

Mule Deer in Northwest Colorado



Mule Deer Population Study in Northwest Colorado

Colorado Parks and Wildlife is concerned with the habitat needs and management of mule deer in the Piceance Basin, a 7,100 square mile area in northwest Colorado where natural gas resources are being developed extensively.

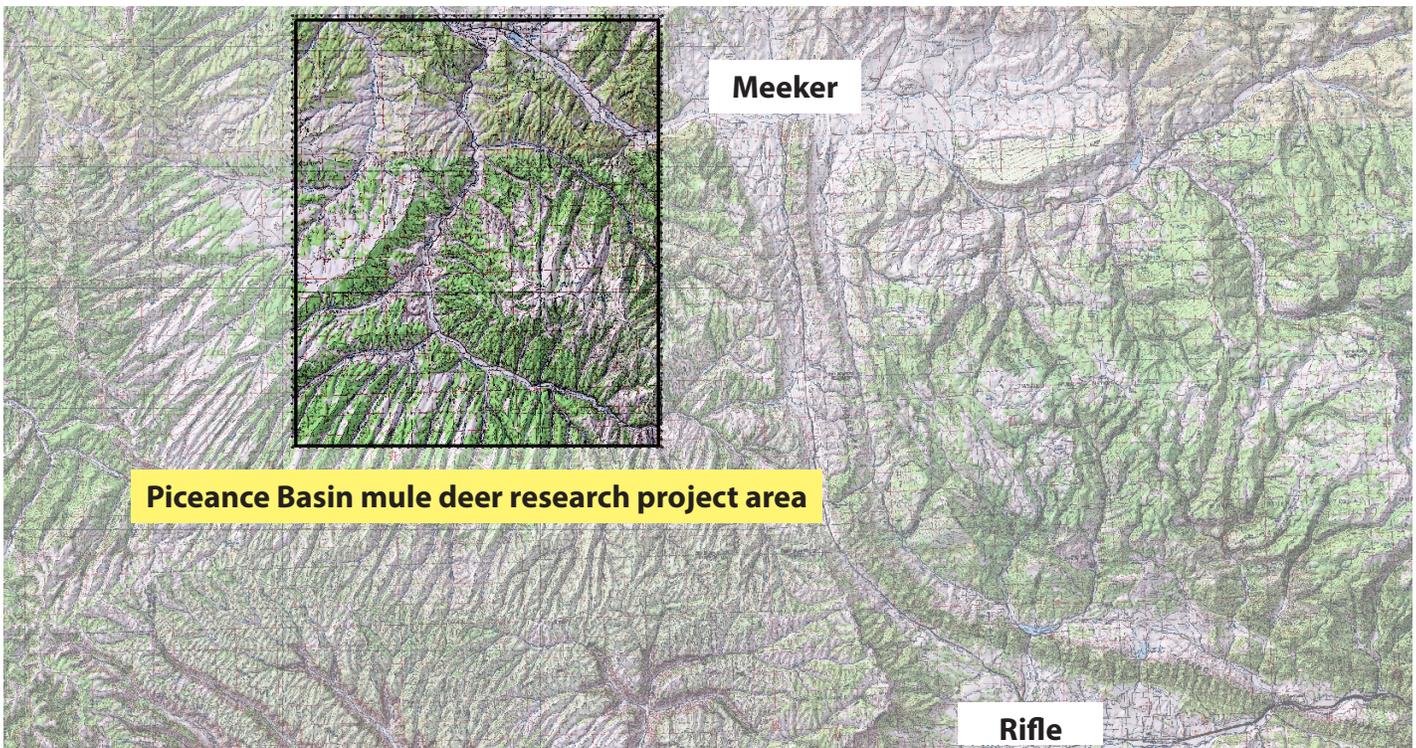
A multi-year Colorado Parks and Wildlife monitoring study will determine the impact of the energy extraction and evaluate landscape scale treatments to enhance the winter range habitat. Winter has long been recognized as a key stressor of mule deer populations. The research project has the cooperation of multiple energy companies that support maintaining Colorado's reputation as a premier state for mule deer hunting.

Components of the Mule Deer Project Include:

- Improve winter range habitats via mechanical treatment methods to improve mule deer fitness and site fidelity.
- Address mule deer behavior patterns relative to energy development activity to identify "Best Management Practices" to minimize deer disturbance. Colorado Parks and Wildlife is collaborating with Colorado State University in this research.
- Evaluate mule deer migration patterns through developed and undeveloped landscapes, in collaboration with Idaho State University.
- Evaluate neonate survival in developed and undeveloped landscapes. Colorado State University is collaborating on this part of the research.



The Piceance Basin, located southwest of Meeker, Colo., contains one of the largest tight-formation natural gas fields in the United States. Multiple corporations own extraction leases throughout the 600 square-mile winter range, inhabited by one of Colorado's most important mule deer populations and one of the largest migratory mule deer populations in the nation.





Pre-treatment monitoring of the mule deer population was initiated January 2008 and will conclude spring 2013. Mechanical habitat improvements will be completed spring 2013, initiating the post-treatment monitoring phase and will continue through at least spring 2017 and preferably spring 2019 to allow adequate time to evaluate vegetation and mule deer responses.

Collaborators for this long-term, multi-million dollar project include the Bureau of Land Management, Colorado State University, Idaho State University, multiple energy corporations, sportsmen's organizations, and Colorado Parks and Wildlife.

Historical Highlights of Mule Deer Research in the Piceance Basin

- The most intensively researched deer herd in Colorado and possibly the western U.S.
- Research efforts in the basin, located in northwestern Colorado, date back to the late 1940s.
- Objectives of the historical research were to enhance understanding of mule deer ecology and develop techniques to inform management decisions.
- Research and monitoring efforts since the 1970s suggest the population size has varied from about 11,000 to 35,000, with highs occurring during the mid 1970s and the lows during the mid 1990s. Current numbers appear to have increased slightly since the 1990s, but continue to occur in the lower range of historic levels, 11,000 to 16,000.
- Early research projects spanning the late 1940s – 1970s evaluated approaches to monitor mule deer population trends, the effects of livestock–deer competition and deer dietary needs.
- Mule deer are primarily browsers during winter, shift to grasses and forbs during spring, and use various shrubs, forbs and grasses the rest of the year.
- The most rigorous and extensive mortality study on mule deer populations in the West was conducted in the Piceance Basin during the 1980s.
- The 1980s research established that fawn survival rates declined when deer density increased. And, the study found that mortalities from predation were replaced by starvation following extensive predator control with no change in overall mortality rates.
- Additional research conducted from 1989 – 1992 assessed the effects of deer population densities on over-winter fawn survival. Researchers found that when adult harvest rates increased, reducing overall deer density, fawn survival increased.
- Research efforts in the Piceance Basin prior to the 1990s identified deer density as a major contributing factor to over-winter fawn survival rates if deer densities exceed forage availability on winter ranges.
 - Fawn survival decrease as deer populations increase if forage is limited.
 - This research suggests management strategies that maintain deer numbers below maximum densities that could be allowed based on forage availability will result in a healthier, more productive deer population allowing for increased hunting opportunities.
 - Research that began in 2008 in the Piceance Basin has suggested that energy development and habitat are not limiting the deer population in this area.