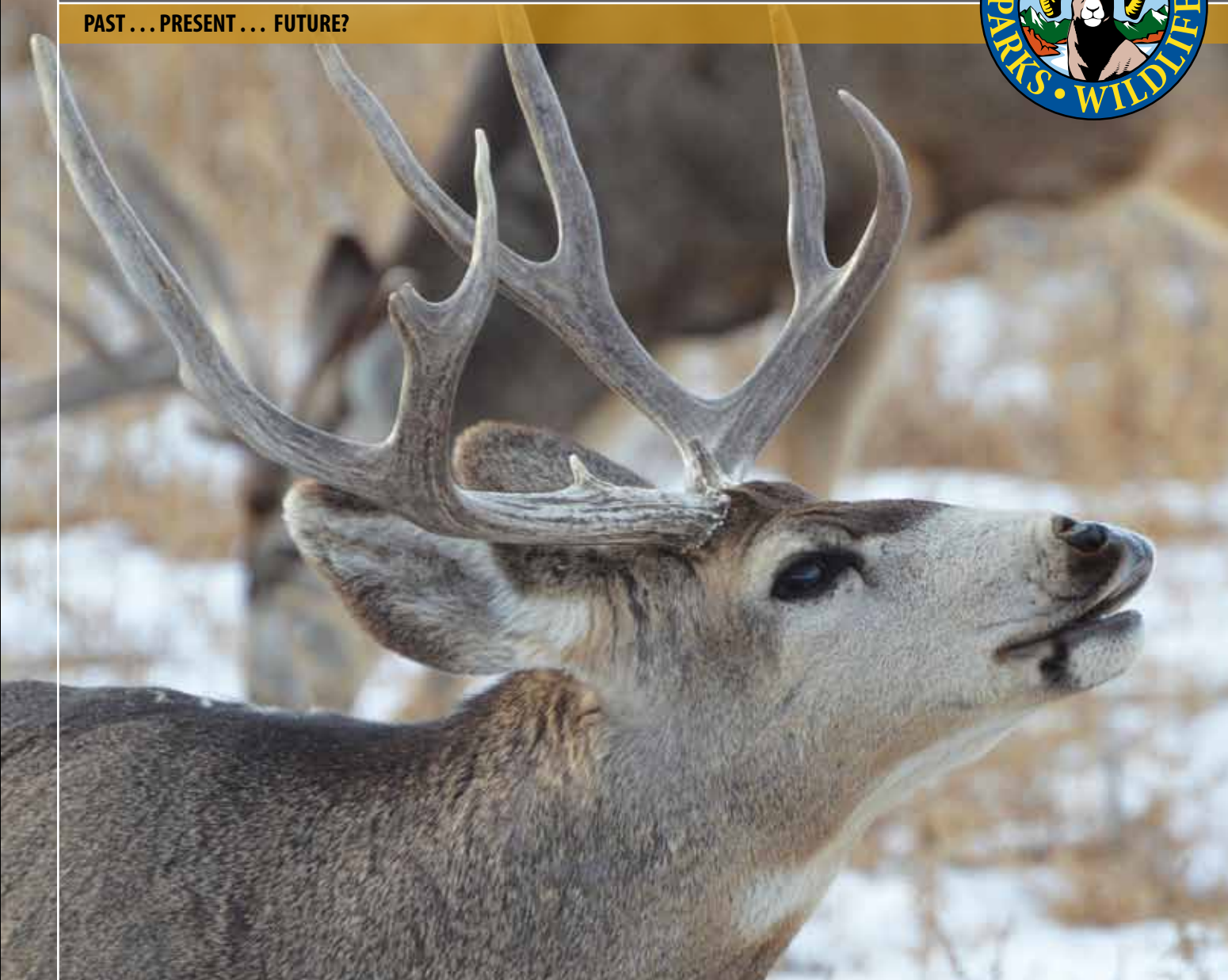


The Story of Colorado's Mule Deer



PAST... PRESENT... FUTURE?



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What's Happening To Our Mule Deer?

They've got big ears. They bound around on spring-loaded legs. Tourists love to see them. Hunters enjoy the sport they offer and the meat they provide for the table. They live throughout Colorado and are a valuable part of Colorado's wildlife heritage. They're mule deer, the iconic deer of the American West. But a declining trend in population numbers of Colorado "muleys" in the western part of the state has biologists, hunters, wildlife watchers and the general public asking, "What's happening to our mule deer, and how can we work together to have sustainable deer populations into the future?"

The Deer With the Big Ears

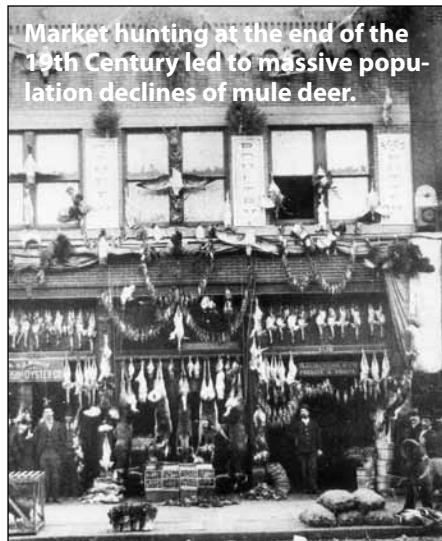
Muleys . . . even the nickname conveys the affection westerners have for this long-eared animal. Mule deer live throughout Colorado, from the Eastern Plains to western canyonlands. They inhabit grasslands, suburban open spaces, mountain forests, even the alpine tundra. But shrublands of big sagebrush, mountain-mahogany, bitterbrush and other woody vegetation give them the best combination of what they need — leaves, stems, and young twigs to browse for food, and cover for security. Mule deer are found in the greatest numbers in western Colorado shrublands.

While they seem to be everywhere, the number of mule deer in Colorado has been going down in recent decades. A 2012 Colorado Parks and Wildlife (CPW) population estimate of 408,000 muleys statewide is 22 percent to 29 percent below the goal of 525,000 to 575,000 animals.

Mule deer fawns showcase the species's big "mule" ears.



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Roller Coaster Ride

Fluctuations in mule deer populations are nothing new. Like a roller coaster, populations constantly travel upward, then down, then up again over time, tugged along in a giant game of crack-the-whip by a variety of causes. Natural factors like drought and severe winters have always impacted wildlife populations. But with the beginning of European settlement in the 1850s, many of the factors "cracking the whip" have been human caused.

Meat For Market

When gold was discovered in 1859, hundreds of thousands of eager prospectors flooded into Colorado. Settlers and ranchers followed and towns sprang up across the landscape. This booming

John Torres conducts a range survey near Craig in 1970.



© CPW

human population was hungry for meat, and commercial hunters began killing large numbers of big-game animals to meet market demand. By the beginning of the 20th century, Colorado's vast herds of deer and elk were no more.

"The time was in Colorado when deer were so plentiful that it seemed almost impossible for them to be killed off; but with the increase in population; and the more general settling-up of our state, the deer have been killed; until now they must be carefully protected, or they will meet the fate of the buffalo and become entirely extinct."

— Colorado Game and Fish Commissioner James Shinn, 1911

"The wilderness has been conquered and all the game killed off"

— Theodore Roosevelt, 1899

Population Boom

Colorado's rangelands quickly became the basis of a booming livestock industry. By the end of the 20th century, a million sheep and hundreds of thousands of cattle grazed on private and public rangeland.

Over decades, overgrazing by sheep and cattle destroyed much of the native grasses that kept woody shrubs from spreading. Settlers and ranchers also did their best to eliminate wildfires. This unwittingly favored the growth of shrubs and reduced native grasses.

Big sagebrush, bitterbrush and other large shrubs — favored foods for mule deer — spread across rangelands. Mule deer populations began to recover from the decimation of market hunting.

At the same time, wildlife management and conservation efforts began. In 1903, the first licenses were issued to regulate hunting and commercial outfitting. Efforts to control or eradicate predators, such as wolves, increased. In the winter of 1921-1922, the first large-scale winter feeding campaign began to prevent the loss of thousands of deer and elk from severe winter conditions. In 1932, the Pittman-Robertson Federal Aid in Wildlife Restoration Act

was passed, providing the first federal funding for research on the nutritional requirements of mule deer.

By 1950, there were more deer in Colorado than at any previous time in the 20th century. Fifty years earlier, there had been too few to hunt. In 1963, a record number of deer, more than 147,000, were taken by hunters.

The population roller coaster was at the top of the hill.

Continued Challenges

In the latter half of the 20th century, development of ski areas and a growing interest in outdoor recreation brought thousands of new enthusiasts into the Colorado outdoors. Colorado's population grew and thousands of acres of wildlife habitat were developed for residential housing. Oil and gas development also boomed. These activities continue to displace wildlife and fragment and degrade habitat, or convert it to human use.

Severe winters also impact mule deer numbers. When the effects of a severe winter would be catastrophic for the deer population, CPW distributes pelletized feed at feeding stations. In the winter of 1983-84, Colorado launched the largest winter feeding program in the U.S., a \$4 million operation. In spite of this effort, fawn mortality that winter was as much as 95 percent.

In 1989, the mule deer population was estimated at an impressive 600,000 animals, up from an estimated 6,000 deer at the beginning of the 20th century. In spite of this, concerns about a mule deer decline had been raised by the public and wildlife managers beginning in the early 1970s. By 1999, these concerns were growing.

Although sometimes beneficial to deer, in recent decades, wildfires on some low-elevation mule deer winter range have burned off much of the woody shrubs mule deer



Ear tagging at Little Hills Experimental Farm, around 1969.

© CPW

feed on. This allowed cheatgrass and other noxious weeds to establish on rangelands, transforming sagebrush and mountain shrub habitats to grasslands with invasive plant species that offer less nutrition. Elsewhere, fire suppression has allowed tree cover to increase too much, crowding out the shrubs and plants mule deer feed on. To reduce tree cover and increase the plants deer feed on, managers use prescribed fires or mechanical thinning to increase the quality of deer habitat.

Disease and accidental deaths also affect mule deer populations. Thousands of deer are killed each year from collisions with automobiles. Outbreaks of hemorrhagic disease, a virus transmitted by biting midges, can drastically affect deer populations. Losses as high as 50 percent of an affected population have been estimated. Chronic wasting disease is also a concern.

Could resurging elk populations be hurting mule deer? Evidence suggests there might be a connection. As elk populations have gone up in recent decades, mule deer numbers have gone down. Elk are larger and can better survive winter. Their calves are less vulnerable to predation than deer fawns, and elk cows defend their young more aggressively than does. Elk are less selective in their food, and may displace mule deer from

choice feeding areas. The impact of elk on mule deer populations hasn't been rigorously studied, but might warrant a closer look.

What Can We Do?

Mule deer management must be done for the long term, not as a quick fix. It is unlikely the population highs of the 20th century will be seen again. For populations to be sustainable, they must be managed for the numbers of animals the habitat can support over time. Exactly how to do that is constantly evolving.

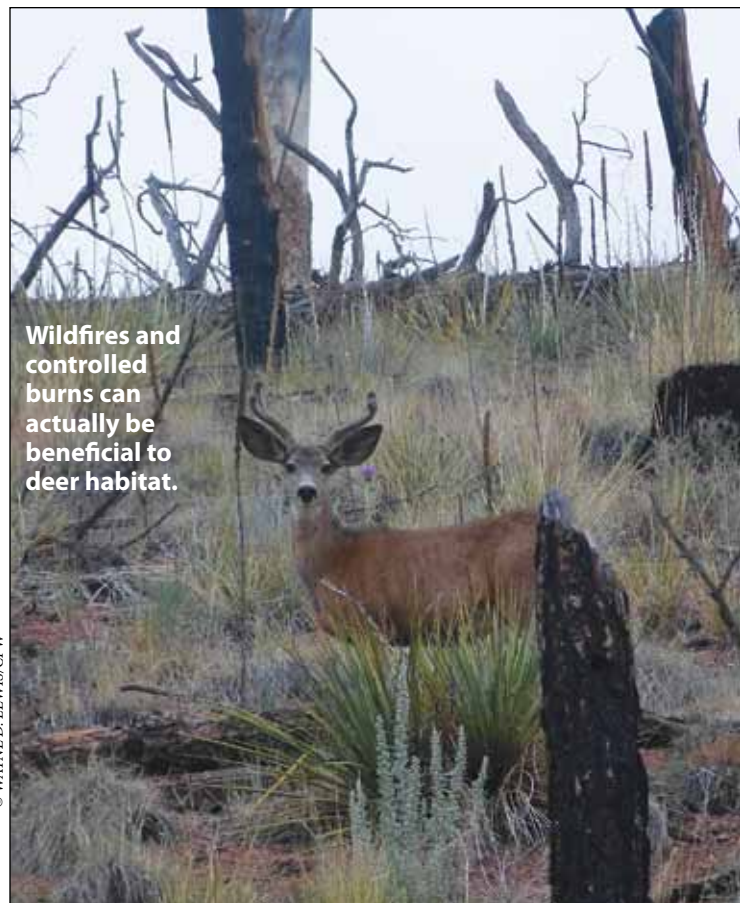
The first step is gathering reliable information, such as how many deer inhabit Colorado. But how do you count large, mobile wildlife? CPW monitors herds in five Intensive Mule Deer Monitoring Areas — in the Piceance Basin, Middle Park, Uncompahgre Plateau, Gunnison and Cripple Creek — that best represent mule deer herds west of Interstate 25. By estimating the survival of adult does year-to-year in these areas, and how many fawns survive winter, biologists can better understand and estimate overall mule deer populations.

In addition, mule deer populations throughout western Colorado are surveyed by helicopter after the hunting season to estimate the ratios of bucks, does, and fawns. Sex and age ratios, harvest information, and survival data from the intensive monitoring areas are then used to estimate population size. Comparing population estimates with the goals in CPW's Herd Management Plan



Mule deer buck found frozen in Gunnison River.

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Wildfires and controlled burns can actually be beneficial to deer habitat.

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Big sagebrush, bitterbrush and other large shrubs are the favored foods for mule deer.

helps determine ongoing management, such as how many hunting licenses to issue in the next season, and for what areas. Regulating the harvest of deer is an important tool. Using telephone and Internet surveys of hunters, CPW gathers information on numbers, locations, age and sex of harvested animals; state/out-of-state status of hunters; and hunter satisfaction. In 1999, CPW responded to concerns about low buck numbers and fewer fawns by eliminating over-the-counter buck licenses. The number of bucks to does increased dramatically from an average of 17 bucks to 100 does to 32 bucks per 100 does.

CPW also analyzes how landscape changes between 1970 and the present might be connected to declines in deer numbers over the past 40 years.

Studies done between 1999 and 2011 found that the severity of winters, and the amount of summer precipitation, were the most important influences on mule deer population growth.

Improving wildlife habitat is an ongoing goal. CPW works with farmers, ranchers and other landowners, land management agencies, sportsmen's groups and other organizations to enhance deer habitat. Techniques include mechanical thinning, prescribed fire, noxious weed control and by providing input for land management statewide.

The Colorado Wildlife Habitat Protection Program (CWHPP) brings together private landowners, local governments and conservation organizations to protect and enhance important wildlife habitat. CWHPP is funded through sales of the Colorado Wildlife Habitat Stamp, which is required before purchasing a hunting or fishing license. Since 2006, Habitat Stamp funds have protected 174,000 acres of wildlife habitat in Colorado, including over 100,000 acres of big-game winter range and migration corridors.

Because hunting is a long-standing tradition in Colorado, and important economically for many communities and families, public input is an important component of CPW's mule deer management planning process, which takes into account not just biology but social and cultural factors.

Colorado's Mule Deer: Not Out of the Woods Yet

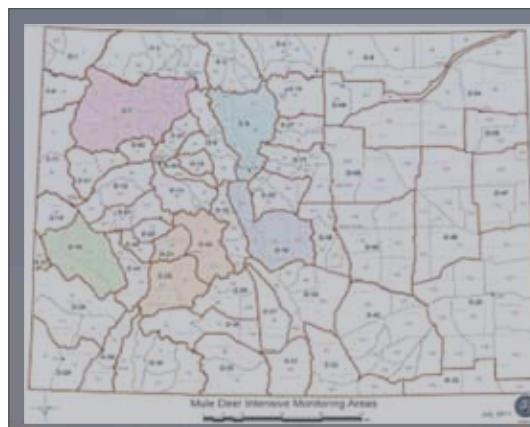
Coloradans love their long-eared muleys, but decisions on their management can't be based solely on tradition, science or social trends. They must incorporate all these things.

Sustaining mule deer numbers at an optimal level for the future lies in collaboration . . . between citizens, farmers and ranchers, government, biologists, hunters, conservationists and everyone who cares about the future of Colorado wildlife.



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