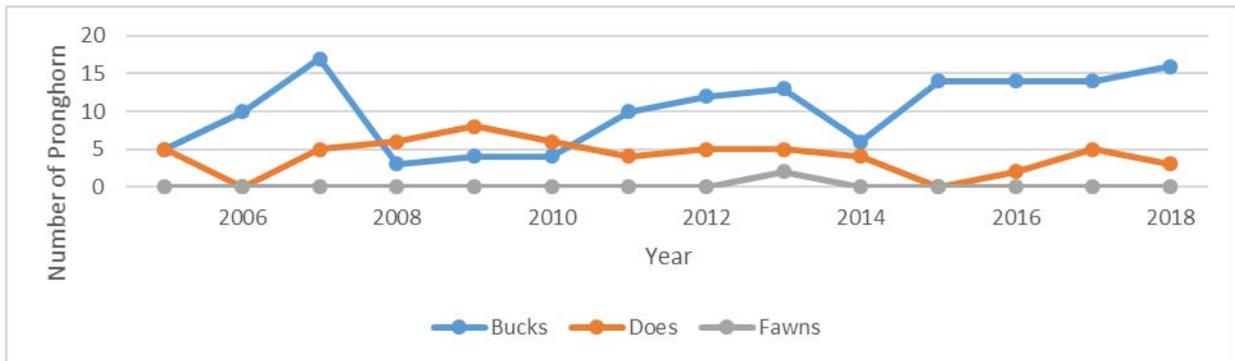


Figure 2. Pronghorn harvest estimates in PH-39, 2005-2018.

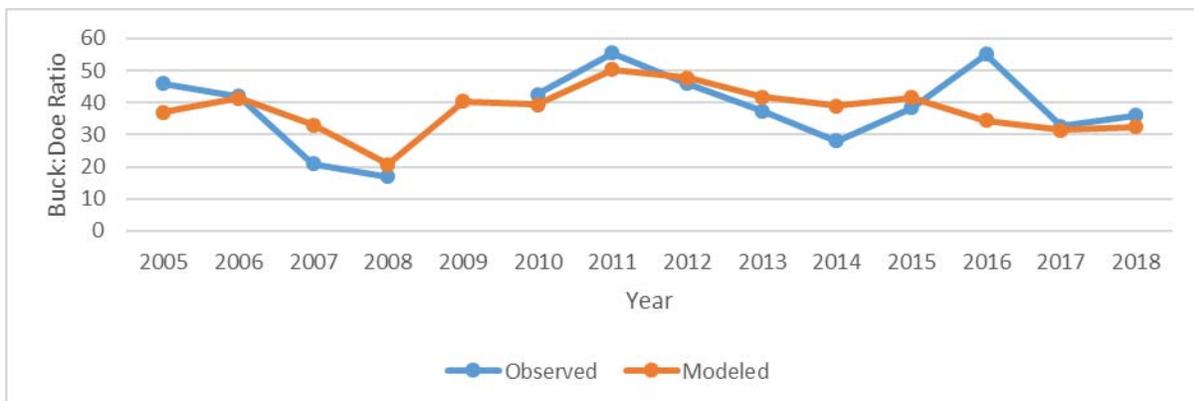


Figure 3. Pronghorn DAU PH-39 observed and modeled pre-hunt sex ratio (Bucks:100 Does), 2005-2018.

## Background Information

The Collegiate Range pronghorn Data Analysis Unit (DAU PH-39), located in central Colorado along the eastern edge of the Continental Divide, covers 820 mi<sup>2</sup> ranging in elevation from 7,500 ft. in the Arkansas River valley up to 14,440 ft. at the summit of Mt Elbert. Pronghorn generally occupy the lower-elevation grassland/shrub habitats, agricultural properties, and ranches along the valley bottom. Almost 80% (656 mi<sup>2</sup>) of the DAU consists of public lands, though only 12% (96 mi<sup>2</sup>) of the DAU is considered pronghorn habitat and pronghorn use a disproportionate amount of the private lands in the valley bottom. Hay is the primary crop produced on farmlands and cattle grazing occurs throughout the DAU.

Pronghorn harvest management in the DAU consists of unlimited Over-The-Counter (OTC) archery licenses and limited buck and doe rifle and muzzleloader licenses. Game damage concerns related to pronghorn in the valley are minimal due to the small population size.

In developing this Herd Management Plan (HMP), Colorado Parks and Wildlife (CPW) sought input from stakeholders and staff on the desired population and sex ratio objectives along with identifying significant management issues. This DAU likely is not capable of supporting many more pronghorn than the current population estimate of ~200, and hunters and landowners generally seem satisfied with the current population level. Issues identified regarding this population include: 1) hunter crowding on public lands during the archery season, 2) pronghorn taking refuge on private lands, 3) declining hunter access to private lands, 4) loss of habitat due to human development and loss of irrigated agriculture, and 5) noxious weed proliferation and associated habitat changes.

## Recommendation to the Colorado Parks and Wildlife Commission

### Alternatives for Population Objective

- 1) (Status quo) ~150 pronghorn
- 2) Increase the population objective to 150-200 pronghorn (**Preferred Alternative**)
- 3) Decrease the population objective to 100-150 pronghorn

### Alternatives Herd Composition (Posthunt sex ratio) Objective

- 1) 30-35 bucks:100 does
- 2) 20-25 bucks:100 does (**Preferred Alternative**)

## Strategies for Addressing Management Issues and Achieving Objectives

CPW has limited ability to affect many of the issues identified through the plan's public outreach process. However, CPW will seek opportunities to conserve land through fee title purchase or conservation easements, especially when hunting access is included. We will look for opportunities, working with land management agencies and private landowners, to improve habitat quality and increase hunter access. This DAU has limited pronghorn habitat and the population is likely at or near its carrying capacity, but CPW will work to maintain a viable pronghorn population and some hunter opportunity in the upper Arkansas River valley while addressing any localized game damage concerns.

CPW is also considering switching this DAU from unlimited Over-The-Counter for archery to limited archery to alleviate hunter crowding issues on public lands and hold more pronghorn on public lands. The current pronghorn population size (~200) and sex ratio (19 bucks per 100 does) are within the ranges for the respective preferred alternatives, so we would expect to maintain current rifle and muzzleloader license levels if those alternatives are selected.

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## INTRODUCTION AND PURPOSE

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

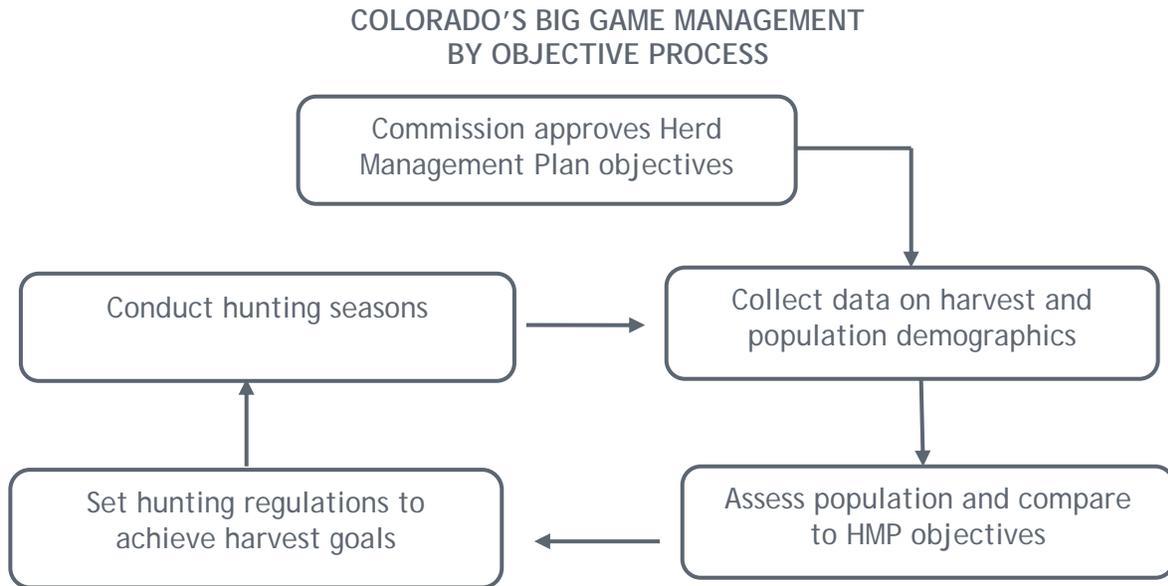


Figure 4. Management by Objective process used by Colorado Parks and Wildlife to manage big game populations by Data Analysis Unit (DAU).

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

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

outfitters, private landowners, local chambers of commerce, and the public. In preparing a HMP, agency personnel attempt to balance the biological capabilities of the herd and its habitat with the public's demand for wildlife recreational opportunities. HMPs are approved by the PWC and are reviewed and updated approximately every 10 years.

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

The purpose of this HMP is to set population and sex ratio objectives for the Collegiate Range pronghorn herd (PH-39). The HMP will be in place from 2020-2030 with the expectation that it will be reviewed and updated in 2030.

## **Collegiate Range Pronghorn Data Analysis Unit**

### LOCATION AND LAND STATUS

The Collegiate Range Data Analysis Unit is located in central Colorado and is comprised of Game Management Units (GMU's) 48, 56, and 481 (Figure 5). The DAU is bounded on the north and west by the Continental Divide, on the east by the Arkansas River and on the south by the South Arkansas River and U.S. Hwy 50. The DAU includes portions of Chaffee and Lake Counties. Nearly 80% (656 mi<sup>2</sup>) of the PH-39 DAU consists of public lands, though pronghorn use a disproportionate amount of the private lands in the valley bottom.

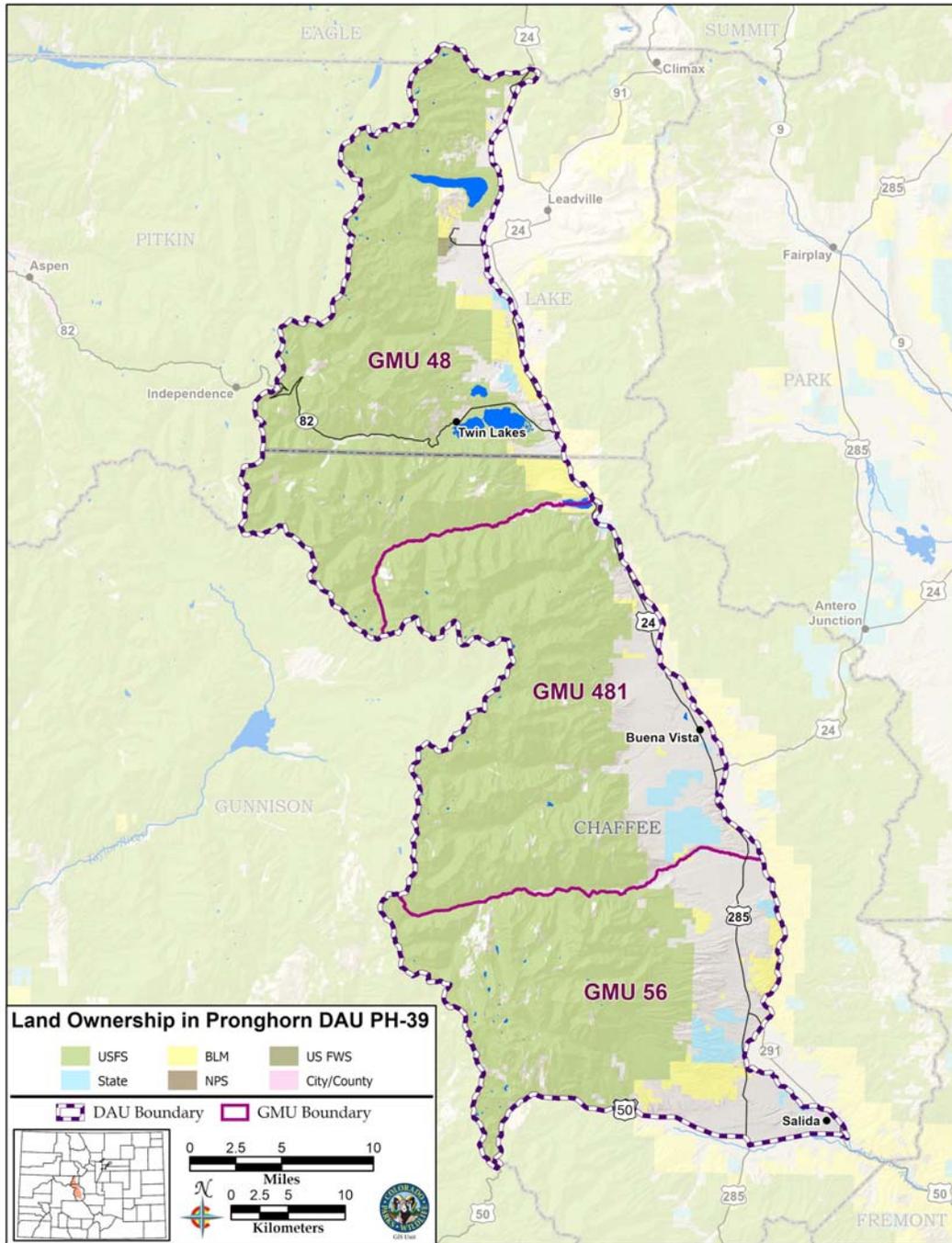


Figure 5. Land Ownership in Pronghorn DAW PH-39.

Only 12% of PH-39 (96 mi<sup>2</sup>) is considered pronghorn habitat and the limited amount of habitat combined with high elevations and sometimes-severe winters prevents the population from growing beyond a couple hundred animals (Figure 6). Pronghorn in this herd generally use the low elevation grasslands, shrublands, and ranchlands in the valley bottom, generally migrating north up the valley during summer and south down the valley during winter.

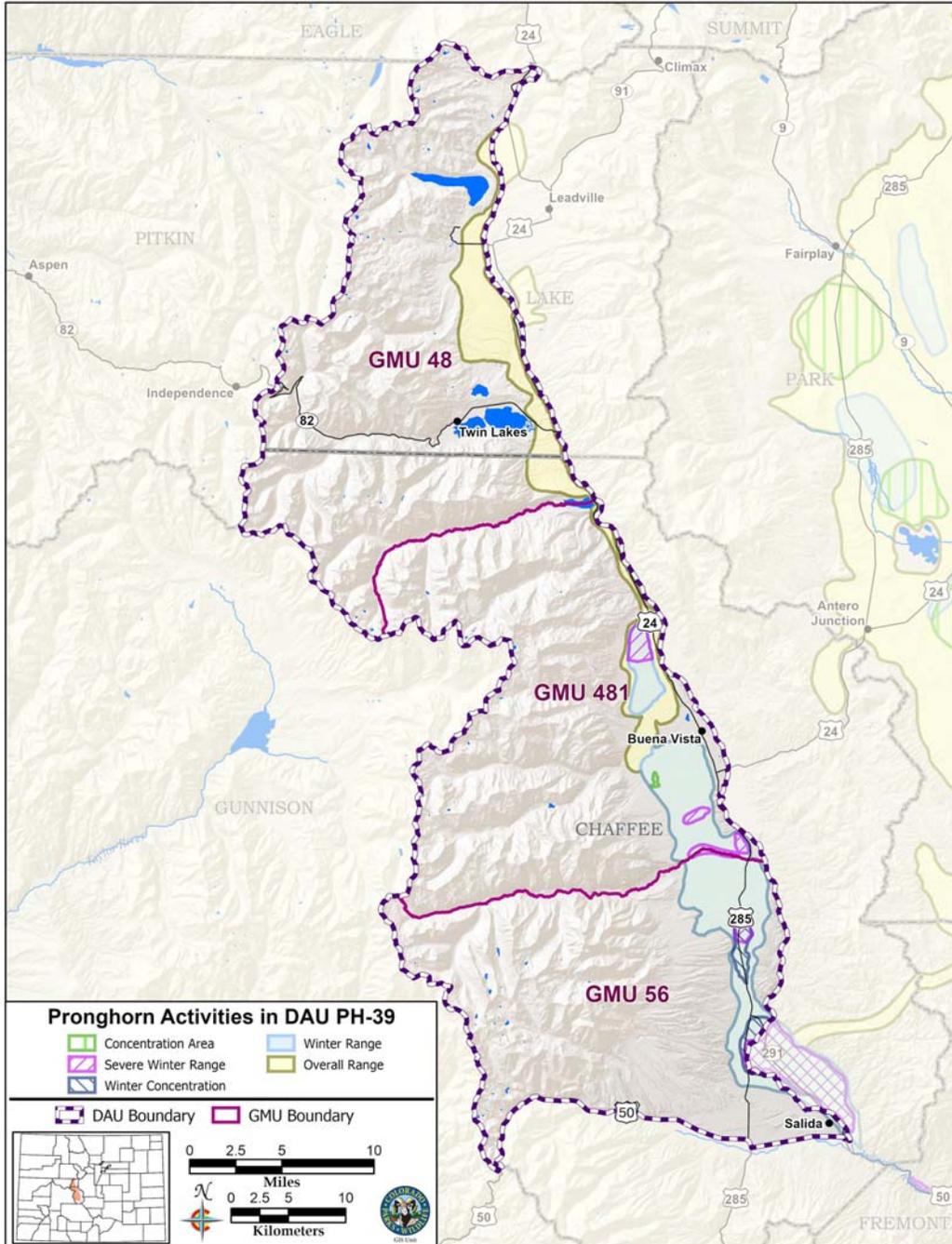


Figure 6. Pronghorn habitat and range within DAU PH-39.

HERD MANAGEMENT HISTORY

Population surveys for this herd are conducted via a coordinated ground count, which occurs every August prior to the opening of the archery season. The number of animals classified during these surveys have ranged from 121-173 animals since 2010, with a slightly increasing trend. During these surveys, ratios are collected of bucks:100 does and fawns:100 does. Pre-hunt buck ratios have averaged 38 bucks:100 does over the previous 5 years of surveys while

pre-hunt fawn ratios have averaged 33 fawns:100 does during that same span (Figures 7 and 8). Classification data from the surveys, along with harvest data and survival rate data, are entered into a mathematical population model that provides an annual population estimate. The PH-39 population model estimates there are currently approximately 200 pronghorn in the population, with a slightly increasing trend since the early-2000s (Figure 9). As the population has increased since 2005, fawn:doe ratios have simultaneously decreased, perhaps indicating that the population is nearing its habitat carrying capacity.

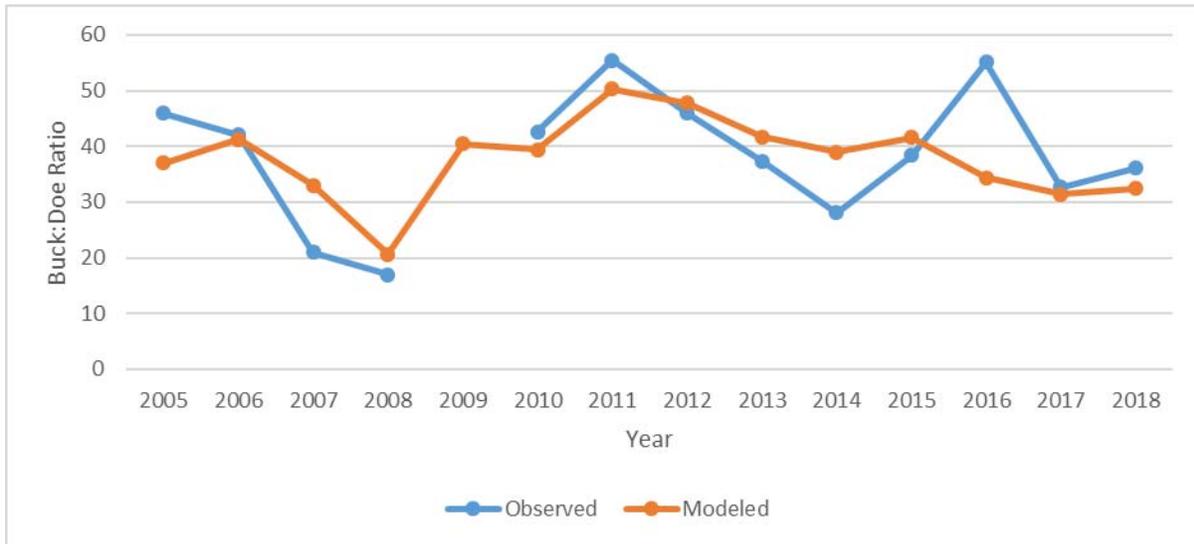


Figure 7. PH-39 prehunt observed and modeled bucks:100 does, 2005-2018.

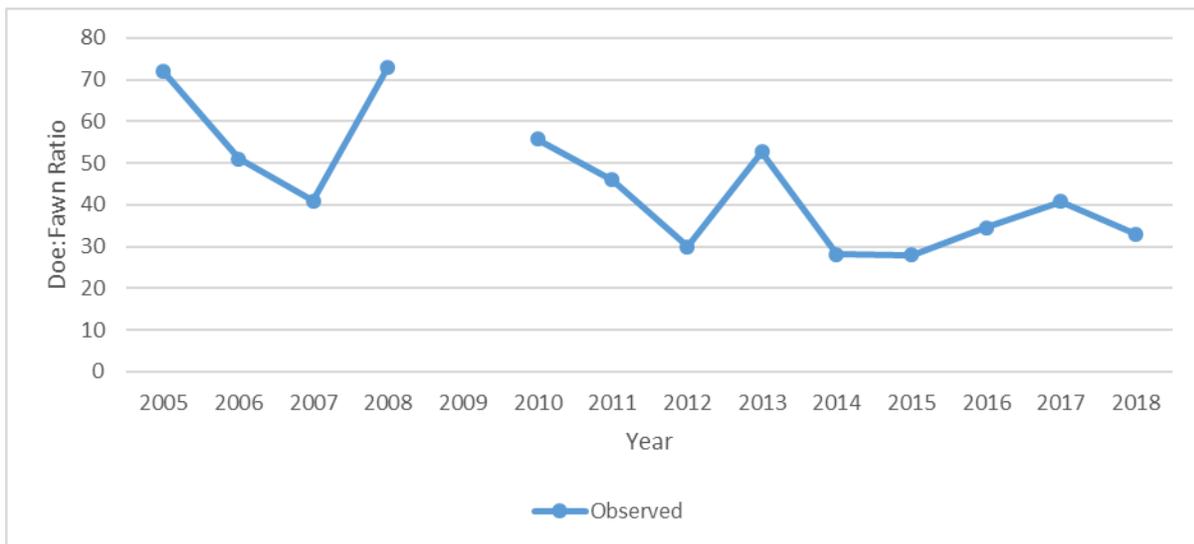


Figure 5. PH-39 observed fawns:100 does, 2010-2018. Data are from annual pre-hunt coordinated ground surveys.

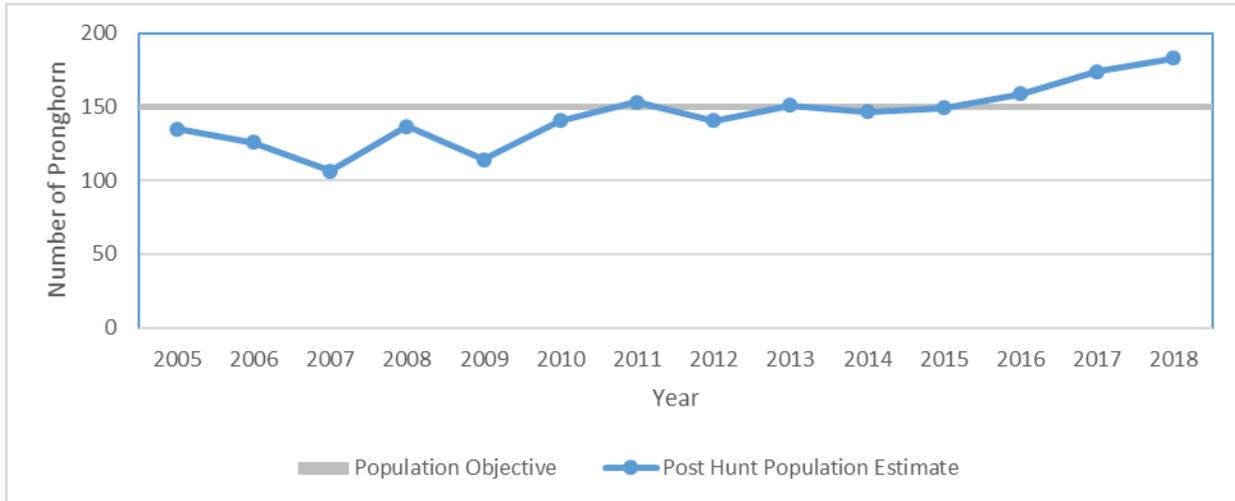


Figure 9. Pronghorn DAU PH-39 DAU modeled post-hunt population, 2005-2018.

HUNTER OPPORTUNITY AND HARVEST

Pronghorn harvest management in the DAU consists of unlimited Over-The-Counter (OTC) archery licenses and limited buck and doe rifle and muzzleloader licenses. In 2019, 10 buck licenses were issued for each of the muzzleloader and rifle seasons and 5 doe licenses were issued for those same seasons. On average, 12 bucks are harvested during the rifle and muzzleloader seasons, while 4 does are harvested during those same seasons. Another 3 bucks, on average, are harvested during the OTC archery season (Figure 10).

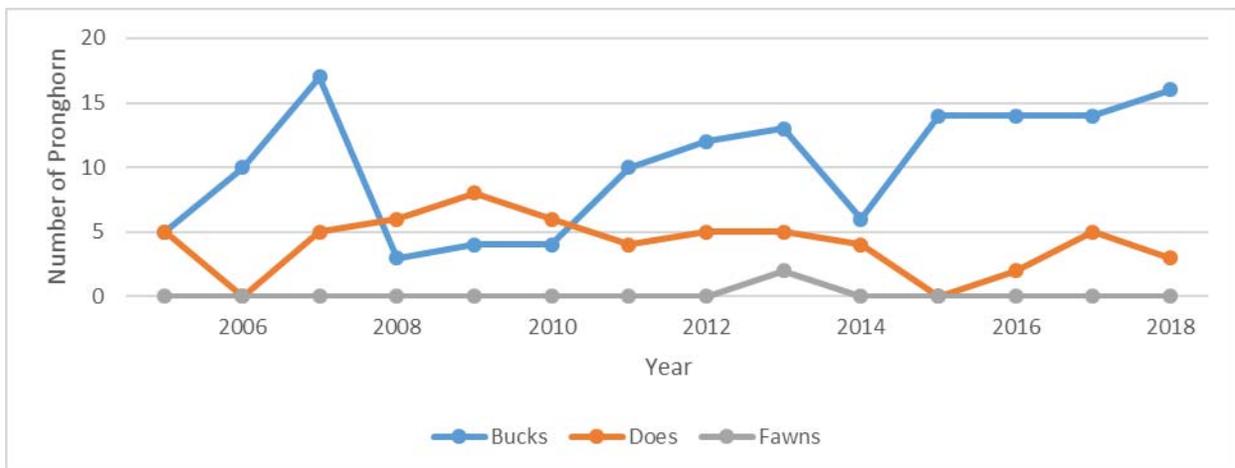


Figure 10. Pronghorn harvest in DAU PH-39 from 2005-2018. Harvest is for all manners of take.

## ISSUES AND STRATEGIES

In developing this draft plan, we identified issues through both stakeholder and staff involvement. Stakeholders included hunters, landowners, and the local Habitat Partnership Program (HPP) committee.

### PUBLIC INVOLVEMENT

Local landowners and hunters were solicited for input on this pronghorn herd management plan. The draft plan was also posted on the CPW website for a 30-day comment period. Comments generally favored the Preferred Alternatives CPW is bringing forward to the Wildlife Commission.

### ISSUES AND CONCERNS

Based on the comments received from hunters, the local HPP committee, and field staff, we consider these issues the most important components to setting the new objectives.

1. Hunter crowding during the archery season and pronghorn taking refuge on private lands - We heard from numerous hunters and landowners and CPW personnel that believe the unlimited Over-The-Counter archery season is increasingly causing hunter crowding issues on public lands and driving pronghorn onto private lands. This is becoming a greater problem throughout the west as large ranches are increasingly leased to outfitters, subdivided, prohibit hunting, or are owned by absentee landowners. Pronghorn are a highly intelligent and mobile animal that learn from past hunting activities. Often they will move onto private land refuges during the archery season and become difficult for public land hunters to access during the muzzleloader and rifle seasons. CPW tries to encourage hunting on all private lands but does not have ultimate control. In PH-39, much of the grassland, shrubland, and agricultural habitat along the valley floor where pronghorn reside is privately owned. While some decent public land hunting does occur in this DAU, hunting pressure on public lands often moves pronghorn onto private property creating a temporary refuge situation effectively reducing hunting opportunity.
2. Hunting access - Hunters were concerned about lack of hunting access, since many pronghorn in this DAU reside on private lands and/or move onto private lands to avoid hunting pressure. Access onto private land for hunting is increasingly difficult to obtain.
3. Housing development - During the last several decades, low-density housing developments have reduced the available pronghorn habitat in PH-39 due to direct habitat loss and indirect factors such as human presence, pets, fences and disturbance. Given that the population in Colorado is expected to increase from 5.8 million people in 2019 to 8.1 million by 2050 (<https://demography.dola.colorado.gov/population/>), this trend is expected to be one of the main areas of concern for managers, both with trying to maintain wildlife populations and allowing population management on an increasingly developed landscape.

4. Invasive weeds and other habitat changes - Habitat changes due to invasive noxious weeds, drought, and the loss of irrigation in the valley have all contributed to changes to the availability and quality of pronghorn habitat in the valley. Noxious weed invasions including cheat grass, houndstongue, leafy spurge, and various knapweeds, thistles, and toadflaxes. Weeds have the potential to reduce land productivity to the point that it has little wildlife value. Weed infestations are exacerbated by reduced funding for treatment on federal lands, absentee landowners without a historical weed knowledge, and increased disturbance caused by increasing road and housing densities. These weed threats are expected to increase over the timeframe of this plan.

## ALTERNATIVE DEVELOPMENT

### *Management Alternatives and Preferred Objectives*

This DAU has never previously had a formal Herd Management Plan in place. Therefore, in large part, the existing objectives could be viewed as interim objectives until this plan is drafted and approved. In addition, data collective was minimal at the time that the current objectives were put in place. Since 2005, a concerted effort has been made to collect data on this herd in the form of a ground survey. Therefore, data since 2005 is far more relevant when compared to the current objectives. With that in mind, the primary focus of this plan is to develop management alternatives for population size and sex ratio objectives.

### **Population Objective**

The long-term population objectives for this herd should be managed as ranges, rather than point values. Objective ranges better reflect the uncertainty inherent in wildlife population estimates. Also, having the flexibility to manage this pronghorn herd within a range is more fitting to annual variability in ecological conditions. References below to the current population are based on the 2018 post-hunt population of ~200.

*Alternative 1: (Status quo): Maintain a population objective of 150 pronghorn.*

This is the current objective for the DAU and is about 25% below the estimated 2018 post-hunt population. This current objective is represented as a point value rather than a range.

*Alternative 2: Increase the population objective to 150-200 pronghorn. (Preferred Alternative)*

This alternative includes the current estimated population size and represents a range expanding approximately 25% above the current population objective. There is little if any historical evidence that this DAU is capable of sustaining more than 200 pronghorn. Based on internal and external outreach, stakeholders support maintaining the current population size. Since the current pronghorn population size falls within this objective range, we will be able to maintain this population at current license levels.

*Alternative 3: Decrease the population objective to 100-150 pronghorn.*

This alternative is approximately 25-50% below the 2018 post-hunt population estimate. Decreasing the population to this level would require additional doe license allocation in the short term, but would result in reduced hunter opportunity in the future. There seems to be very little desire, either internally or externally, to decrease this population.

**Herd Composition (Bucks:100 Does Ratio)**

Data collection for pronghorn is different than deer and elk because data is collected prior to the hunting seasons each summer. We call these pre-hunt ratios. In order to maintain consistency with deer and elk, which use post-hunt ratios, we set pronghorn objectives based on modeled, post-hunt ratios.

*Alternative 1: 30-35 bucks per 100 does*

This objective represents a range, rather than a point value; however, achieving this ratio of bucks per 100 does would require decreasing hunting licenses and hunter opportunity. There seems to be little support for achieving this ratio objective.

*Alternative 2: 20-25 bucks per 100 does (Preferred Alternative)*

This objective represents a range that includes the 2016-2018 3-yr-avg modeled post-hunt sex ratio of 20 bucks:100 does for this herd. Landowner and hunter satisfaction currently seems high and CPW personnel see no reason to change current management and license allocation for this herd.

PUBLIC COMMENT PERIOD

*Outreach efforts*

The draft Plan was shared with local CPW personnel, local landowners, and the Upper Arkansas HPP Committee for review and comment. It was also posted on the CPW website for a 30-day public comment.

Strategies to Address issues and Management Concerns

CPW has limited ability to affect several of the issues identified by stakeholders and staff, including housing development, pronghorn taking refuge on private lands, and hunter access. However, we will seek any opportunities available to conserve large tracts of land through fee title purchase or conservation easements, which may contain a hunting access component. To address game damage, CPW will continue to offer dispersal licenses and use existing HPP and Game Damage programs for landowners that are experiencing pronghorn conflicts that cannot be addressed through the general hunting seasons on an individual basis. Additionally, we will continue to look for opportunities for hunter access on or through private property. Further, CPW is considering switching this DAU from unlimited Over-The-Counter archery to limited archery to help address hunter crowding issues and hold more pronghorn on public lands.

Pronghorn and other ungulate habitat in PH-39 has been lost due to human development, declines in irrigated agriculture, and noxious weed proliferation. While we cannot mitigate every change to pronghorn habitat, CPW will work with land management agencies and landowners to make habitat improvements where possible.

STRATEGIES FOR ACHIEVING OBJECTIVES

The current pronghorn population size (~200) and sex ratio (19 bucks per 100 does) are within the ranges for the respective preferred alternatives, so we would expect to maintain current license levels if those alternatives are selected. This population will continue to be managed to sustain a viable population of pronghorn in the upper Arkansas River valley, while continuing to allow for some hunter opportunity.

APPENDIX A: Arkansas River Habitat Partnership Program Letter of Support



November 20, 2019

Jamin Grigg  
Colorado Parks and Wildlife  
7405 US Hwy 50  
Salida, CO 81201

**RE: Arkansas River Habitat Partnership Program Comments - DAU PH-39**

Dear Jamin:

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

HPP has two purposes; to resolve big game wildlife (deer, elk, pronghorn, and moose) conflicts with agricultural landowners and to assist CPW to meet game management objectives for those same species. From those perspectives, the Arkansas River HPP committee has discussed your presentation, reviewed the draft alternatives and offers these comments for consideration.

The Arkansas River HPP committee is in agreement with the following comments pertaining to proposals for the population range and sex ratio objectives for the above DAU plan.

The Arkansas River committee supports the draft alternative to increase the population objective within this DAU and within our committee area. The current population is already over objective, so increasing the objective to meet the current numbers will allow CPW to manage the herd at status quo. We have not heard of any concerns about the current population or any desires to increase the local herd size and so we believe the current levels are where they should be. In addition, we do not believe that the habitat in this DAU will support further growth of the herd, so we are confident that numbers will remain relatively stable. Any issues we have are more likely related to distribution of the herds in the area and not the overall population size. The Arkansas River committee believes that we have the resources necessary to address conflicts should they occur.

The Arkansas River committee also discussed the proposed sex ratio alternative. We support lowering the current sex ratio objective to a number that, while still retaining larger bucks, would ultimately maintain the current hunting opportunities. The current sex ratio of the population in this DAU is already close to the preferred range, so CPW will be able to manage the herd at the current levels without making any major changes.

As stated above, HPP is also directed by statute to assist the Division to meet game management objectives. The Arkansas River committee has worked with both public land managers and private landowners to improve the quality and quantity of the habitat in DAU PH-39. Adequate habitat is critical to meeting game management objectives and we remain committed to maintaining and improving habitat in this area.

Our committee is confident about CPW being able to achieve the proposed objectives for the following reasons:

-We have worked with numerous landowners who want to implement positive improvements for big game on their property.

-Federal land managing agencies place a high priority on habitat improvement and have worked successfully with our committee on valuable projects in the past and have expressed a desire to continue this.

-The pronghorn population in this DAU is already within the range of the proposed objective, and landowners and hunters are generally pleased with the numbers. We are confident that CPW can maintain that range, especially if archery licenses are changed from over-the-counter to limited. We do not believe that the habitat will support much more growth of the herd, so we are confident that the population can remain stable under CPW's management.

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

Sincerely,



Jeff Williams, Chair  
Arkansas River HPP Committee