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WHITE RIVER HERD MANAGEMENT PLAN DATA ANALYSIS UNIT D-7

Game Management Units
11, 211, 12, 13, 131, 231, 22, 23, 24

PREPARED FOR

COLORADO PARKS AND WILDLIFE



BY

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This plan was approved by the Colorado Parks and Wildlife Commission on

I. EXECUTIVE SUMMARY

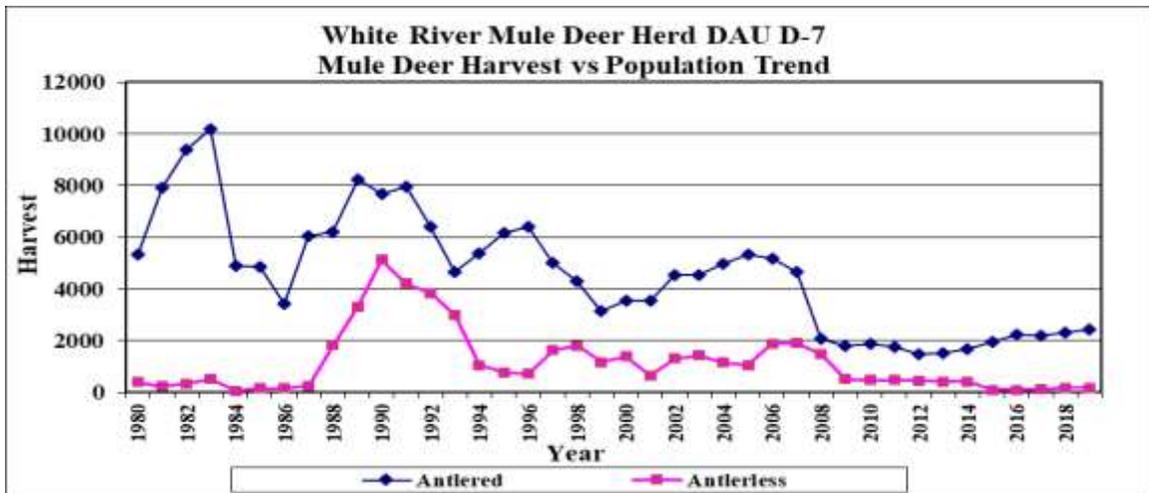
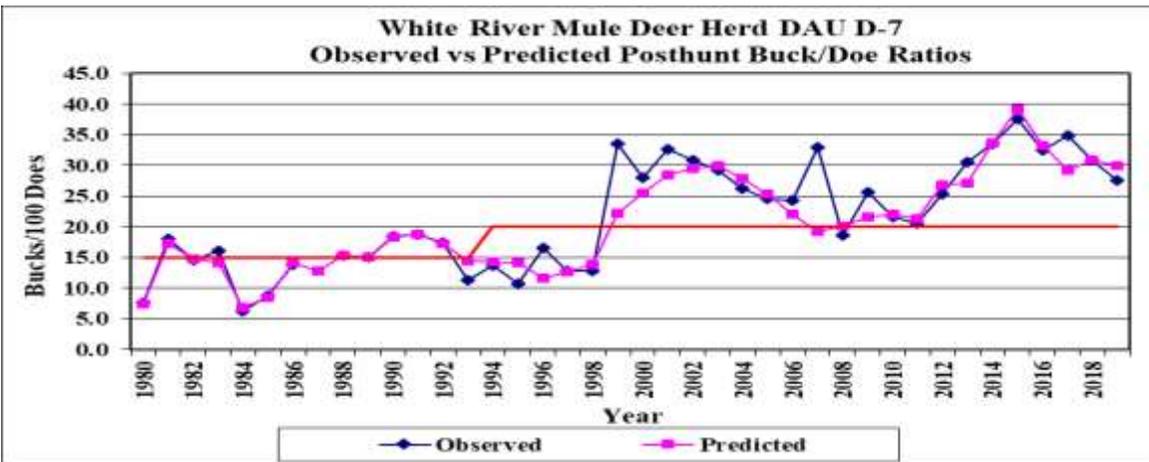
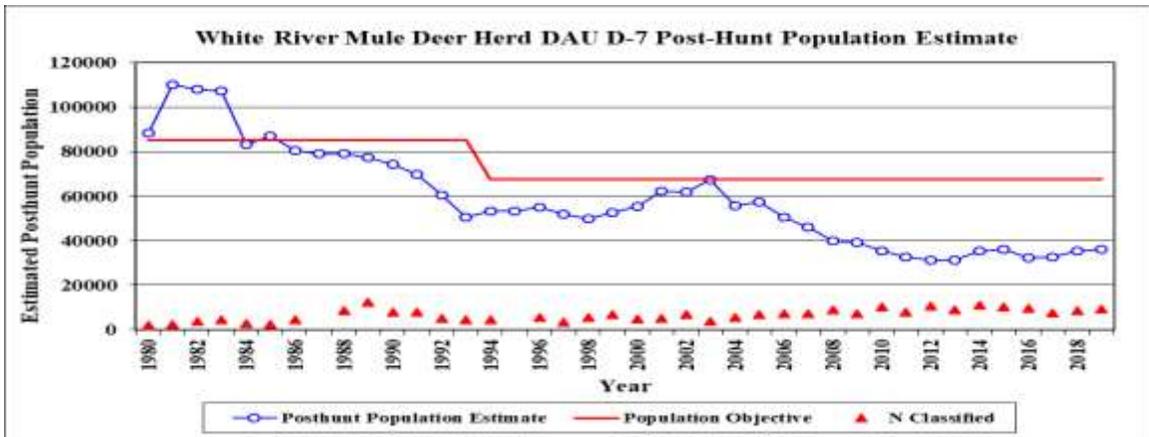
White River Herd Management Plan

Data Analysis Unit D-7

White River Mule Deer Herd (DAU D-7) GMUS 11, 12, 13, 22, 23, 24, 131, 211, and 231

Post-hunt Population: Previous Objective: 67,500; Estimate 2019: 36,000
 Preferred Objective: 25,000-35,000

Post-hunt Sex Ratio (Bucks:100 Does): Previous Objective: 20;
 Post-hunt 2019 Observed 27.6; Modeled: 30.0 Preferred Objective: 18-25



D-7 Background

The White River Mule Deer DAU, D-7, is located in northwest Colorado and includes portions of Routt, Moffat, Rio Blanco, and Garfield counties. The DAU is comprised of 9 Game Management Units (GMUs): 11, 211, 12, 13, 22, 23, 24, 131 & 231. The towns of Craig, Steamboat Springs, Yampa, and Oak Creek are located on the periphery of the DAU and Meeker is centrally located within the DAU.

The White River deer DAU covers 4,120 square miles. Of this, 42% (1,714 sq. mi.) is private property, 33% (1352 sq. mi.) is Bureau of Land Management (BLM) land, 21% (856 sq. mi.) is administered by the United States Forest Service (USFS), 3% (116 sq. mi.) is State Land Board land, and less than 2% (78 sq. mi.) is Colorado Parks and Wildlife (CPW) land (Figure 5 & 6). Ownership patterns vary across mule deer seasonal ranges within the DAU comprised of private, state and federal lands. Half of all mule deer winter range is managed by BLM and the other half is primarily private property with minimal state owned lands. Summer range is primarily comprised of private property and Forest Service lands.

Mule deer within D-7 are migratory, moving from higher elevation summer ranges in eastern portions of the DAU to lower elevation winter ranges in the western portions of the DAU. Migratory distances vary greatly with some deer moving 60 to 70 miles between seasonal ranges while others move relatively short distances, 10 to 20 miles or are year-round resident herds.

D-7 Significant Issues

Characteristic of deer populations throughout Colorado and elsewhere in the West, population trends within the D-7 herd are cyclical (Gill et al. 2001). These cyclical trends are most affected by severe winters and drought. Historically, the White River deer herd was very robust, likely exceeding 100,000 deer in the early-1960s. More favorable habitat (early seral stage vegetation) and widespread poisoning to control predators during this time likely created a situation in which deer populations were unnaturally high. The most recent population peak occurred in the early-1980s with modeled estimates consistently predicting the population at over 100,000 deer. Since the early-80s, population estimates have shown a steadily declining trend. The declining trends in the modeled estimates are consistent with on the ground observations. Going into the severe winter of 1983-84 the D-7 deer herd was at an all-time high and has not rebounded to those population levels since.

The average population size has declined from 92,000 in the 1980s, to 61,000 in the 1990s, to 53,000 in the 2000s, and to 34,000 in the 2010s. In turn, population objectives for the D-7 herd have also been set lower. The population objective prior to 1990 was 85,000 deer and in 1994, the objective was lowered to 67,500. Throughout the decades of a steady overall population decline, deer herd numbers stabilized for a short period from 1993-2000 before rebounding slightly from 2001-2006. This increase was due, in part, to an increased number of bucks recruited into populations after the limitation of deer licenses statewide in 1999. The increasing trend was short-lived. Coming out of the drought in the early 2000s, deer numbers were at the highest population level since the early 1990s entering the severe winter of 2007-2008. Population dynamics within the herd changed after the severe winter of 2007-2008. Contributing factors to the changes within the D-7 herd were the combination of high deer numbers and drought stressed winter ranges leading into the severe winter. The poor range conditions could not support the high deer densities resulting in further range degradation.

Ultimately, this has resulted in long-term reductions in the nutritional carrying capacities across winter ranges within the DAU. Over-winter survival rates from radio collared fawns prior to 2007 averaged 72.2%. Post 2007, over-winter fawn survival has averaged 59.7%. Furthermore, annual adult doe survival pre and post 2007 went from an average of 85.6% to 79.8%, respectively. Cause specific mortality rates from malnutrition doubled for both does and fawns after the 2007-2008 winter. It appears, based on evidence from radio-collared deer, the cumulative effects weather (drought and severe winters), habitat conditions, and disease (specifically, CWD) all appear to be contributing to the declining population trend in the D-7 herd. In recent years (likely since 2010s) chronic wasting disease has contributed in partially additive way to lowered doe survival. This is likely affecting population performance and preventing rebounds in the population even when habitat conditions temporarily improve (i.e. reducing herd resilience). In the last decade, the herd has not exceeded 40,000 animals.

Biological carrying capacity is not static. In reality, carrying capacities fluctuate annually and trend over time. The declines observed within the D-7 mule deer herd are evidence the carrying capacity is, and has been, on a downward trend. Sustaining historic or desired population levels can be difficult or impossible due to habitat constraints. The cumulative effects of all human related activities lower habitat capability and ultimately reduce the size of big game populations the habitat can sustain. In addition, drought plays a significant role in habitat capability by affecting winter and year-round forage condition. The direct and indirect impacts of fragmentation from energy development (oil and gas, solar, etc.), trail development for recreation, and rural residential development reduces habitat function. Drought in combination with overuse by livestock, wild horses, and wildlife effects habitat quality. Fire suppression has increased canopy cover reducing winter range quality and in other areas, wildfire has resulted in significant losses of browse on critical winter range and increased competition from invasive annual grasses. Compounding the impacts of wildfire has been increased elk competition on winter ranges.

CWD was first discovered within the D-7 herd in early 2002. A cluster of CWD cases was unexpectedly detected in mule deer entrapped in a captive elk facility in GMU 12 near Pagoda in the Williams Fork drainage. The initial management approach after discovering CWD was an attempt to eradicate the disease. Focused culling efforts were initiated to try to control CWD from spreading. However, testing results from hunter-harvested animals during the 2002 hunting season revealed the disease was more widespread within the DAU than initially thought. While CWD was present in D-7, prevalence rates in the herd were low, ~1%. Throughout the early 2000s, heightened hunter awareness about CWD, free testing, liberal license allocations, and relatively high harvest rates resulted in high hunter submission rates for CWD testing. Surveillance efforts indicated prevalence rates remained low within the D-7 herd from 2002-2007. With CWD prevalence rates remaining relatively low, hunters and managers became apathetic. In turn, hunter interest in having animals tested for CWD waned and hunter-harvested submission rates declined. From 2009-2016 hunter-harvested submissions remained low while prevalence rates showed an increasing trend. The increasing trend in CWD prevalence was cause for concern among wildlife managers and in 2017, mandatory testing was required for all deer harvested in D-7. The 2017 sampling effort solidified concerns about increasing prevalence rates revealing a 15.3% CWD prevalence rate in the D-7 herd, a 10-fold increase in 15 years. At this observed level of prevalence, CWD appears likely to be contributing to recent declines in adult deer abundance and herd-level resilience in those portions of the D-7 herd outside of the Piceance Basin.

D-7 Management Alternatives

Population Objective Alternatives

Basing population objective alternatives on historic D-7 population levels is unrealistic. Thus, current population objective alternatives were developed relative to the current population estimate of 36,000 mule deer. Additionally, CWD prevalence rates within the D-7 herd have increased from 1.5% in 2002 to 15.3% in 2017, with prevalence in several Game Management Units now exceeding 20%. In response to increasing CWD prevalence rates in the White River and elsewhere, a [CWD Response Plan](#) was developed to provide guidance to CPW managers aimed at incorporating management actions into Herd Management Plans. The CWD Response Plan includes a suite of actions and recommendations local wildlife managers can implement and assess at the individual herd level to control CWD prevalence while achieving population and herd composition objectives. A 5% prevalence threshold was established to trigger compulsory management action to reduce CWD prevalence when surveillance monitoring indicates prevalence is greater than or equal to 5% in adult male deer. Management actions within the plan are intended to provide maximum flexibility to customize management actions that will reduce or maintain CWD prevalence below the 5% threshold.

Population range objectives presented in each alternative are proposed to allow for management flexibility in response to changing conditions such as habitat capability, CWD prevalence and changes in population size due to severe winter events. Licenses will be issued annually to manage to a target population size within the population objective range and CWD prevalence threshold of 5% or less. The following three population objective alternatives are proposed:

Population Objective Alternatives:

Alternative 1: 20,000 - 30,000 (decrease)

Preferred Alternative 2: 25,000 - 35,000 (same to somewhat fewer deer)

Alternative 3: 30,000 - 40,000 (current population size)

Preferred Alternative 2 - would allow for a 30% reduction in herd numbers from current population estimates. A population objective range of 25,000-35,000 would allow for increased flexibility in management options if desired CWD prevalence rate reductions were not being achieved. In addition, it would allow further population reductions to address density-dependence mortality factors if survival-monitoring data indicated malnutrition rates continued to be a significant factor. Management actions recommended to achieve the population objective and reduce CWD prevalence rates include: increased female and/or either sex hunting licenses, increased harvest in later season or in high CWD prevalence areas, increase private land only license availability, and increase harvest within targeted high-density mule deer winter ranges. The specific areas in which increased harvest on high-density mule deer winter ranges would be determined based on data from D-7 mule deer survival monitoring results. Moderate incremental increases in license recommendations would be utilized to achieve desired objectives.

Sex Ratio Objective Alternatives

Historically, various management strategies have been implement in D-7 ranging from unlimited buck hunting with a minimum 5-inch antler regulation for yearling bucks, to 3-point antler restrictions, to limited season lengths, and finally, totally limited licensing. All management strategies have presented challenges in maintaining sex ratio objectives within

the D-7 herd. Antler point restrictions and shortened season lengths were ineffective at increasing mature buck ratios when below objective. Since the 1999 limitation of all mule deer licenses, achieving sex ratio objectives has been challenging. The D-7 herd has been chronically over the current sex ratio objective, only falling below objective once in 20 years. The current 3-year average buck ratio, 31.1 bucks per 100 does, is the highest average buck ratio ever observed in the D-7 herd.

Given the 10-fold increase in CWD prevalence within D-7 over the past 17 years, consideration must be given to management strategies that will reduce buck ratios to within sex ratio objective ranges in an attempt to reduce CWD prevalence rates. The CWD Response Plan includes a suite of actions and recommendations local wildlife managers can implement and assess at the individual herd level to control CWD prevalence while achieving population and herd composition objectives. A 5% prevalence threshold was established to trigger compulsory management action to reduce CWD prevalence when surveillance monitoring indicates prevalence is greater than or equal to 5% in adult male deer. Management actions within the plan are intended to provide maximum flexibility to customize management actions that will reduce or maintain CWD prevalence below the 5% threshold.

Sex Ratio Objective Alternatives:

Alternative 1: 15-22 bucks:100 does

Preferred Alternative 2: 18-25 bucks:100 does

Alternative 3: 23-30 bucks:100 does

Preferred Alternative 2 - would allow for a moderate reduction from the current 3-year average observed sex ratio of 31.1 bucks per 100 does. A reduction in sex ratio objective from current 3-year average observed sex ratios would allow for increased hunting opportunity and the ability to address management concerns regarding high CWD prevalence rates. Management actions implemented to achieve sex ratio objectives and reduce CWD prevalence rates would include: reduce male:female ratios, change age structure, and maximize ability to remove diseased animals at smallest scale possible. Management tactics to achieve sex ratio objectives and CWD prevalence rates will include disease management hunts and/or increasing and/or shifting male hunting licenses into later seasons and creation or modification of hunt code groupings for more targeted harvest. The lower end of the sex ratio would allow for management flexibility if CWD prevalence thresholds were not met despite a reduction in overall sex ratios.